



**Master File on Polder 31 part**

Prepared By

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## Table of content

|     |   |    |
|-----|---|----|
|     | Acronyms                                    |    |
| 1   | Introduction                                | 1  |
| 1.1 | About the Master file                       |    |
| 1.2 | Objectives                                  | 2  |
| 1.3 | Process of data collection                  |    |
| 2   | Polders situation at a glance at Khulna     |    |
| 2.1 | All Polder in one Map                       | 3  |
| 2.2 | Map of polder 31part                        |    |
| 3   | Description of polder 31 part               | 8  |
| 3.1 | Geographical location                       |    |
| 3.2 | General statistics                          |    |
| a.  | Area  |    |
| b.  | Climate                                     |    |
| c.  | Natural Resource                            |    |
| d.  | Human resource                              | 9  |
| e.  | Village wise Population                     | 10 |
| f.  | Occupation                                  |    |
| g.  | Fuel using for Cooking                      |    |
| h.  | Source of Drinking Water                    |    |
| i.  | Sanitation                                  |    |
| j.  | Average HH Coasting expenditure line item   | 11 |
| k.  | Market Information                          | 12 |
| l.  | Distance from Gaowghora hat to other market | 13 |
| m.  | Average HH Picture                          | 13 |
| n.  | Agri Machinery                              | 14 |
| 3   | General information                         | 15 |
| a   | Crop  | 15 |
|     | Cropping Pattern                            | 16 |
| b   | Fisheries                                   | 19 |
| c.  | Livestock                                   |    |
| l   |   |    |
| 5.1 | Agriculture                                 | 28 |
| a   | Input market                                | 28 |
| b   | Production Situation                        | 29 |

|      |   |    |
|------|---|----|
| c    | Output market                                       |    |
| 5.2  | Natural Resources and Environment                   |    |
| a    | Water resource                                      |    |
| b    | Human Resource                                      | 33 |
| c    | Overview of Human Resource                          |    |
| d    | Labour in Agriculture Sector                        |    |
| e    | Key issue in Labor Sector                           |    |
| f    | Educational Situation                               |    |
| g    | Land ownership                                      |    |
| i    | Average Household Land Size                         | 34 |
| j    | Household main income source                        | 34 |
| 6.1  | Physical Infrastructure                             | 38 |
| 7    | Land Utilization under different water use practice | 39 |
| 8    | Crop Calendar                                       | 42 |
| 9.1  | Farmers Category                                    | 43 |
| 9.2  | Household Income from Agri. Activity                | 43 |
| 10   | Production Area                                     | 43 |
| 11   | Average Production and Gap                          | 44 |
| 12   | Land type   | 44 |
| 13   | Output market information                           | 45 |
| i.   | Use of Market                                       |    |
| ii.  | Presence of Fariya, Bapari and Agent                |    |
| iii. | Price Difference                                    |    |
| iv.  | Market Hierarchy                                    | 46 |
| v.   | Product Sold in Polder markets                      |    |
| 14   | Livestock & Poultry                                 |    |
| I    | Input market information                            |    |
| ii   | Production situation                                |    |
| iii  | Output market information                           |    |
| iv   | Local Paravet                                       |    |
| 15   | SWOT analysis of polder                             | 50 |
| 16.  | Connectivity  | 51 |
| a.   | Mode and Cost of Transportation                     | 52 |
| b.   | Mobile Coverage                                     |    |
| c.   | Market Information                                  |    |

|      |   |         |
|------|---|---------|
| d.   | E- Money transaction                              |         |
| 17.  | Access to finance                                 |         |
| 18.  | Gender  | 53      |
| 18.1 | Role of Man & Women in agriculture                |         |
| 18.2 | Potential IGA for Women                           |         |
| 19.  | Collective Action Issue                           | 55      |
| 20.  | Available Institutional Support                   | 56      |
| 21   | Potential Value chain List                        | 57      |
| 22   | VC identification                                 | 58      |
| 22.1 | VC selection scoring Information                  | 59      |
| 22.2 | Opportunity and Constrain of selected Value Chain | 78      |
| 22.3 | Potential VC map                                  |         |
| 24.  | Conclusion  |         |
| 25.  | Annex   |         |
| a    | Different actors from Polder                      | 31 part |
| b    | Some Map of polder                                |         |

## 1. Introduction

The Blue Gold Program establishes and empowers community organizations to sustainably manage their water resources and based on their priorities, delivers the services for which those community organizations have expressed a demand.

Overall objective of the Program is:

“To reduce poverty by creating a safe living environment and a sustainable socio-economic development for 150,000 household living on the 160,000 ha of polders.”

### 1.1 About the master file

Master file is an official document of Blue Gold Program. It contains all polder related information's which can be used for any source of information. All Blue Gold people can use the master file for their activities and it will be help to clear Component – 4 modes of activities.

The purpose of this master file is to provide all the necessary information for the polder 31 part to design component-04 strategy including polder development plan (PDP), Value chain identification, analysis and value chain development considering the local context. This master file provides a sound understanding the opportunities and existing practice of the producers, HHs present status, production system, input and output market situation, infrastructures, communications, geographical location, human resources, value chain actors and their function in practice, identify the weakness of the services, scope for strengthening in the system at the polder area in a win-win situation. This master file will enable component-04 to design a program in which an optimal combination of quick wins and longer term interventions are combined.

## 1.2 Objective

- Prepare master file a Source of information.
- Any Blue Gold people can know about Component – 4 activities.
- If Polder development plan need any clarification then Master file will solve the understanding clearly.

## 1.3 Data collection process

- Key Informant Interview (KII)
- Focus Group Discussion (FGD)
- Secondary data like- DAE, DLS, DOF, Union Parisad etc reports.
- Field observation.
- Market visit and Validation of collected information from relevant sources.

## 2. Polders situation at a glance at Khulna

In Khulna around 20 Polder had been established in 1960-1970 by Water Development Board.

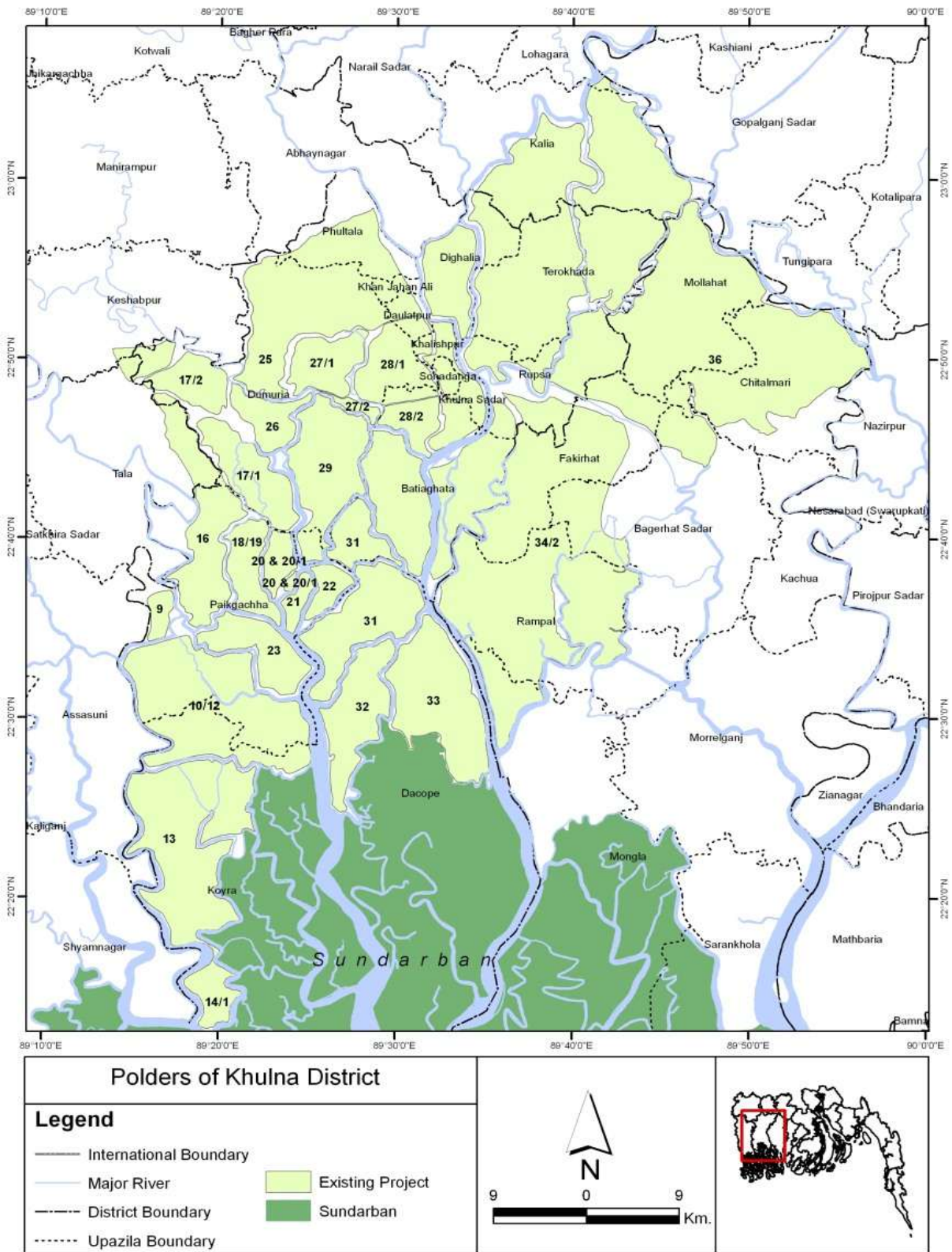
| Polder No. | Upazila              | Gross Area | Net Area | No. OF WMA | No. Of WMG | Regulator | Flashin g Inlet | Drain Channel |
|------------|----------------------|------------|----------|------------|------------|-----------|-----------------|---------------|
| 22         | Paikgacha            | 1630       | 1417     | 1          | 12         | 4         | 48              | 0             |
| 30         | Batiaghata           | 6396       | 4048     | 1          | 41         | 21        | 3               | 37            |
| 31 Part    | Batiaghata           | 3100       | 3100     | -          | 14         | 9         | 2               | 29            |
| 29         | Batiaghata & Dumuria | 8218       | 6570     | 2          | 56         | 13        | 11              | 20            |
| 26         | Dumuria              | 2696       | 2100     | -          | -          | 4         | 0               | 18            |

Source: Blue Gold Program Document.

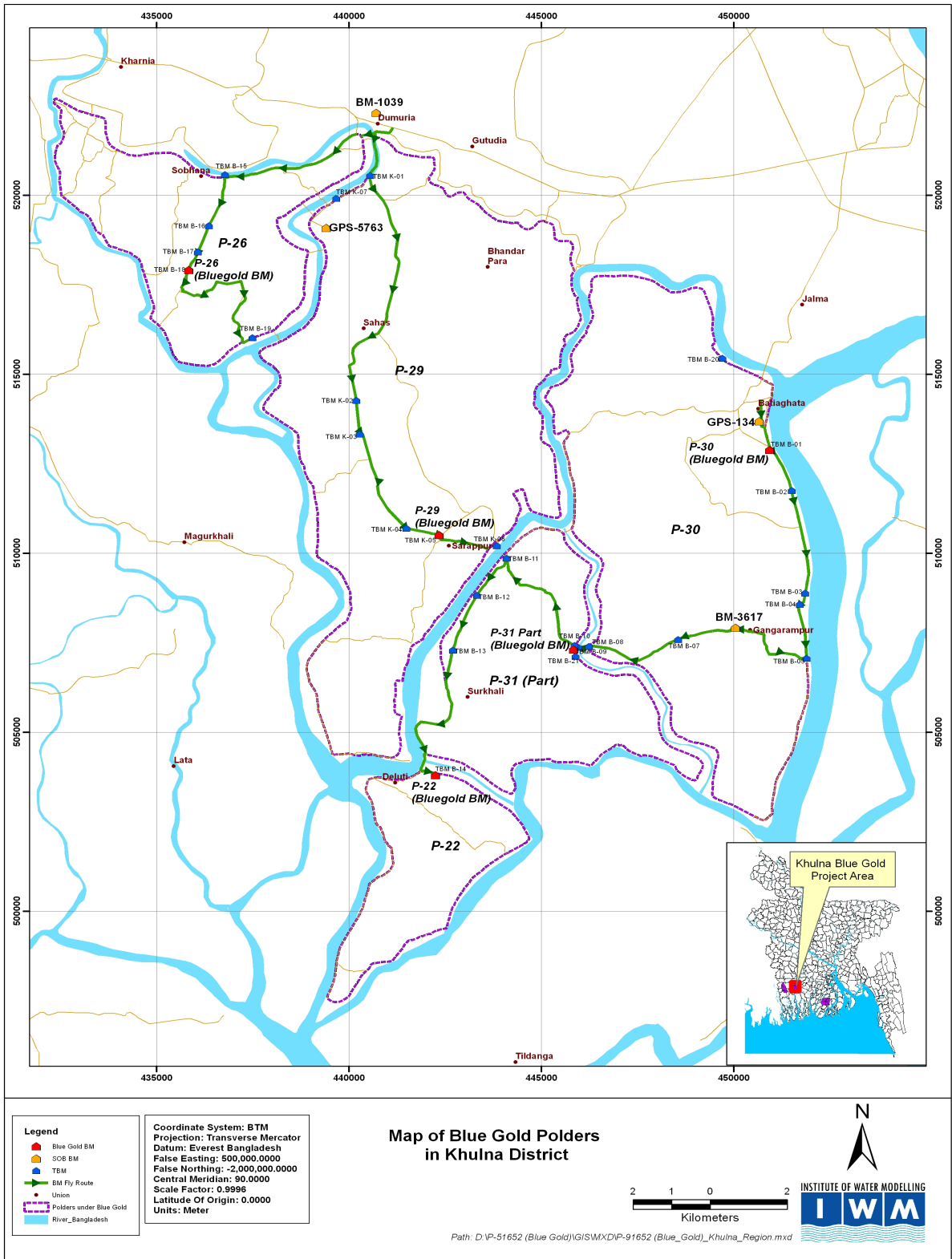
While these have contributed significantly in enhancing food production in the initial decades, they are now gripped in second generation problems, both social and environmental. Major problems are.....

- Siltation of river and Canals
- Weck Drainage
- Water logging
- Soil and Water salinity
- Land use conflict

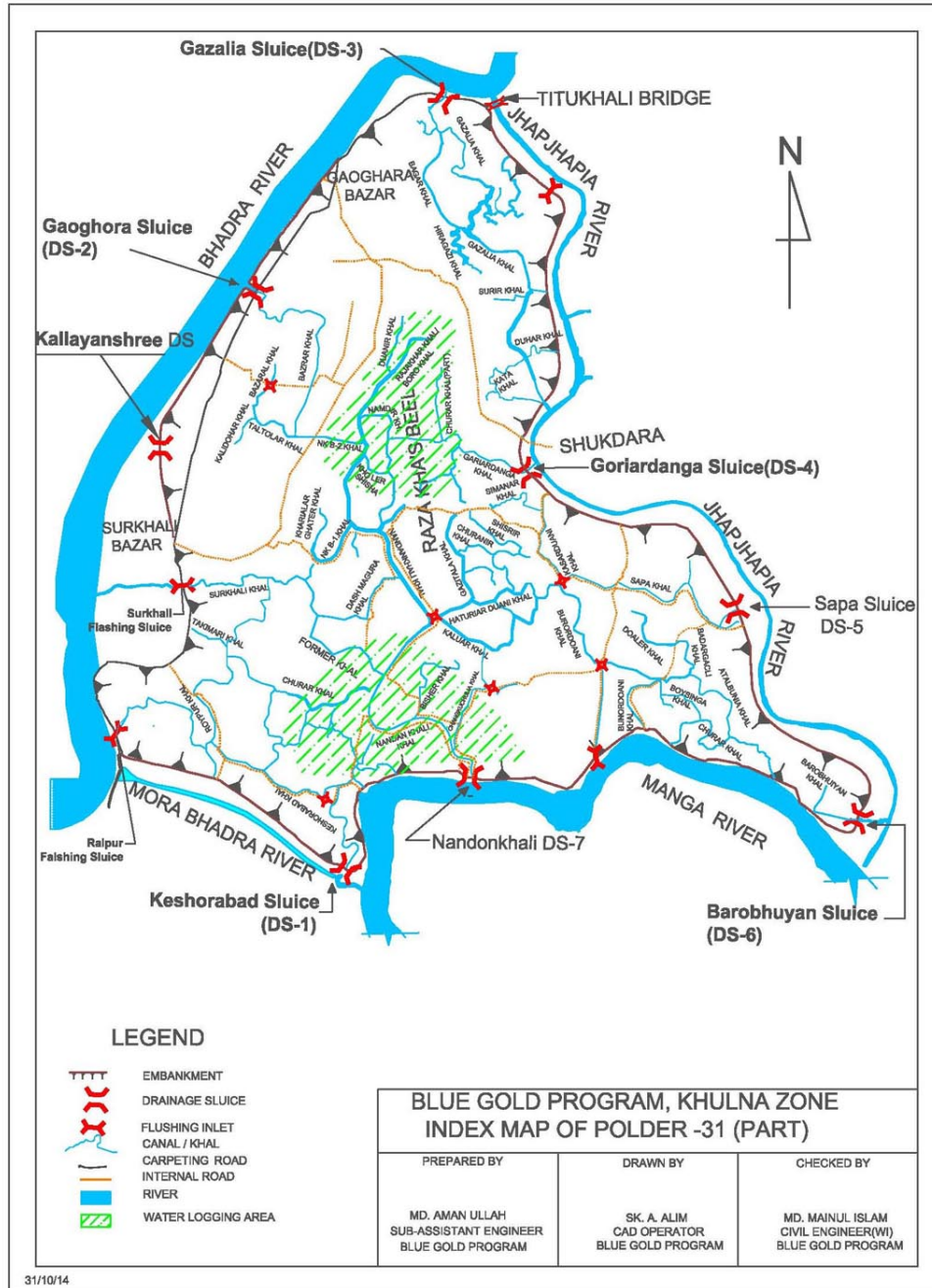
## 2.1 All Polder in one Map

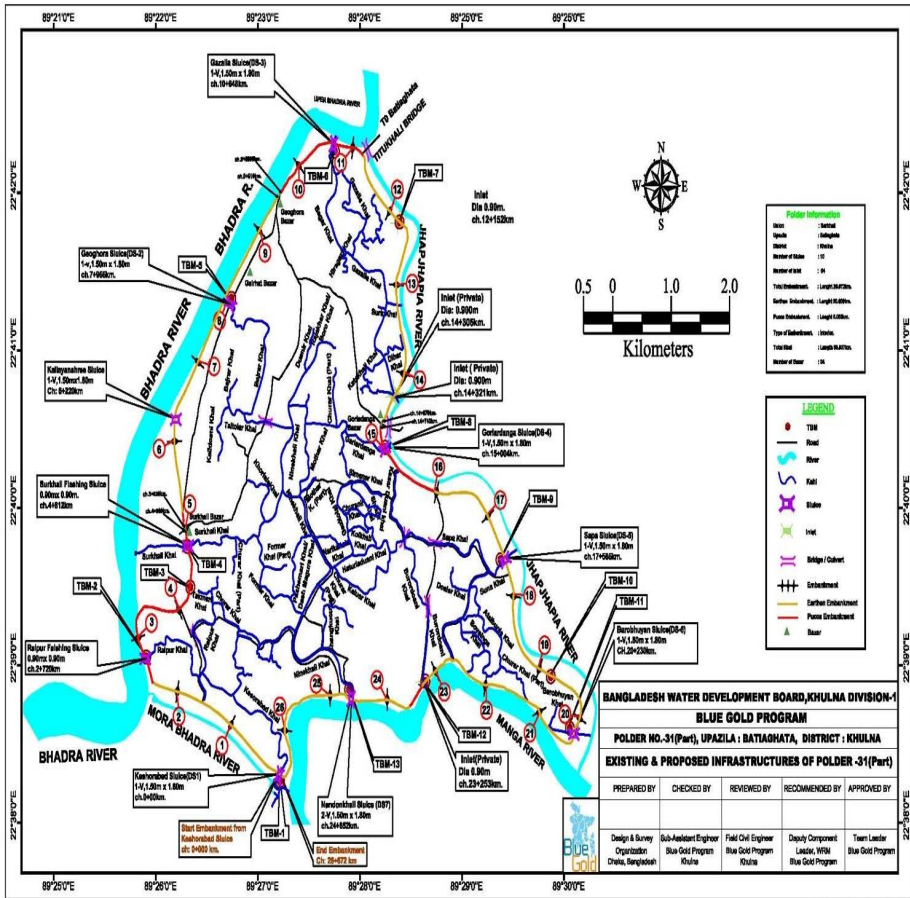






## 2.2 Map of Polder 31 part





Date of Submission: September 2014

### 3. Description of polder 31 part

#### 3.1 Geographical location

Polder 31 part is one of nine polders belonging to the District of Khulna under Batighata Upazila. Polder 31 part is situated in Surkhali union. Surkhali union has 35 mouza which is equal 30 villages and polder Surkhali contains only 14 villages. It is 15 km from Batiyaghata upazila head quarter and 27 km from Khulna divisional Head quarter. The Surkhali union is divided into three Polder. The polder north and northwest side is surrounded by Bhadra, Part of Northwest is Mora Bhadra, Northeast and south are Manga river and West is by Jhaphapia river.

Catchment area:

7 catchment area may be polder 31 part. Component 1 and component 2 till now not final the catchment area.

#### 3.1 General statistics

A. Area:

The polder 31 part has gross protected area about 3100 ha and cultivable land around 3100 ha, embankment length is 28 Km, regulator 09 nos, Flashing inlet 02 nos, drain channel 31.50 km.

B. Climate:

Polder 31 part is humid during summer and pleasant in winter. Polder 31 part has an annual average temperature of 26.3 °C (79.4 °F) and monthly means varying between 12.4 °C (54.3 °F) in January and 34.3 °C (93.7 °F) in May. Annual average rainfall is 1809.4 millimeters (71.2 in). Approximately 87% of the annual average rainfall occurs between May and October.

C. Natural Resource:

Land and water: Total land area is 3100 hectares and among those net cultivable area is 3100 hectares is cultivable in the polder area [Source-BG Program Document]. People drinking rain water and pond water but salinity problem is acute during winter (February to May). Therefore, some villagers purchase pure drinking water from Gaoghora village.

Water suppliers sell water 25 to 30 liter for 20 taka. It depends on distance and road infrastructure.

D. Human resource:

|                        |       |   |
|------------------------|-------|---|
| <b>Topic</b>           |       |   |
| <b>Number of HH</b>    | 5196  | Number                                    |
| <b>Total Ares</b>      |       | Hectares                                  |
| <b>Cultivable area</b> | 3100  | Hectares                                  |
| <b>Literacy Rate</b>   | 44.72 | Percent                                   |
| <b>Total Road</b>      | 51 km | Earthern-29 km, Brick-12 km, Pucca- 10 km |
| <b>Road density</b>    | 0.010 | Road length per ha                        |

Source: Khulna.gov.bd

Access to electricity :

Polder 31part is under rural electrification network. However 9.83% of the dwelling households have access to electricity.

Sources of drinking water :

Tube-well 90.70%, pond 3.48%, tap 4.09% and others 1.73%. The presence of arsenic has been detected in shallow tube-well water of this polder.

Sanitation:

52.37% (rural 85.73% and urban 50.52%) of dwelling households of the polder use sanitary latrines and 42.33% (urban 10.15% and rural 44.125%) of dwelling houses use non-sanitary latrines; 5.29% of households do not have latrine facilities.

Heath centers:

Satellite clinic 1, family planning centre 1.

E. Village wise Population:

| Sl.# | Village Name          | No. of HH |
|------|-----------------------|-----------|
| 1    | Bunarabad Moddo para  | 1293      |
| 2    | Nondonkhali           | 321       |
| 3    | Barovuiha             | 233       |
| 4    | Sapa-Barovuhia        | 199       |
| 5    | Surkhali-Takimari     | 290       |
| 6    | Vogobotipur           | 207       |
| 7    | Chardanga             | 210       |
| 8    | Chender Dannga        | 376       |
| 9    | Chotrobila –Khorial   | 297       |
| 10   | Gowghora Moddho para  | 250       |
| 11   | Raliya Raypur         | 267       |
| 12   | Raypur                | 317       |
| 13   | Kollan Sree           | 360       |
| 14   | Bunarabad-Goriardanga | 326       |
| 15   | Gayer Hat- Purbo para | 250       |
|      |                       | 5196      |

Source: draft data collected by LF

F. Occupation:

|                                     | HH Main Source of Income | %    |
|-------------------------------------|--------------------------|------|
| <b>Household main income source</b> | Agriculture              | 37.1 |
|                                     | Fisheries                | 5.8  |
|                                     | Poultry                  | 1.1  |
|                                     | Agriculture Labour       | 21.5 |
|                                     | Non-agriculture Labour   | 16.1 |
|                                     | Business                 | 6.5  |
|                                     | Service                  | 4.5  |
|                                     | Self employment          | 2.1  |
|                                     | Handicrafts              | 0.2  |
|                                     | Transport                | 4.5  |
|                                     | Begging                  | 0.2  |
|                                     | Others                   | 0.4  |
|                                     | Total HH                 | 100% |

Source: Component-1 HH Survey draft data

G. Average HH expenditure Line item

| <b>Sl.#</b> | <b>Costing Head</b>                        | <b>%</b> |
|-------------|--|----------|
| 1           | Food and Beverage                          | 62.96    |
| 2           | Clothing and Footwear                      | 6.88     |
| 3           | Gross rent, Fuel & Lighting                | 14.69    |
| 4           | Furniture, Household Equipment & Operation | 2.7      |
| 5           | Medical care and health expenses           | 2.79     |
| 6           | Transportation & Communication             | 2.98     |
| 7           | Education, Recreation & cultural Services  | 3.2      |
| 8           | Miscellaneous Goods and Services           | 3.8      |
|             | Total                                      | 100      |

Source: KII

#### H. Market Information:

| Name of the Hat                            |                   | Surkhali Hat               | Gayer Hat                  | Gaowghara bazar      |
|--|-------------------|----------------------------|----------------------------|----------------------|
| Foundation Year                            |                   | 1840                       | 1910                       | 1997                 |
| Village                                    |                   | Surkhali                   | Gaowghara                  | Gaowghara            |
| Post Office                                |                   | Surkhali                   | Surkhali                   | Surkhali             |
| Union                                      |                   | Surkhali                   | Surkhali                   | Surkhali             |
| Market Type                                |                   | Primary/<br>Retailer       | Primary/<br>Retailer       | Primary/<br>Retailer |
| Total Market Area (Decimal)                | Govt. Covered     | 200                        | 8                          | 40                   |
|  | Govt. Open        | 50                         | 2                          | 60                   |
|  | Total(A)          | 250                        | 10                         | 100                  |
|  | Pvt. Covered      | 10                         | 10                         | 15                   |
|  | Pvt. Open         | 10                         | 5                          | 5                    |
|  | Total( B)         | 20                         | 15                         | 20                   |
|  | Grand Total (A+B) | 270                        | 25                         | 120                  |
| Number of stalls,sheds & Shed area(in SFT) | Shed No.          |                            |                            |                      |
|  | Shed Area         |                            |                            |                      |
|  | Agri stall        | 15                         | 25                         | 25                   |
|  | Non-agri          | 30                         | 17                         | 15                   |
| Hat days & timing                          |                   | Daily, Sun,<br>Tues(2-6pm) | Daily, Sat,<br>Tues(2-6pm) | Daily(7-11am)        |

Source: DAM & KII



### i. Distance from Gaoghora Hat to Other markets:

Gaoghora Hat is an important area in polder area. This area is the most important market for Polder dwellers round the year. All types of major economic activities have done on the base of this market. It is also important for communication to inside and outside polder area. There is a Motorcycle stand and also Nosimon and Van stand.

| Sl# | From     | To         | Distance(Km) | Remarks |
|-----|----------|------------|--------------|---------|
| 1   | Surkhali | Baroaria   | 3            |         |
| 2   | Surkhali | Mailmara   | 8            |         |
| 3   | Surkhali | Batiaghata | 15           |         |
| 4   | Surkhali | Sukdara    | 6            |         |
| 5   | Surkhali | Fulbari    | 3            |         |
| 6   | Surkhali | Khulna     | 27           |         |
| 7   | Surkhali | Gaowghora  | 5            |         |
| 8   | Surkhali | Gayer hat  | 6            |         |

### j. Average HH Picture

| Land Usage/Type            | Polder Number |                 | Remarks |
|----------------------------|---------------|-----------------|---------|
|                            | 31 part       |                 |         |
|                            | n             | Average Decimal |         |
| Household Land             |               | 121.5           |         |
| Homestead and fruit garden |               | 13.4            |         |
| Pond and Ditch             |               | 7.9             |         |
| Cultivable land            |               | 100.2           |         |

Observation:

- No of HH having 100.20 decimal cultivable land where they produce their main food T-Aman, Sesame and other field crops.
- Homestead land 13.4 decimal that means there is an opportunity for Drumstick and other fruits garden.

- ☑ Average pond and ditch area around 7.9 so there is an opportunity to culture commercial fish culture.

❖ **Comparison between Large farmer and Marginal Farmer**

| S<br>I.<br># | Income source                | Large Farmer |        | Marginal Farmer |        |
|--------------|------------------------------|--------------|--------|-----------------|--------|
|              |                              | Area         | Income | Area            | Income |
| 1            | Land size (Ha)               | 4.31         | 10000  | 0.80            | 2000   |
| 2            | Vegetable garden (Dec)       | 5            | 1000   | 2               | 400    |
| 3            | Pond size (Dec)              | 25           | 6000   | 5               | 200    |
| 4            | Scavenging bird/Poultry farm | 200-300      | 8000   | 4-5             | 200    |
| 5            | Others                       |              |        |                 | 2200   |
|              | Total                        |              | 25000  |                 | 5000   |

Source: KII

**I. Agricultural Machinery:**

In Polder 31 part there is 25 Power tiller. All the power tillers are private. In polder area at Gaoghora hat there are 2 workshops where light repairing and maintenance services are available. There are some parts or equipments also available for sale.

Usually power tiller light maintenance has done here but major maintenance like engine overhauling has done in Mailmara hat (Polder 30) or Khulna.

#### **4. General Description**

Surkhali Union is comprised of twenty two mouzas and thirty one villages having a total area of 4447 ha (BBS, 2001), of which the net cultivable land is 2490 ha (56% of total area of the union) and permanent fallow land 370 ha, temporary fallow land 42 ha, *khas* land are 320 ha. The number of farmer family is 4112 where about 26% are share croppers and different farmer's categories were marginal 525, small 1422, medium 1000, large 370 and landless 795 respectively. The area under irrigation is about 16% which indicates that agricultural practices under irrigated condition are not dominant in the union. Boro (HYV) is the main irrigated crop intensively cultivated using mainly surface water. The local people of

the union were reporting that, optimal yield of Boro (HYV) and other crop could be achieved if more irrigation facilities and necessary inputs like: quality seeds, fertilizers and pesticides/insecticides etc. are timely ensured and unplanned uses of land could be controlled by necessary mitigatory measures especially by introducing land zoning system in the union.

#### **Land Type Classification**

Land type is the dominant factor guiding choices of crop cultivation and cropping patterns of any area. Selection of the crops/cropping patterns largely depends on the topographic position of land in relation to seasonal inundation depth and its duration. The major land type of this union is medium highland (1668 ha on net cultivable land) followed by medium low land (572 ha) and high land (250 ha) which indicates that most of the land area is free from monsoon flooding hazards and is suitable for T. Aman paddy cultivation. The very small area of high land is not inundated by monsoon flooding but the medium high lands are inundated for 3-6 months at various depths not exceeding 120 cm.

#### **Soils**

The Surkhali union lies under Agro-ecological zone: Ganges Tidal Floodplain (AEZ-13). The soils are formed from clay-loam sediments of the rivers crossing this upazila and are seasonally flooded, poorly drained except soils of highland areas. In the dry season, the soils possess very low to high saline condition in some areas of the union. The soil pH ranges from 6.5-7.0 and soil salinity level ranges from 5-10 dS/m.

#### **Present Land Use**

The union is dominated by agricultural crops such as T. Aman (HYV/LIV), Boro (HYV), Aus (LIV), sesame and different kinds of Kharif-I vegetables which are mainly cultivated

under both of major rain fed and irrigated condition followed by betel leaf, fisheries and other activities. The present cropping intensity of this union is 162% which indicates that double cropped area covers maximum land than that of single and triple cropped areas respectively which are still low compared to other progressive parts of the country. This is due to unfavorable soil condition, land characteristics, and hazards like salinity, flood, water logging, post monsoon drainage congestion, scarcity of irrigation water, cyclonic storm surges etc.

The present cropping patterns of Surkhali Union are shown in the table.

#### Present Cropping Patterns of Surkhali Union (Area in ha)

| Total Area of the Union | Net Cultivable Area | Major Cropping Patterns                                | Area(ha) | % of NCA   |
|-------------------------|---------------------|--|----------|------------|
|                         |                     | Boro (HYV)-Fallow-T. Aman (HYV/LIV)                    | 372      | 12         |
|                         |                     | Boro (HYV)-Aus (LIV)-T. Aman (HYV/LIV)                 | 155      | 5          |
|                         |                     | Fallow-Sesame-T. Aman (HYV/LIV)                        | 465      | 15         |
|                         |                     | Fallow-Kharif vegetables-T. Aman (HYV/LIV)             | 310      | 10         |
|                         |                     | Fallow-Fallow-T. Aman (HYV/LIV)                        | 1085     | 35         |
|                         |                     | Fallow-Kharif vegetables -T. Aman (HYV/LIV)            | 465      | 15         |
|                         |                     | Fallow-Fisheries-T. Aman (HYV/LIV)                     | 93       | 3          |
|                         |                     | Shrimp (bagda) and white fish culture-T. Aman(HYV/LIV) | 155      | 5          |
|                         |                     | <b>Total</b>   |          | <b>100</b> |

In this union, T. Aman (HYV/LIV) is mainly cultivated depending on rainfall and sometimes supplemented by irrigation during September to October.

#### Major Problems with their Impacts and Management Practices for Improving Crop Cultivation

The union faces lots of problems like moderately to deep monsoon flooding which causes severe crop damage, encroachment of valuable agricultural land for different other uses, saline water intrusion, higher price, low quality and lack of different agricultural inputs, over doses of chemical fertilizers, pesticides/insecticides, scarcity of surface water for irrigation, siltation, water logging, inadequate drainage system, drainage congestion hampering timely cultivation of T. Aman paddy, essential plant nutrients deficiencies, lack of farmer's knowledge on update information and agricultural technology, unplanned shrimp *ghers*, brick fields etc. which restricts intensive agricultural practice of lands.

Due to siltation, the local rivers and canals had been losing their navigability causing scarcity of surface water in the area; □ Drainage congestion which exists for average of 4-5 months during rainy season, climate change and high salinity effect hampering timely cultivation of T. Aman (HYV/LIV) paddy in the medium high and medium low land area. Large number of seed beds of T. Aman (HYV/LIV) crop are damaged in almost every year due to drainage congestion created when there is heavy rainfall;

- ☑ Low productivity of major agricultural produces, low cropping intensity compared to other progressive parts of the country, risk of early flood, essential plant nutrients deficiencies, inadequate drainage system, lack of farmer's knowledge on update information and agricultural technology etc. are the common problems for restricting high value and proper crop cultivation in the union;
- ☑ Farmers unenthusiastic to adopt new technologies and not to maintained planned way production;
- ☑ Imbalance between fresh and saline water occurring and suffering from lack of fresh water, significant water area is affected by different waste and the quality of water used for washing produce is frequently questionable, in most cases risks of microbial contaminations are high;
- ☑ Use of untreated manures spread pathogens, residual effects of pesticides/insecticides, harvesting of produce too soon after pesticides application and in most cases pre-harvest intervals (PHI) period are not followed which causing harm on human health, ecology and the environment;
- ☑ Majority of the stakeholders are not yet convinced of the benefits of food safety standards, quality control of the produce;
- ☑ The bio-diversity, ecology and environmental degradation due to salinity intrusion, water logging, deforestation and unplanned shrimp *ghers* and brick fields (where applicable) are also common problems in the union.

#### Management Practices for Improving Crop Production

- ☑ Zoning of land considering its existing uses, physical and chemical characteristics and potentialities would help to control land degradation as well to ensure proper uses of land. The land zoning should be properly implemented and maintained through the enforcement of land zoning law and village improvement act as suggested by the different stakeholder groups and institutions. The land zoning law and village improvement act should be strictly implemented and monitored with the help of institutional arrangement as suggested in this report. The land zoning law will ensure that “under any circumstances no body will be allowed to change land classification and to use agricultural land for non-agricultural purposes”;

- ☑ Optimum land utilization by updated, improved and efficient land management system as per its physical and chemical characteristics. The high saline affected soils which are not suitable for Boro paddy and other rabi crops cultivation in some areas of the union, and hence need modern cultivation strategy and small size shrimp *ghers* management practices for environment friendly and high yielding shrimp production technology compared to China, Vietnam, India and Thailand in the rabi season and intensive cultivation of suitable crops by ensuring saline tolerant varieties;
- ☑ Promotion of high value agricultural crops to increase marginal, small and medium farmer's incomes through improved efficiency and value addition of high value crop production and thereby alleviate poverty by increasing rural income opportunities for the poor including women, and hence research needed on potentiality of high value crops (HVC) and crop variety development;
- ☑ Encourage and ensure women's participation in crop production and land management for empowering rural women in commercial agriculture activities;
- ☑ Protection of valuable agricultural land by increasing public awareness on land degradation and its proper and suitable management practices;
- ☑ Ensure both of surface and ground water irrigation with availability of necessary tools (i.e. LLPs, DTWs for multipurpose uses) and other support services in the local markets;
- ☑ Encourage Public-Private Partnership (PPP) for the development of effective marketing system for right prices of agricultural products for the producer;
- ☑ Ensure appropriate training on techniques of using balanced fertilizers, essential plant nutrients, irrigation water requirements, proper uses of pesticides/insecticides & bio-pesticides, proper post harvest handling, process of minimizing post harvest losses and applications of improved post harvest technologies, storage facility, Integrated Pest Management (IPM) and Integrated Crop Management (ICM) activities, handling of modern agricultural machineries/equipments, locally seed production and storage technology and other crucial issues for sustainable economic development with Good Agricultural Practice (GAP);
- ☑ Opportunity to reducing losses of the produced by start with good quality produces, avoid physical damage, control environmental factors, use proper, simple and inexpensive procedure;
- ☑ Careful harvesting, handling and proper Sanitary and Phyto-Sanitary (SPS) practices are the prerequisite for assuring quality & safety of the agricultural produce;
- ☑ Need for demarcation of polluted and non-polluted zone and introduce proper waste management procedure with own waste disposal methods and farmers will have to be trained on environmental impact of farm wastes;

- ☑ Different wastes may be converted into valuable assets like biogas, electricity and organic manure to boost up agricultural production and hence the local government may also take initiative in a large scale to dispose waste for union-based biogas production;
- ☑ In order to ensure an environment-friendly agricultural production, different types of waste should be properly disposed off and in doing so preparation of compost and biogas will be very useful;
- ☑ Regarding residual effects of pesticides/insecticides, awareness and recognition program is necessary for mitigation and improvement;
- ☑ Encourage farmers to use organic manure/compost, bio-pesticides instead of using chemical inputs;
- ☑ Enhancing coping capacity of the local people for facing climate change impacts;
- ☑ Needed more cyclone shelters with easy access and construction in the proper places without degrading fertile agricultural lands;
- ☑ Strengthen institutional capacity in the agriculture sector through need based training and demonstration.

## Fisheries Section

### **Wetland Distribution**

The union has a total wetland area of 2025.57 hectare, of which 1540.47 hectare under aquaculture. Aquaculture comprises of 33 hectare as homestead fish culture, 830 hectare is under commercial fish, 236.48 hectare is under prawn culture in paddy field and 440.99 hectare are under shrimp culture. The open water fisheries consist of river, canal & floodplain with a water area of 485.1 hectare

### **The Open Water Fisheries**

Wetlands are among the most fertile and productive ecosystem that support the life cycle of different fauna and floral resources of an area. The prime uses of wetlands are fisheries, aquatic vegetation and navigation. The union is enriched with open water fisheries which are available in the rivers, khals and floodplain. The open water fisheries commonly found in the areas are:

*Anabas testudineus* (koi), *Clarias batrachus* (magur), *Heteropneustes fossilis* (sing), *Channa punctatus* (taki), *Ompok pabda*. (pabda), *Mystus tengra* (tengra), *Notopterus notopterus* (foli), *Glossogobius giuris*(baila), *Gadusia chapra* (chapila), *Chanda ranga* (chanda), *Colisa* sp. (kholisha), *Chana striatus* (shoal), *Salmostoma phulo* (chela), *Amblypharyngodon mola* (mola) and small indigenous fish like *P. sarana* (raj punti), *Mastacembalus* spp. (baim), *M. gulio* (gulsha), *Nadus nandus* (raina), *Ailia coila* (bashpata),

*Xenentodon cancila* (kakila) etc. Once a large number of *W. atto* (boal), *Labeo rohita* (rui) was available in this union but now those are not available. It is very alarming that these open water fisheries are now under threat due to different man-made causes and natural hazards.

### **Major Problems and Suggested Measures for Fisheries Development**

The union has lots of problem which are restricting expansion and developments of both capture and culture fisheries in the area. It is very alarming that these open water fisheries are now under threat due to different man-made causes and natural hazards. The different problems of fisheries and their suggested measures for development are mentioned below:

#### **Problems in Open Water Fisheries**

The local people identified the following problems during consultation with them:

- Indiscriminate using of destructive fishing gears like estuarine set bag net, current net in the open water are decreasing the sustainability of open water fisheries;
- Depletion of wild fish populations;
- Over population is creating extra pressure on fisheries;
- Immature fish harvesting is a very common practice from both estuary and open water;
- Complicated process of issuing fishing licenses;
- Over exploitation of high valued and traditional species;
- Non-traditional species are under threat;
- Harvesting of mud crab without considering size;
- Absence of proper management practices of open water areas;
- Huge numbers of people are involved in harvesting of prawn pl from the open water that killed pl of other fisheries species;
- Unplanned constructions of roads, sluice gate, embankment and cross-dam etc are decreasing open water fisheries production;
- Silt deposited in lower stream produced obstacles of migration;
- River side embankments are reducing flooding frequency;
- Extensive use of agro-pesticides, chemicals etc. have negative impacts on fisheries.

#### **Causes of Fisheries Reduction**

Local people believed that the fading of small native fish and large capture fishes are due to decline of wetlands and obstruction of water flow in the rivers. The major causes of fisheries reduction are:



- ☑ Unplanned construction of roads, flood protection embankments and settlements are creating barriers water way which finally closed the natural flow of water. These unplanned interventions prevented migration of fishes to the floodplain for spawning & nursing and vice versa;
- ☑ Silt deposited in lower stream made obstacles to migration which ultimately is reducing breeding ground;

## **Open Water Fish Species**

### **Fish Harvesting from the Open Water**

- ☑ River side embankments restrict water to over spill in the floodplain and migration of fishes in open water;
- ☑ The connected canal is captured by the land grabbers of the area. The land grabbers are politically so powerful that nobody can stop them from engulfing the canal. To accommodate increased population; the settlements are increasing in floodplain which in course of time reduced wetlands. The roads are constructing without considering its ecological impacts. The construction of village road is done without any plan which is responsible for the restriction of water bodies;
- ☑ Extensive use of agro-pesticides and chemical fertilizers without proper dosages. Residual agro pesticides poisoned the fishes of floodplain which hamper to spawning and in this way the indigenous species are faded away in day by day;
- ☑ **Wetlands Declined Due to Irrigation:** Irrigation facilitated high yielding crops but it causes huge loss to the indigenous fish species and biodiversity. Perennial water bodies or poorly drained areas are over extracted to irrigate agriculture land, which resulted the decrease of the size of wetlands and declined the production of small indigenous fishes;
- ☑ Silt deposited in river mouths limited migration of fishes to upstream.

### **Suggested Measures for Open Water Fisheries Development**

The following measures have been suggested for the development of open water fisheries:

- ☑ All fishing vessel must have licenses;
- ☑ Use of destructive gear must be prohibited;
- ☑ Restriction on mesh size of gear must be introduced to harvest mud crab;
- ☑ Before construction of embankment, road etc. its impacts on fisheries, other aquatic fauna and flora should be assessed properly;
- ☑ Housing construction in the floodplain should be prohibited;

- ☑ Excavation of the canals and rivers which are connected to the floodplain should be done through a local social committee and related department to ensure the accuracy of work;
- ☑ Fine mesh net, especially use of so called current net must be stopped by creating a social movement;
- ☑ A common resource user's committee may be formed under the guidance of fisheries department to manage the floodplain fisheries and other open water fisheries;
- ☑ Training on culture of fishes in floodplain area may be introduced in this union;
- ☑ Over extraction of water from natural wetlands for any purpose must be prohibited;
- ☑ Formulation of land zoning and its implementation is an immediate necessity;
- ☑ The re-excavation of rivers of upstream to increase water flow is an urgent need;
- ☑ Conservation strategy for red listed fishes should be developed;
- ☑ The future impacts and consequences of construction of any infrastructures on open water fisheries should be assessed;
- ☑ Provision for fish passes should be kept at vital points during construction of roads, sluice gate cross dam and embankments etc.;
- ☑ The extensive use of fine mesh size nets like current net is responsible for open water fisheries destruction, which must be prohibited;
- ☑ Alternative income generating activities must be introduced for fishermen;
- ☑ Poor management practices in open water fisheries should be developed;
- ☑ Use of destructive fishing gears must be prohibited;
- ☑ A proper management plan should be developed for open water fisheries;
- ☑ Silt deposited in river mouths which limits migration of fishes to upstream should be removed;
- ☑ Prohibition law on prawn/fish post larvae collection should be implemented properly.

### **Culture Fisheries Situation in the Union Carp Culture**

Homestead pond culture, small scale commercial culture and large scale commercial culture were found in this union. Major native culture species are: rui (*Labeo rohita*), catla (*Catla catla*), mrigal (*Cirrhina mrigala*) and exotic fishes tilapia (*T. nilotica*), grass carp (*Ctenopharyngodon idella*), silver carp (*Hypophthalmichthys molitrix*), big head (*Hypophthalmichthys nobilis*) etc. Sometimes, the methods of culture are modified according to consumer's needs and requirements that may be called as converted or localized semi-intensive culture methods adopted by the local people for the fish culture. The different problems of culture fisheries and their suggested measures for development are mentioned below:

### **Problems in Carp Culture**

The local people identified the following problems during consultation with them:

- ☑ Sometimes the rate of mortality of the fries become very high;
- ☑ The undersized fishes are using for spawning in the private hatcheries;
- ☑ The selection of fry for culture is not done in proper way;
- ☑ Higher prices of fish feed discouraging fish culture.
- ☑ Brood fish of SIS is being caught indiscriminately;
- ☑ The small indigenous fishes found in less quantity in comparison to the last 10 years;
- ☑ Frequency of flooding and depth of flooding is decreasing fish culture interest of the farmers;
- ☑ Migratory routes of fishes are facing obstacles which are hampering fish breeding;
- ☑ Perennial water bodies are reducing due to falling of existing ground water level and land conversion;
- ☑ Expansion of HYV rice cultivation had created problems in culture fisheries.

### **Suggested Measures for Carp Culture Development**

The following measures have been suggested for the development of carp culture fisheries:

- ☑ The government should come forward with a solution of inbreeding problem through developing an effective monitoring system in the hatcheries;
- ☑ Training on fish culture by using modern tools and techniques;
- ☑ High communication of sharing and dissemination of information about disease prevention and control should be developed;
- ☑ Need based development of infrastructures should be ensured;
- ☑ Proper disposal of diseased animals should be developed to control outbreak of diseases;
- ☑ Proper sized fries should be supplied by the hatcheries;
- ☑ Ensuring certificate by the hatchery owners that they are spawning by using the proper sized broods;
- ☑ The prices of fish feeds and fries should be reasonable in the local markets for the fish farmers;
- ☑ The quality of feeds must be maintained.

### **Galda Mixed with Carp Culture (*Machrobrahium rosenbergii*)**

Galda has been culturing in this union from the last few years which is increasing day by day. The single-cropped paddy field or the beel areas are generally used for galda

culture. A canal is dug in the outer side of land, the dug soils are used as a dyke. Canal is dug in such a way that it covers 20- 25% of the total area of the cultured land. This canal is locally called as **Harvested Prawn (Galda)**

“per”/ “top”/ “drain” which are used for stocking the post larvae. The poor growth post larvae are also stocked here for nourishing which could be used for the next year. The over wintered prawn are called pieces. Prawn culture started from Bangla month of „Baishakh“ and started harvesting after four to six months. Initially they harvest the over wintered prawn. The density of post larvae depends on the skill ness of the farmers, which usually varies from 4000-10000 per acre. Feeds used are locally marketed prawn pellet feed, meat of fresh water snail (*Pila globosa*), rice bran, boiled rice and polished rice bran etc.

### **Problems in Galda Culture**

The local people identified the following problems during consultation with them:

- Both viral and non-viral diseases are creating vicious hazard in the prawn culture. In the farm, the prawn is usually attacked by the bacterial disease like appendage loosing. Diseases are also creating severe problems for the fry and juvenile of prawns;
- Export of prawn is delayed or prohibition on export is causing low prices of the product that affecting either expansion or continuing culture of prawn;
- Improper disposal of diseased prawn spreading the diseases in the adjacent farms;
- Marketing facilities are not well developed for the fish farmers;
- Multi ownership of land pond/land is discouraging for prawn culture.
- Poaching of prawn is a common practice, the poacher usually use a medicine in the pond so that the prawn gathered in a corner of the pond and they can easily enmesh the prawn in night;
- Poor infrastructural facilities is a major constraint in prawn production;
- Quality of hatchery produced post larvae are poor than that of natural sources;
- Scarcity of prawn post larvae in this area during peak stocking season because the period of availability of PL is short, so the farmers have to purchase the post larvae at high prices;
- Smooth supply of ice during harvesting of galda should be ensured;
- Sometimes undersized and under aged fries are supplying from hatcheries to the farmers;
- Supply of resemble post larvae (chatka) instead of *M. rosenbergii* are destroying many of the farmers;
- The incidence of disease in the post larvae produced by the hatcheries are higher than that of natural source;

- ☑ The majority of the farms have no or weak water management facilities which results in out break of diseases;
- ☑ The prawn hatcheries are emerging developed industries, the scarcities of skilled man power is a regular scenario in this sector, there is no institution either in Govt. or in private sector for the development of skilled manpower;
- ☑ Training facilities are insufficient for culture methods and disease control of prawn;
- ☑ Transportation facilities of post larvae by road is very poor and limited oxygen supply is the main problem for post larvae transportation;

### **Suggested Measures**

The local people and farmers suggested some measures to solve the above mentioned problems which are summarized below:

- ☑ Need to raise awareness among farmers to nurse and to strengthen the nursery sector for rearing PL from *nauplii* and juveniles from PL;
- ☑ The government should come forward with a solution of inbreed problems through developing an effective monitoring system in the hatcheries;
- ☑ Training on prawn culture by using modern tools and techniques should be ensured;
- ☑ High communication of sharing and dissemination of information about disease prevention and control should be developed;
- ☑ Need based development of infrastructural facilities should be established;
- ☑ Proper disposal of diseased pl or prawn should be developed to check outbreak of diseases;
- ☑ Proper sized pl should be supplied by the hatcheries;
- ☑ Ensuring certificate by the hatchery owners that they are spawning by using the proper sized prawn;
- ☑ The price of prawn feed feeds should be reasonable in the markets for the farmers;
- ☑ The quality of feeds must be maintained;
- ☑ Preservation facilities should be ensured.

### **Shrimp Culture (Bagda)**

The union comprises of about 202.67 ha area under shrimp culture which is contributing a lot of benefits to the socio-economic development of the people. This promising sector is facing many problems in its expansion and development. The major problems with their development options are mentioned below:

### **Problem in Shrimp Culture**

- ☑ Advisory forces are not well equipped with appropriate knowledge;
- ☑ Continuous culture converted land into less fertile and easily susceptible to disease;
- ☑ Lack of quality shrimp feeds;
- ☑ Lease money of landowners was not justified;
- ☑ Low production rates of shrimp because of ponds are generally unmanageably large and have irregular shapes, uneven bottoms, shallow depths, inadequate and leaky sluices and inadequate water supply and drainage networks.
- ☑ Mortality of post larvae produced in hatcheries is high;
- ☑ Poor water management leads to susceptible to disease;
- ☑ Successive loss of production in last few years made farmers frustrated;
- ☑ Trained work force did not develop to meet crisis period;
- ☑ White spot diseases of shrimp destroy the culture trend;

### **Suggested Measures for Shrimp Culture Development**

The following measures have been suggested for the development of shrimp culture:

- ☑ Alternative cropping should introduce to keep land fertile and disease free;
- ☑ Cold storage or processing factories can be developed;
- ☑ Harvesting of mud crab without considering size should be checked;
- ☑ Hatchery produced post larvae must have disinfected certificate from either govt. or association;
- ☑ Preventive measures for disease must develop;
- ☑ Prohibition law on shrimp post larvae collection should implement properly;
- ☑ Proper percentage of protein in the feed must ensure;
- ☑ Reduction of large ponds into easily manageable small units,
- ☑ Shrimp feed price must be in reduction price, for this subsidy to feed factory may be introduced;
- ☑ Shrimp feed quality must be ensured;
- ☑ The land owners of each area should form one or more association (s) and develop the ponds as an integrated complex with common water supply and drainage canals.
- ☑ Training on disease control for farmer is necessary;
- ☑ Water management should be done properly.

### **Harvested Shrimp for Marketing Shrimp Gher Area Marketing Issue**

The following marketing issues have been identified in the fisheries sector:

- ☑ Marketing and transportation facilities are not well developed;
- ☑ During peak season, harvesting of floodplain or open water fisheries becomes very high but in relation to that the supply of ice is very limited which damage fish/prawn;
- ☑ Small farmers do not get actual prices of their products because they can not sell their products to the factory directly;
- ☑ Extension services or credit facilities are insufficient for the small vendor for marketing practice;
- ☑ Fish/prawn culture cost is higher than that of whole sale market price;
- ☑ Fish/prawn farmers are paying illegal tolls during transportation of fish to the wholesale market;
- ☑ The high rate of fish feeds discouraging fish/prawn culture to the farmers;
- ☑ Huge amount of post harvest fish/prawn spoilage occurs due to lack of proper knowledge on handling, processing and preservation.

### **Recommendations**

The local people and fish farmers suggested the following measures to solve the above mentioned problems which are summarized below:

- ☑ Collection of illegal tolls should be stopped;
- ☑ Credit facilities for organized marketing practice should be developed;
- ☑ Credit facilities should be ensured for small traders without collateral, proper ice box;
- ☑ Ensuring good marketing facilities for the fish/prawn farmers.
- ☑ Establishment of fisheries landing centre is important for ensuring well marketing;
- ☑ Fish/prawn feeds rate must be reduced or government should provide subsidy to fish feed industries;
- ☑ Modern ice factory should be developed;
- ☑ Provision of subsidies might be kept in case of huge loss of the fish/prawn farmers;
- ☑ Brood banks for Galda might be established to ensure healthy and pure post larvae in this union or upazila head-quarter;
- ☑ Relevant law should be formulated for the hatcheries owners mentioning that they have genuine certificate for spawning the proper sized fishes for marketing;
- ☑ Sufficient Cold storages must be constructed in this union or at the upazila head quarter;
- ☑ Supply of large icebox for temporary storages is a need in this area during huge harvest of fishes.
- ☑ The government should come forward with a solution of inbreeding problem through developing an effective monitoring system;

- The hatchery owners must have certificate ensuring that they are spawning by using the proper sized fish/prawn;
- The rate of fish/prawn feed must be reduced;
- The vendors or fish/prawn fry suppliers must label their identity, the hatcheries address or ID card issued by the hatcheries authority ensuring that they are the authorized sellers of the products in the packaging bag/cover;
  - Transportation facilities should be developed for marketing fisheries products in time.

| Polder Name | Area(ha) | Culture Fisheries |              |                        |                | Total Culture | Total Capture | Total wetland |
|-------------|----------|-------------------|--------------|------------------------|----------------|---------------|---------------|---------------|
|             |          | Pond (ha)         | Fish Culture | Paddy cum prawn(Golda) | Shrimp (Bagda) |               |               |               |
| 31 Part     | 4447     | 33                | 830          | 236.48                 | 440.99         | 1540.47       | 485.1         | 2025.57       |
|             |          | 0.74%             | 18.66%       | 5.32%                  | 9.92%          | 34.64%        | 10.91%        | 45.55%        |

## 5. A. [Agriculture](#)

### a) Input Market Information

| Sl. # | Crop       | Number of Input Seller |          |                            |                           | Remarks                      |
|-------|------------|------------------------|----------|----------------------------|---------------------------|------------------------------|
|       |            | Gaoghora               | Surkhali | Sukdara                    | Baroariya                 |                              |
| 1     | Rice       | 3                      | 1        | 2                          | 2                         | Seed, Fertilizer & Pesticide |
| 2     | Sesame     | 3                      | 1        | 1                          | 2                         | Seed, Fertilizer & Pesticide |
| 3     | Mungbeen   | 3                      | 1        | 1                          | 2                         | Seed, Fertilizer & Pesticide |
| 4     | Vegetables | 2                      | 0        | 07( Mobile seed seller-07) | 8( Mobile seed seller-07) | Seed, Fertilizer & Pesticide |

Source: KII



## b) Production situation

### i) Major Crops (Cereals)

♣ T. Aman: HYV (80-85%), LIV (15-20%) and Aromatic in a minor percentage of land. Varieties grown are HYV (BR-32,33,52,49,23 etc ) LIV (Marij Shail, Zoto Balam , Chap Shail , Kumra goir ,Shada Mota etc) Aromatic ( Benapol , Rani Slute , Chini Kanai etc).

♣ T. Aus: Not grown in Polder.

♣ Boro: grown in negligible area of land with fish. Land is not mentionable.

♣ Spices: Onion, Garlic, Chili, Ginger, Turmeric etc.

♣ Oil Crops: Major Sesame, Mustard, Sunflower etc.

♣ Pulses Crops: Major Mugh, Khesari etc.

♣ Tuber Crops: Potato, Turnip, Radish etc.

ii) Fruits: Water Melon, Banana, Jujube, Papaya etc  
Vegetables

iii) Vegetables: Besides different types winter and summer vegetables are grown in the Polder namely

a) Winter: Okra, Kohlrabi, Country Bean, Amaranthus, Brinjal, cabbage, Sweet Gourd, String Bean, Bottle Gourd, Cauliflower, Tomato, Spinach, Ridge Gourd, White Gourd, Bitter Gourd, Cucumber, etc

b) Summer: Elephant Foot, Indian Spinach, Dram stick etc mainly in the homestead.

**v) Average Land Use Type**

| Land Use Type                       | Average Decimal | Total Decimal |
|-------------------------------------|-----------------|---------------|
| <b>Household land</b>               | 121.5           |               |
| <b>Homestead &amp; Fruit Garden</b> | 13.4            |               |
| <b>Pond &amp; Ditch</b>             | 7.9             |               |
| <b>Cultivable land</b>              | 100.2           |               |

Source: KII

## **5.2 Natural Resource and Environment**

### **a. Water resource:**

The polder is bounded on all sides with the following Outfall Rivers: Bhadra-North & Northwest, Morabhadra-Part of Southwest, Manga river south and Jhapjhapia east.

Shortage of Pure drinking water is a major constrain of Polder 31 part. During winter (November to May) there is a serious salinity problem in river water. Inside polder area there is very limited source of drinking water. People drinks Pond water, Rain water and purchased water supplied from inside the polder. People also drinks some tube wells water which is lightly saline and they are not satisfied of drinking water.

The water of the khals and rivers within the polder area gets salinity due to weak sluice get; it creates soil and water salinity problems and water logging problems in some polder area. It creates skin diseases of polder dwellers. Moreover, the cattle cannot drink the affected area surface water and cannot bathe there.

There is plenty of water in wet season, but crisis started during summer. During summer most of the crops are depends on rain water. Only dyke cropping depends on Pond or Gher water. During summer shortage of rain or heavy rain create a redundant situation for sesame cultivation.

### **5.b Human Resource and Well-being Categorization of Households**

- ♣ In polder area people have different expertise on different skills like
  - Power Tiller Mechanic
  - Trailer
  - Motor cycle driver
  - Nosimon Driver
  - Boatmen
  - Fishermen
  - Fry traders
  - Shop keepers
  - Van puller
  - Horse curt driver etc
- ♣ In polder area per day wages for male is Tk 300.00-350.00 on pick season and female wages is Tk 250.00-300.00 on pick season too.

During January - September labour can work within the polder area and during rice seedlings sowing time and rice harvesting time wages rate is high but round the year the demand is medium and month of October to December labour demand is low. Due to low demand migration of labour happens in these months. They migrate to Dhaka, Khulna, Chittagong and other big towns for selling their labour.

**Table : Food Security Status (Self-Assessment)**

| Status                   | 31part |       |
|--------------------------|--------|-------|
|                          | n      | %     |
| <b>Surplus</b>           | 313    | 14.7  |
| <b>Not deficit</b>       | 643    | 30.2  |
| <b>Sometimes deficit</b> | 718    | 33.7  |
| <b>Always deficit</b>    | 457    | 21.4  |
| <b>Total</b>             | 2131   | 100.0 |

### 5.3. Overview of Human Resource:

In polder area most of the households take more than one income source for their livelihood. It is not always that all different income sources contribute equally to their wellbeing. The income earning of women is struggling with everyday survival. Insufficient incomes and the lack of employment opportunity are the most pressing concern for them. In addition, water shortage in the winter season makes it increasingly hard for these women to contribute their families.

The HHs survey results show that agriculture is still the main source of livelihood in the polder area. *Although they are involved in agriculture but majority have food deficit and only 30.2% are surplus producer. Their productivity is not up to the mark. They couldn't utilize their resources at maximum level. The reasons are-*

- Knowledge on quality inputs*
- Shortage of Irrigation problem*
- Lack of Investment*
- Insufficient market information*
- Insufficient services.*
- Week communication or lack of transportation*

Most of the households selling physical labour percentage is quite high. This indicates the concentration of poor people high in the polder area.

According to **C-1 HH survey 10.3%** HH don't have any cultivable land, 21.5% HH main source of income is selling physical labour and 19.4% HH have always food deficit. Here we found a correlation among the three issues. They are the most vulnerable group of this polder who has no cultivable land. Agricultural interventions have little impact on their livelihood and food security.

They engage themselves in are rickshaw/van-pulling, carrying people/merchandise by engine-boat, earthwork, construction/repair houses, carpentry, making mat with golpata and catching fish.

About 4.5 percent of the total HHs considers salaried services as their major income source while 2.1 percent of HHs have self-employment as their major source of income. Here by 'services' are meant jobs in schools/colleges/madrassas, government offices, NGO/private offices, defense/police department, garment-factories and shops. Self-employed are those like lawyers, quacks, homeopath practitioners, house-tutors, carpenters, barbers, tailors, handicraftsmen and washer men.

About 6.5 percent of total HHs considers business as their major source of income. Business enterprises in the area include rice trading, fish trading, cattle trading, trading of poultry birds, running shops (grocery/cigarette & pan-supari/cloth/ vegetables/fruits/sweetmeat/ fertilizer/ medicine/cosmetics/stationery/CI sheet), running tea-stall, running restaurant, brick-making, rice-mill, sawmill, rice-threshing by machine. However, in most cases the business ventures are small scale.

#### **5.c.4 Labour in Agriculture Sector:**

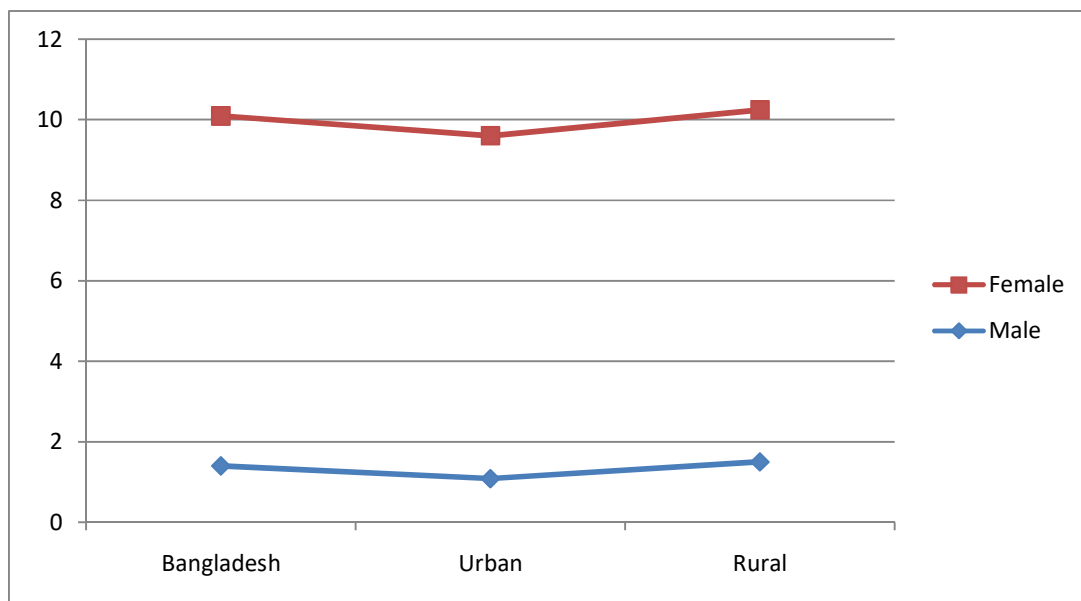
Agriculture is still the largest sector of the labor force. It growing faster than the employment potential, the number of unemployed persons increased over time. Although the 'standard' unemployment rate is low at 4.2 percent in 2006, it does not provide a real picture of the supply-demand balance including the degree of inefficiency that prevails in the labor market.

#### **Labor force participation rate**

- The labor force participation rate increased from 54.9 percent in FY2000 to 58.5 percent in FY06. One can observe significant gender

difference in the participation rate. However, female participation rate rose faster during the period (from 23.9 percent to 29.2 percent) than that of the male participation rate (from 84.0 percent to 86.8 percent). [Source:]

**Figure 1: Trends in labor force participation rate**



### Employment status

- In terms of status in employment, self-employed workers form the largest category providing jobs to the total employed labor force, second largest unpaid family helpers, third largest day laborers, fourth largest by employees, and other categories. Of the reported unpaid family helper category contributed more than two-thirds of the new jobs while self-employed labor contributed another one third.
- Female workers are especially disadvantaged in terms of quality of employment. Mainly they are involved as employed as unpaid family workers. This also shows that, 60 percent work as unpaid family workers while similar share for male employed labor is less than 10 percent.

### 5.e Key Issues in the Labor Market

#### Educational status of labor force

The level of productivity and earnings and, hence the access to remunerative employment, of an individual is positively related to his/her level of education. With significant increase in enrollment rates in Bangladesh, the educational profile of the labor force has somewhat improved over the years creating better potential for skill development. The

available information on the level of education of the youth labor force shows that the share of the labor force with no education significantly declined, while the proportion of the labor force with basic schooling (grades 1-5) and secondary education (grades 6-10) increased: The proportion of the labor force with no education particularly high amongst rural and female workers. This shows the urgent need to give due importance, along with better access to education, to technical and vocational training for the labor force to increase productivity and ensure wider diffusion of better technologies.

### **Underemployment issues**

Conceptually, the notion of underemployment is related to a situation when a person's employment is inadequate in terms of hours of work, income earnings, productivity and use of skills, and the person is looking for better or additional work in conformity with his/her education and skills.

The perception of the labor market substantially changes when underemployment is taken into account in assessing the status of the labor force in Polder. Also the information shows high incidence of underemployment in rural areas and among the female labor force. Of the total number of underemployed labor, nearly 50 per cent were females.

However, do not reveal the nature of the constraints that result in low working hours of women and whether these underemployed female workers would be able to work for longer hours if such opportunities are available in view of their exclusive burden of working in the reproductive and household activities. At the same time, it is also true that a large part of the working population is pushed to working for long hours presumably to meet survival needs due to low productivity of their work.

### **Gender inequality**

A close view on some major indicators shows the existence of high gender difference in economically active population in Polder. Out of a total labor force of Polder 22, females constituted only 21 per cent which rose to 24 percent of total labor. The share of female employed labor in total employed labor is very similar. It also observed that the sectoral pattern of employment of female workers is somewhat more diversified.

## **5.f Educational Status of HH Head:**

### Age of Household Heads in the Polders

It is interesting to note that the majority of the household heads in all polders surveyed are within the age range of 30-49 years old. The second highest in percentage (again in all polders) is the age range of 50-59.

## **5.g.7 Land Ownership**

### Land Ownership

The inequity of land ownership and the lack of production factors affect food security and food sovereignty. Many of the rural poor in Polder 22 are landless, have only small plots of land, are depending on rental, or sharecropping. Moreover, tenure insecurity is high due to outdated and unfair laws and policies. This results in increasing conflicts over land rights and wide spread land grabbing.

These growing rural inequalities and instability also generate migration to Big Cities like Dhaka, Khulna, Jessore and Chittagang, That increasing the rates of urban poverty. Another major land governance issue relates to floods and water management. Defense against floods is accompanied by expropriation; on-going conflicts over control of water-bodies are negatively impacting the lives and livelihoods of poor fishermen communities.

At least 60 per cent of rural families are poor including landless. These people are turned into seasonal laborers, working or sharecropping on land belonging to others. Therefore, a range of tenancy arrangements, including term leases and sharecropping, offer a significant part of rural households access to land. Sharecropper tenancy has declined, while fixed-rent tenancy and medium-term leasing arrangements have increased. Most land-tenancy agreements are conducted verbally

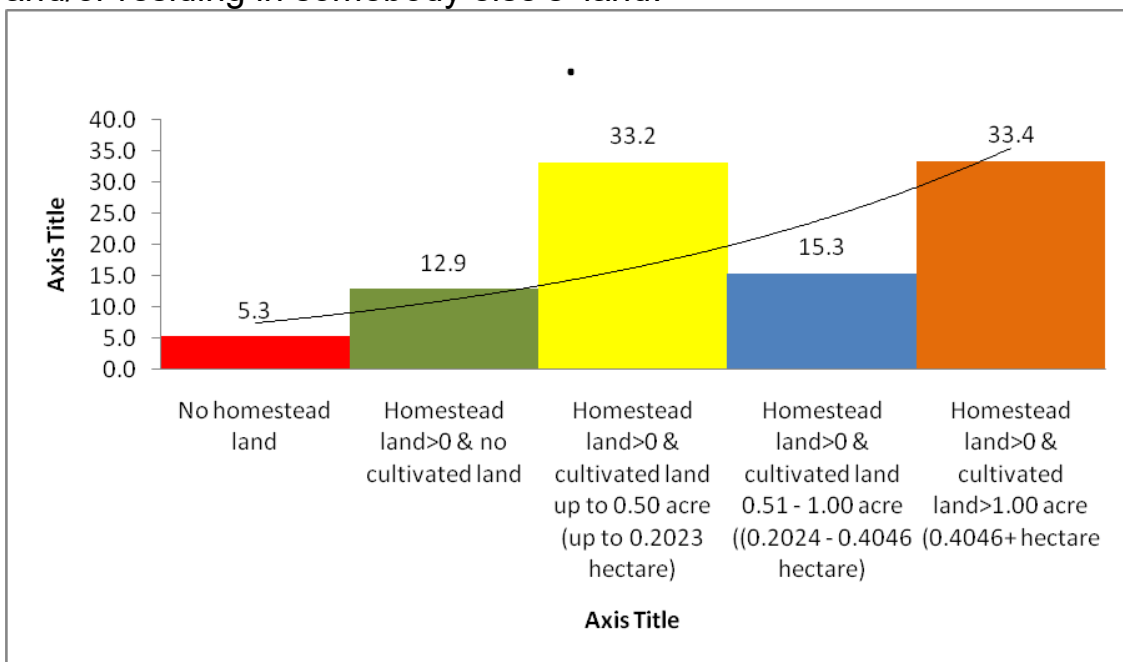
Regardless of the constitutional ban on the discrimination on the basis of gender, women in Bangladesh rarely have equal property rights and rarely hold title to land. Social and customary practices effectively exclude women from direct access to land (as a part of decision making process). Similarly, although national law accords men and women equal rights to access to property and land, family law and practices are barriers for women; women own very few assets. Their situation is further impaired by discriminatory inheritance laws and cultural norms. Daughters inherit half the share of property received by sons under Islamic law, and women a one-eighth share of their husbands' property and one-sixteenth of their sons' property



(in case the sons predecease the mothers). In Hindu communities, women are always deprived from inheritance of any property. This deprivation are also in all aver polder area. Overall, Bangladeshi women are unlikely to claim their share of family property unless it is offered to them. Women lack resources and knowledge of the law. In some cases Fathers, Husband or other relatives offered them some land ownership. But these examples are very few.

### 5.i. Average HH Land size

Figure 6 showed that about 36% of household heads in the 4 polders own homestead land (>0 acre) and cultivable land up to 0.50 acre (or up to 0.2023 ha.) while about 29% household heads owned more than 1.0 acre of cultivable land. This also indicates that about 65% of the household heads in the 4 polders own homestead and cultivable land of >0-1.0 acre. There were only few who do not have homestead land (2.4%) and cultivable land (16.7%). Some of these are residing in embankment slopes and/or residing in somebody else's' land.



### 5.j. HH main source of income

Agriculture is by far the main source of income by majority of the household heads in the polders surveyed. This is followed by agriculture labor in the 2 polders of Khulna. The majority of household heads in the 2 Patuakhali polders showed some variation in other major source of income.

43/2D which is located near the town proper has a great number of household heads doing non-agriculture related labor (19.7%) while in Polder 43/2F on the other hand, many household heads are engaged in

service and self-employment as second major source of income. Perhaps due to well developed navigational facility to Dhaka, more people in Polder 43/2F find it more profitable to engage in small trading and other services than farming.

### **6.1 Physical infrastructure:**

The WMA & WMGs in polder 31 part pointed out some areas where attention should be given to make the polder water management even more effective:

- Some parts of the peripheral embankment needed to be raised to prevent water from entering during high tide.
- Some khals needed to be re-excavated.
- Irrigation management wanted in some places and because of that more inlet structures are required to be constructed.
- Availability of drinking water still remains a major issue for the people in the polder.
- Compartmentalization of the polder for more precise water management through water structures is still complete.

#### **Observations**

In some locations of the polders visited, scour and sedimentation were observed. The main cause for scour and sedimentation as identified is lack of proper operation (gates that are left open when there is no obvious need for drainage or flushing, use of structures for purposes for which they are not designed either drainage or flushing sometimes at high velocities). Some structures were in relatively poor condition and hence difficult to operate, causing sedimentation of khals. Malfunctioning of one sluice may increase pressure on adjacent sluices, which can result in big scour.

#### **Limitation:**

Limitations are that polder 31part still experiences water logging in 25% of its net area. This prevents the farmers from planting T aman (HYV) crop in time. Late planting of T-Aman results in reduced yields of T aman (HYV).

## 7. Land Utilization under Different Water Use Practices

Use of land for agricultural purposes is dealt with respect to cropping pattern and farming systems practices. Land and water utilization practices for the different seasons are :-

### ☐ **Kharif-I (i.e. early wet season)**

i) irrigated + rainfed:

This practice is usually followed for transplanted Aus that needs irrigation at the beginning of the season for land preparation and transplantation as the monsoon arrives late. After the arrival of the monsoon, the crop grows as rainfed. This practice is done to maintain the planting time;

ii) rainfed:

Broadcasted Aus and Jute that are sown after the wet season has arrived. The sowing time is uncertain;

### ☐ **Kharif-II (i.e. late wet season)**

i) rainfed + supplementary irrigation:

Transplanted Aman grown as rainfed crop but at a later stage of the crop growth, due to shortage of water, the crop demands supplementary irrigation. If water is not added, yield losses occur;

ii) rainfed:

Transplanted Aman grown totally under rainfed conditions;

### ☐ **Rabi (i.e. dry season)**

i) rainfed:

Local variety of Boro usually at the bottomland, such as beels. In highlands, where Rice is not grown, Pulses, Wheat and Oil seeds are grown under rainfed conditions;

ii) rainfed + irrigation:

This type of practice is applied in local Boro cultivation as the above case. However, the land in this case is slightly higher elevated than the beels;

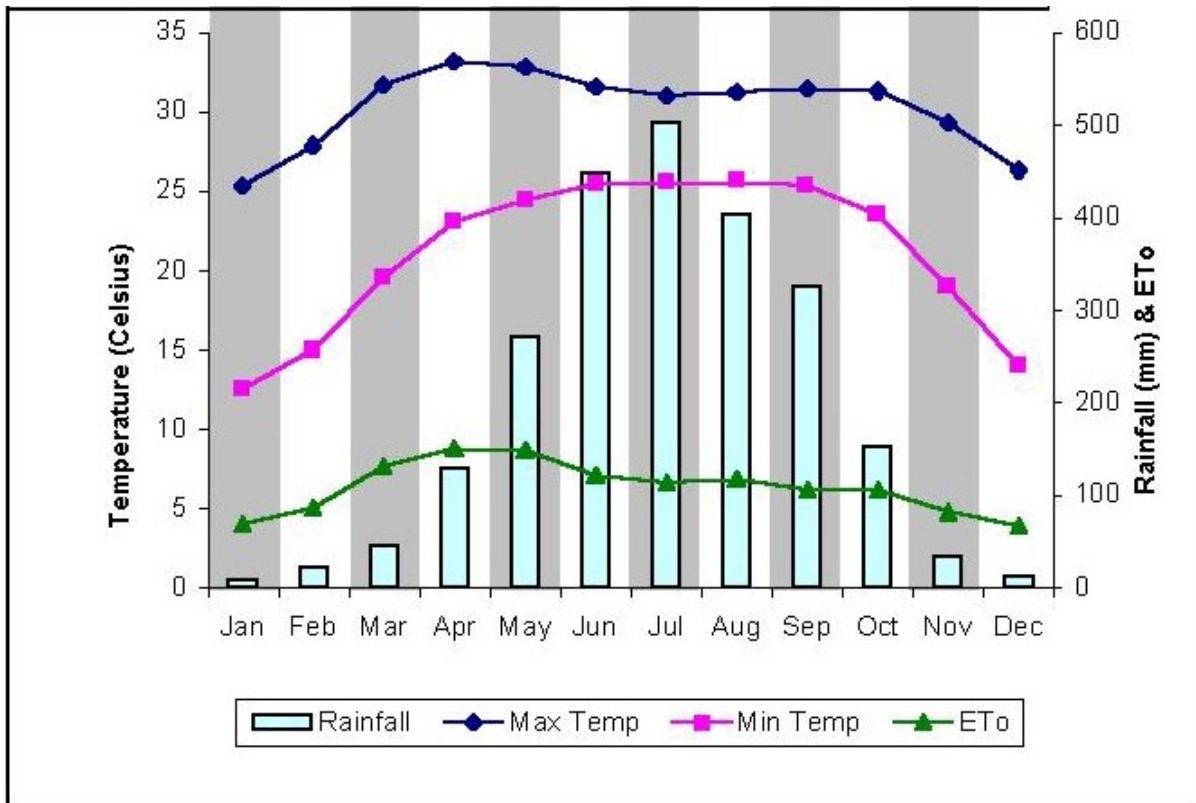
iii) irrigated:

This is applied for modern Boro cultivation. In some places Wheat is also grown as irrigated crop;

iv) irrigated + rainfed:

This is applied for modern Boro but the planting time is delayed where irrigation water is a factor (either unavailability or resourcepoorness of the farmers). In late stage the crop is then

grown as rainfed. The problem is that the crop overlaps with the next season crop, the Aus. This is why it is popularly called Braus rice.



- The most common positive direct environmental impacts were
- ♣ reduced flooding, in terms of level, occurrence, rate of rise, duration and extent of floods;
  - ♣ improved soil moisture status at critical periods, due to reduced wetness in the wet season and, in some cases, to irrigation or water retention for post wet season and dry season use;
  - ♣ improved land use through the reduction of the flood hazard and increased cropping severity and flexibility;
  - ♣ increased land availability due to the reduced extent of wetlands;
  - ♣ improved opportunities for culture fisheries;
  - ♣ greater opportunities for afforestation and other tree planting.

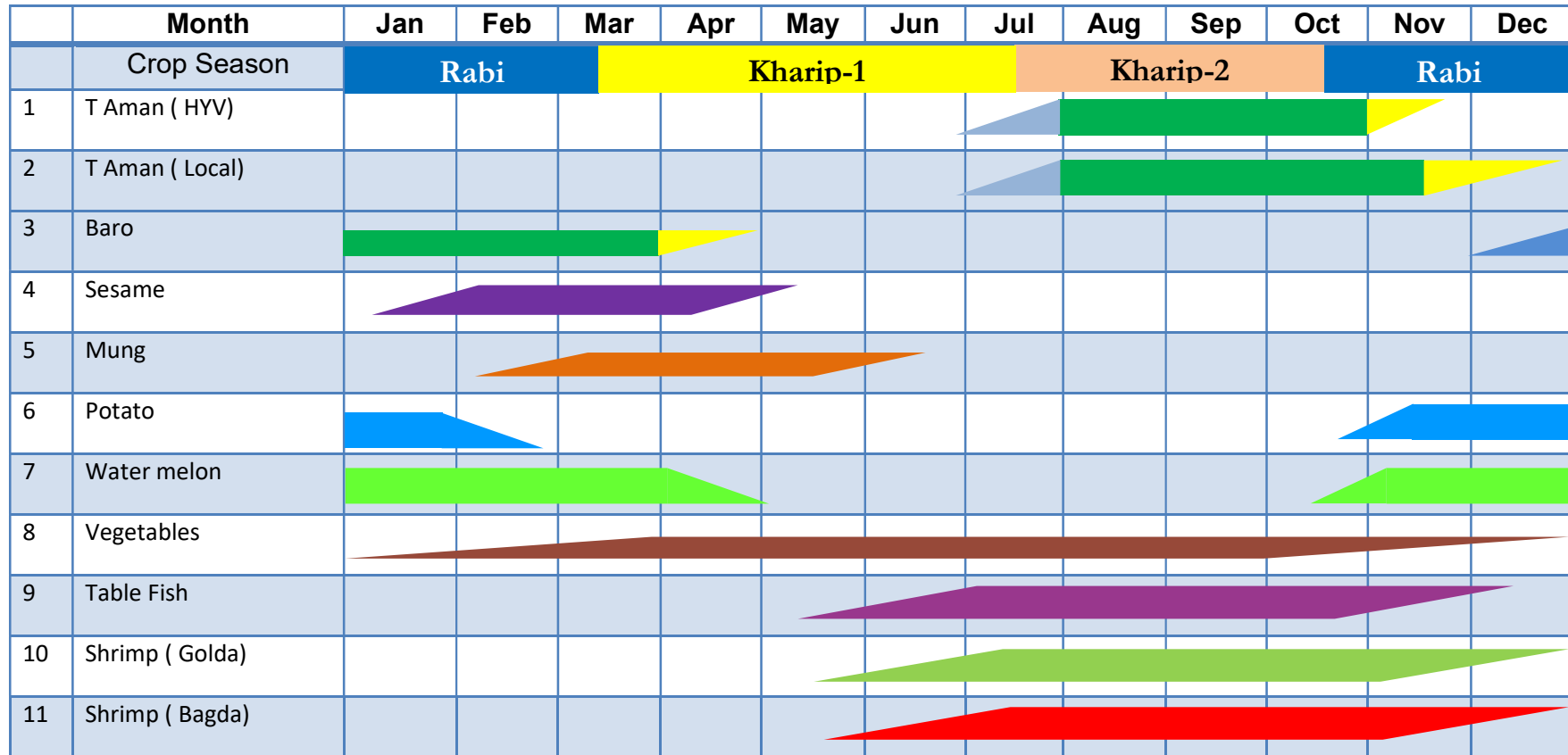
These in turn have provided significant benefits to the population, including: some improvements in human health and nutrition

- ♣ greater protection for infrastructure, with increased human safety and diminished disruption;
- ♣ improved access and communications, if only via the embankments themselves;
- ♣ substantial, if somewhat inequitable, economic benefits to the people in terms of incomes, employment, land values and credit-worthiness;
- ♣ Overall improvement in the quality of life due to these positive physical and socioeconomic impacts.

The most common negative environmental impacts were –

- ♣ cumulative influences in the external areas resulting in increasing river flows, bank erosion and bed scouring, siltation, and flooding levels;
- ♣ drainage congestion due to inadequate design, operation and maintenance of drainage sluices and channels;
- ♣ high risk in certain areas of future catastrophic flooding, with associated hazards to infrastructure, life and property;
- ♣ possible decline in the quality of subsurface, river and wetlands waters, and thereby in the quality of domestic water supplies;
- ♣ reduced extent of wetlands, which is ecologically negative;
- ♣ decline in soil fertility due to diminished aquatic vegetation;
- ♣ contribution to the general decline in fish especially the capture fisheries;
- ♣ in one or two study areas, contribution to a continuing decline in bird communities and habitats;
- ♣ some decrease and deterioration in the livestock sector;
- ♣ loss of land to the embankments and other scheme works, often with inadequate compensation;
- ♣ Disproportionate distribution of scheme benefits and some strains on social cohesion.

### 8. Crop Calendar:



## 9.1 Farmers Category

| Type                        | %     | Farmers No. |
|-----------------------------|-------|-------------|
| Land less Farmer(0-0.02ha)  | 10.03 |             |
| Marginal Farmer(0.02-0.2ha) | 29.99 |             |
| Small farmer(0.2-1ha)       | 40.02 |             |
| Medium Farmer(1-3 ha)       | 15    |             |
| Large Farmer(<3ha)          | 4.97  |             |
|                             |       |             |

Source: DAE

## 9.2 Household Income from Agri. Activity

| Sl.# | Source of Income | %  | Remarks |
|------|------------------|----|---------|
| 1    | Rice             | 30 |         |
| 2    | Sesame           | 35 |         |
| 3    | Vegetables       | 18 |         |
| 4    | Fish             | 10 |         |
| 5    | Egg/ Meat        | 4  |         |
| 6    | Others           | 3  |         |

Source: KII & FGD

## 10. Production Area

### 1. Field Crops:

| Sl.# | Crop        | Area (ha) | Rabi | Kharif-1 area(ha) | Kharif-2 area |
|------|-------------|-----------|------|-------------------|---------------|
| 1    | Sesame      | 2000      |      | 2800              | -             |
| 2    | Mugh        | 200       |      | 200               | -             |
| 3    | T. Aman     | 3000      |      | 3000              |               |
| 4    | Shrimp/Carp | 200       |      | 200               |               |

Source: FGD & KII

### 11. Average Production and Gap

| Sl.# | Crops        | Yield (Ton/ Ha) |                   | Yield (Gap Ton/Ha) |
|------|--------------|-----------------|-------------------|--------------------|
|      |              | Present Yield   | Good Farmer Yield |                    |
| 1    | Rice         | 4.790           | 5.5               | 0.71               |
| 2    | Sesame       | 0.958           | 1.376             | 0.418              |
| 3    | Mung         | 0.958           | 1.376             | 0.418              |
| 4    | Sweet gourd  | 14.38           | 20                | 5.62               |
| 5    | Okra         | 8.5             | 14                | 5.50               |
| 6    | Egg Plant    | 15.9            | 50                | 34.10              |
| 7    | Chili        | 1.37            | 4                 | 2.63               |
| 8    | Bitter gourd | 9.87            | 20                | 9.56               |
| 9    | Tomato       | 9.87            | 60                | 41.06              |

Source: FGD

### 12. Land Type:

| Sl.# | Land type        | %  |
|------|------------------|----|
| 1    | High land        | 2  |
| 2    | Medium High Land | 75 |
| 3    | Low land         | 15 |
| 4    | Medium Low Land  | 8  |

Source: SAAO, DAE



### 13. Output market information

i) Use of Market: There are two market/ haat/ bazaars in the polder area:

1. Gaowghora Hat (Every day) :

Main product: Paddy. (Other products as well)

2. Surkhali Hat (Market day: Sunday and Tues day):

All commodities buying and sales in small scale.

3. Gayer Hat (Market day: Daily, Saturday & Tuesday):

All commodities buying and sales-small scale.

Nearest big market outside polder: Baroariya hat.

ii) Presence of Fariya, Bapari and Agent

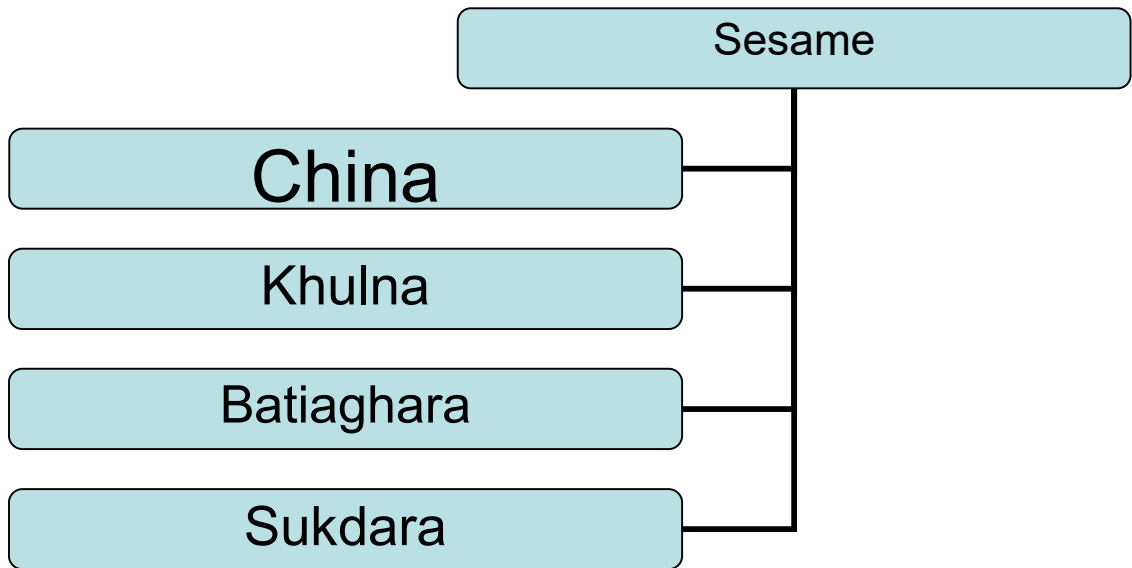
| Sl.# | Crop       | Market actors Number |   | Remarks              |
|------|------------|----------------------|---|----------------------|
|      |            | Gaoghora             |   |                      |
| 1    | Rice       | 25(8)                | 0 | Faria/ Bepari/ Agent |
| 2    | Sesame     | 5                    | 0 | Faria/ Bepari/ Agent |
| 3    | Vegetables | 12(7)                | 2 | Faria/ Bepari        |
| 4    | Fish       | 12                   | 3 | Sub Depot            |
| 5    | Poultry    | 7(5)                 | 1 | Faria/ Bepari        |

[Numbers in First Bracket are within the Polder area]

iii) Price Difference

| Sl.# | Product     | At Gaoghora     | At Khulna      | Gross Margine |
|------|-------------|-----------------|----------------|---------------|
| 1    | Rice        | 680<br>Tk/Mound | 730 Tk/ Mound  | 50 Tk/ Mound  |
| 2    | Egg         | 5.80 Tk/Piece   | 6.80 Tk/ Piece | 1 Tk/ Piece   |
| 3    | Sesame      |                 |                | Mound         |
| 4    | Drumstick   | 40 Tk/ kg       | 55 Tk/Kg       | 15 Tk/Kg      |
| 5    | Sweet gourd | 10 Tk/ kg       | 15 Tk/Kg       | 5 Tk/Kg       |

iv) Market Hierarch



v) Product Sold in Polder markets

| Sl.# | Product          |      |     |
|------|------------------|------|-----|
| 1    | Rice             | 100% | 0   |
| 2    | Sesame           | 15%  | 0   |
| 3    | Egg              | 30%  | 10% |
| 4    | Drum Stick       | 50%  | 0   |
| 5    | Leafy Vegetables | 80%  | 25% |
| 6    | Fish             | 25%  | 25% |

#### 14. Livestock & Poultry

Bangladesh is rich in farm animal (cattle, buffalo goat, sheep, horse, pig, chicken, duck, geese & pigeon) genetic resources. The proportion of improved cattle in the country is still found less than 3% and the number of is also very low. Goat, sheep and poultry farm was established at the district level for producing improved breed and the supply of these to the farm level. The number was found still insignificant. In polder area there is a high degree of inequality for land holdings, but a low degree of inequality for livestock holdings. The distribution of indigenous breed is less unequal than the distribution of improved breeds. There is a possibility of improvement in rural income distribution with an increase in investment for indigenous livestock development. The landless and small farm holdings own the highest percentage of poultry; sheep and goats. While the medium and large farms possess significant percentage of cattle and the improved breeds of poultry. Thus, the investment in small ruminant and poultry species will greatly help generate employment and income for the rural

poor and thus improve livelihood.

i) Input Market Information

| Sl. # | Product       | Input Seller |   |   |
|-------|---------------|--------------|---|---|
|       |               |              |   |   |
| 1     | Poultry Feed  | 3            | 0 | 3 |
| 2     | Day Old Check | 3            | 0 | 1 |
| 3     | Medicine      | 3            | 1 | 3 |

Commercial Farms information

| Sl. # | Subject                           | Number | Remarks |
|-------|-----------------------------------|--------|---------|
| 1     | No. Of Commercial Poultry Farmer  | 80     |         |
| 2     | Average Egg Production            | 300    |         |
| 4     | Average Scavenging bird Folk size | 5-6    |         |
| 5     | Paravet                           | 8      |         |

Source: KII & FGD

ii) Output Market Information

Marketing channels are composed mainly of the private marketing intermediaries, virtually without any government regulations, who handle the marketing system of livestock and livestock products in Polder area. Many middlemen/traders are involved in the process of livestock marketing. The marketing of livestock and livestock products are characterized by poor and unhygienic market places, unorganized traders, absence of grading, and lack of information, seasonality in demand and price variation. The marketing of livestock products has remained underdeveloped for a long time.

The small holders in polder 31 part rear livestock produce livestock products and sell them in the weekly local markets and also district

markets and bapari. Milk and egg marketing is mostly carried out in an unorganized manner. Polder dwellers sell their eggs in the weekly local markets and also district markets and bapari from inside and outside polder.

| Sl.# | Product | Market actor |          | Remarks         |
|------|---------|--------------|----------|-----------------|
|      |         | Gaowghora    | Surkhali |                 |
| 1.   | Egg     | 7(5)         | 1        | Fariya / Bapari |

### iii) Local Paravet:

In Polder 31 part around 8 Paravet are available. They are very much interest in large ruminant's treatment. But sometimes they also provide poultry vaccination. Poultry farmers usually get vaccination from lead farmers.

## 15. SWOT analysis of polder (agriculture, livestock and aquaculture)

| Strength  | Weakness   |
|---|--|
| <ul style="list-style-type: none"> <li>- Unmet demand of Sesame, Poultry egg, Vegetables</li> <li>- Easy connectivity to big markets.</li> <li>- Many Service Providers are present nearby the polder like - arotder, bepari, Paiker and Commission agents etc.</li> <li>- Private actors like seed company, feed company, exporter, processor are also available nearby polder area have shown interest to work with us.</li> <li>- Resilience capacity of polder dwellers are high.</li> <li>- Presence of MFI's</li> </ul> | <ul style="list-style-type: none"> <li>- Poor drainage and irrigation system.</li> <li>- Inadequate knowledge on improve production technology on Rice, Sesame, Poultry rearing, different vegetables.</li> <li>- Lack of quality inputs in polder area.</li> <li>- Lack of market information and weak market system.</li> <li>- Dependency on different relief or input support programs.</li> </ul> |
| Opportunity   | Threat   |
| <ul style="list-style-type: none"> <li>- Opportunity to increase production, productivity and area coverage.</li> <li>- Opportunities to introduce new crop, improve varieties and new techniques.</li> <li>- Opportunity to linking with market actors and market systems to ensure better price.</li> <li>- Opportunity on collective actions.</li> <li>- Presence of WMGs and income from assets.</li> </ul> <p>Savings by WMG members for investing in new business.</p>  | <ul style="list-style-type: none"> <li>- Disaster prone area.</li> <li>- Salinity problem during winter season</li> <li>- Landless and marginal HH % are high so adoption of new technologies and practices will be challenging.</li> </ul>  |

## 16. Connectivity

### a) Mode and Cost for Transportation

| Vehicle type                 | From     | To         | Rent/<br>per<br>perso<br>n | For<br>goods(40<br>-50 Kg) |
|------------------------------|----------|------------|----------------------------|----------------------------|
| <b>Mahendra</b>              | Surkhali | Khulna     | 40                         | 40                         |
| <b>Motor cycle</b>           |          |            | 40                         | 40                         |
| <b>Boat</b>                  |          |            | 0                          |                            |
| <b>Horse puller</b>          |          |            | 0                          |                            |
| <b>Van</b>                   |          |            | 30                         | 30                         |
| <b>Nosimon/ Human holler</b> | Surkhali | Gaoghora   | 10                         | 10                         |
| <b>Motor cycle</b>           |          |            | 20                         | 20                         |
| <b>Boat</b>                  |          |            | 0                          |                            |
| <b>Horse Cart</b>            |          |            | 0                          |                            |
| <b>Van</b>                   |          |            | 10                         | 10                         |
| <b>Nosimon/ Human holler</b> | Surkhali | Batiaghata | 20                         | 20                         |
| <b>Motor cycle</b>           |          |            | 30                         | 30                         |
| <b>Boat</b>                  |          |            | 0                          |                            |
| <b>Horse Cart</b>            |          |            | 0                          |                            |
| <b>Van</b>                   |          |            | 30                         | 30                         |
| <b>Mahindra</b>              | Surkhali | Sukdara    | 0                          |                            |
| <b>Motor Cycle</b>           |          |            | 40                         |                            |
| <b>Mahindra</b>              | Surkhali | Baroaria   | 10                         |                            |
| <b>Motor Cycle</b>           |          |            | 15                         |                            |
| <b>Nosimon/ Human holler</b> |          |            | 10                         |                            |

#### 16.b. Mobile Coverage

All Mobile network coverage are available here-

- Grameen Phone
- Robi
- Airtel
- Banglalink
- City cell
- Telitalk

Around 85 % HH use mobile phone

#### 16.c. Market Information

- People contact with Paikar ,Arotdar through Mobile Phone and collect product price.
- People when visit markets then meet with Local market actors and collect product price.
- Farmers also ask their neighbors who visit market earlier about different product prices.
- Farmers also discusses with their relatives about product prices.

#### 16.d. E- Money transaction

In Polder area 3 B-Kash transaction centers are available. One Govt. Post office also has E-Money transaction facilities.

| <b>Unit</b>    | <b>Incoming</b> | <b>Outgoing</b> | <b>Remarks</b> |
|----------------|-----------------|-----------------|----------------|
| <b>Daily</b>   | Tk 12500        | Tk 6000         |                |
| <b>Monthly</b> | Tk 375000       | Tk 180000       |                |
| <b>Yearly</b>  | Tk 500000       | Tk 160000       |                |



## 17. Access to finance

| Sl.# | Source of Finance | Male% | Femalw% | Remarks |
|------|-------------------|-------|---------|---------|
| 1    | WMG               | 75    | 25      |         |
| 2    | NGO               | 0     | 100     |         |
| 3    | Local MFI         | 60    | 40      |         |

## 18. Gender

Criterion VC selection:

- ❖ Number of HH involved
- ❖ Women friendly
- ❖ Women labour based
- ❖ Increase women income
- ❖ Increase women contribution in production and decision making
- ❖ Increase women sales power
- ❖ Increase savings in MFI

### 18.1 Role of Man & Women in agriculture

At homestead:

- Seed bed preparation
- Fencing
- Seed preservation
- Seed sorting and seed processing for germination
- Seed sowing and seedling collection
- Intercultural operation
- Harvesting, fertilization, irrigation, pesticide application
- Marketing

Livestock:

- Hatching arrangement for poultry
- Feeding cattle/poultry
- Rearing and Vaccination
- Goat rearing

Fish:

- Feeding
- Pond cleaning
- Harvesting

Field crop:

- Seedling collection
- Weeding
- Harvesting
- Seed sorting, storing and processing
- Transportation
- Threshing

Men's roles in agriculture:

- Ploughing and related work
- Seed collection, sowing and transplantation and related work
- Intercultural operation
- Harvesting and threshing and related work
- Sales and Marketing related work
- Pond preparation, fish cultivation, harvesting and sales related job
- Finger ling collection, preservation
- Catching fish, transportation, storage, sales
- Poultry farm operation related all work
- Feed , fertilizer, pesticide and medicine collection and use related job

## 18.2 Potential IGA for Women

- Poultry rearing, bird and Egg selling
- Drumstick selling
- Home stead vegetable production, collection and selling
- Small Grocery shop operating

## 19. Collective Action Issue

### ❑ Opportunity for Collective action

- Rice-seed collection/ tillage/irrigation/ technology transfer/drying/storage/marketing
- Sesame-seed collection/drying/storage/processing/marketing
- Moringa -Roadside plantation/management/grading/marketing
- Poultry Egg- service receiving/ egg collection/marketing
- Sweet gourd-collection/storage/transportation/marketing

### ❑ Benefit of collective Storage/drying/Marketing

- Tillage and irrigation can reduce cost.
- Input purchase can ensure quality and reduce cost
- Intercultural operation leads to higher production.
- Easy to ensure support services
- Collective storage for rice can ensure better price
- Collective drying facility can be helpful for polder dwellers to reduce wastage and create opportunity to store for selling in favorable time
- Drying facility helps them in seed preservation and timely threshing
- Dry floor will be helpful for Sesame as it is harvested in rainy season, less sun will be required. Moisture problem will be reduced. Plastic net can be used.

### ❑ Benefit of collective Storage/drying/Marketing

- Reduce transportation cost.
- Attract the market actors and service providers (Egg collectors, retailers, vaccinators, etc)
- Collective effort in production, harvesting, grading and marketing can ensure high price for all agriculture product including Moringa.

### ❑ Benefit of collective Storage/drying/Marketing

- Most of polder people drying sesame on soil floor, So that they get price less than others who dried sesame on blue net.
- Collective effort is possible in packaging vegetables in plastic bags and transporting by mini truck or Nosimon.

## 20. Available Institutional Support

| Sl.# | Support Institute Name    | Number | Remarks   |
|------|---------------------------|--------|---|
| 1    | Community Clinic          | 1      |   |
| 2    | High School               | 3      | 2 High School( Co-education) and 1 Girls High school  |
| 3    | Primary School            | 8      |   |
| 4    | Madrasa                   | 1      |   |
| 5    | College                   | 2      |   |
| 6    | Bank                      |        |   |
| 7    | Post Office               | 1      | Surkhali  |
| 8    | Micro Credit Organization | 10     | ASA, BRAC, Grameen Bank, Fulbari bazaar Somobay sommitte, Dew Society, Dihibura, Prodipon, Uttoron etc. |
| 9    | B-Kash                    | 4      | Gaoghora  |
| 10   | Deep Tubewell             | 1      |   |
| 11   | Tubewell                  | 12     |   |

## 21. Potential Value chain List:

Potential Value Chain List for Polder 31 part

1. Sesame Value Chain
2. Backyard poultry Value Chain
3. T-Aman Value Chain
4. Drum stick Value Chain
5. Brinjal Value Chain
6. Golda Value Chain
7. Carp Value Chain

## 22. VC identification

| Blue Gold Program<br>Matrix for Value Chain Selection(Polder 31 Part)<br>Component-04 |  |                       |                     |                                    |                              |                               |                    |                               |                                      |  |               |           |  |                                |                                 |                           |                          |                       |                                 |                                     |                      |      |
|---|--|-----------------------|---------------------|------------------------------------|------------------------------|-------------------------------|--------------------|-------------------------------|--------------------------------------|--|---------------|-----------|--|--------------------------------|---------------------------------|---------------------------|--------------------------|-----------------------|---------------------------------|-------------------------------------|----------------------|------|
| Criteria →  | Indicate market level (Local, District, Regional, National, International) | Growth Potential (32) |                     |                                    |                              |                               | Impact (32)        |                               |                                      |  |               |           | Structure of the Industry (15)                                 |                                |                                 |                           | Gender & Employment (17) |                       | Collective Action(4)            | Risk                                | Total Weighted Value | Rank |
| Crop ↓  |  | Market Size           | Unmet market demand | Potential productivity improvement | Expansion of area / capacity | Value adding to raw materials | Current production | Number of households involved | Contribution to HH income and wealth | Short or longer production/harvesting season | Food Security | Nutrition | Forward / backward linkages conducive to market based approach | Existence of service providers | Favourable business environment | Other programme interests | Involvement of women     | Employment generation | Collective Action Opportunities | Major risks (No, High, Medium, Low) |                      |      |
| Weight →  |  | 7%                    | 6%                  | 6%                                 | 7%                           | 6%                            | 5%                 | 5%                            | 6%                                   | 5%   | 6%            | 5%        | 5%   | 4%                             | 4%                              | 2%                        | 9%                       | 8%                    | 4%                              |                                     | 100%                 |      |
| <b>Food</b>   |  |                       |                     |                                    |                              |                               |                    |                               |                                      |  |               |           |  |                                |                                 |                           |                          |                       |                                 |                                     |                      |      |
| T Aman  | National   | 5                     | 1                   | 3                                  | 0                            | 1                             | 5                  | 5                             | 3                                    | 3  | 5             | 1         | 3  | 5                              | 5                               | 3                         | 3                        | 5                     | 3                               |                                     | 3.23                 | 3    |
| Baro Rice   | National   | 5                     | 1                   | 3                                  | 3                            | 1                             | 1                  | 3                             | 3                                    | 3  | 5             | 1         | 3  | 5                              | 5                               | 1                         | 3                        | 3                     | 1                               |                                     | 2.86                 | 8    |
| Til (Sesame)  | National/International   | 5                     | 5                   | 5                                  | 3                            | 5                             | 5                  | 5                             | 5                                    | 3  | 1             | 3         | 5  | 3                              | 3                               | 3                         | 3                        | 1                     | 5                               |                                     | 3.72                 | 1    |
| Backyard poultry Egg  | Regional   | 1                     | 3                   | 3                                  | 5                            | 0                             | 3                  | 5                             | 3                                    | 5  | 3             | 5         | 3  | 3                              | 3                               | 1                         | 5                        | 3                     | 3                               |                                     | 3.26                 | 2    |
| Drum stick  | Regional   | 3                     | 5                   | 3                                  | 5                            | 1                             | 5                  | 5                             | 3                                    | 1  | 1             | 5         | 3  | 3                              | 3                               | 1                         | 5                        | 0                     | 3                               |                                     | 3.12                 | 4    |
| Golda   | District   | 3                     | 5                   | 3                                  | 3                            | 3                             | 3                  | 3                             | 5                                    | 3  | 3             | 3         | 5  | 3                              | 3                               | 5                         | 1                        | 3                     | 1                               |                                     | 3.12                 | 4    |
| Table Fish  | National   | 3                     | 5                   | 3                                  | 3                            | 3                             | 3                  | 3                             | 5                                    | 3  | 3             | 3         | 5  | 3                              | 3                               | 5                         | 1                        | 3                     | 1                               |                                     | 3.12                 | 4    |
| Brinjal   | District   | 3                     | 3                   | 3                                  | 3                            | 1                             | 1                  | 3                             | 3                                    | 3  | 3             | 5         | 3  | 3                              | 3                               | 3                         | 3                        | 1                     | 3                               |                                     | 2.72                 | 5    |
| Mung bean   | National   | 3                     | 3                   | 3                                  | 3                            | 3                             | 3                  | 1                             | 3                                    | 3  | 1             | 3         | 3  | 3                              | 3                               | 1                         | 3                        | 3                     | 1                               |                                     | 2.66                 | 6    |
| Bagda   | National/International   | 3                     | 3                   | 3                                  | 1                            | 3                             | 3                  | 3                             | 5                                    | 3  | 3             | 3         | 5  | 3                              | 3                               | 5                         | 0                        | 1                     | 1                               |                                     | 2.61                 | 7    |

## 22.1 VC selection scoring information

### A. Growth Potential (32):

1. Present Market size (7)
2. Unmet market demand (6)
3. Productivity Improvement (6)
4. Expansion of areas/capacity (7)
5. Value Addition (6)

| 1.Present Market Size 7                     |  |                      |         |
|---|--|----------------------|---------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ Local, regional, national, or international level of envisaged end-market has been defined,</li> <li>♣ consider volume, or value of the market to compare, cereals are usually large volumes &amp; values = 5, but scavenging eggs are low volume &amp; value in comparison = 1,</li> </ul> |                      |         |
| <b>Score 5</b>                              | Score 3  | Score 1              | Score 0 |
| <b>Sesame , T-Aman &amp; Baro</b>           | Drum Stick, Mung, Brinjal, table fish, Golda and Bagda   | Backyard Poultry egg |         |

Key information against the criteria:

- ♣ Sesame has a potential International market.
- ♣ Sesame exporters yet not fulfill foreign buyer demand.
- ♣ Native poultry bird egg has local and regional market demand.

- ♣ Per house hold egg production volume is around 8 to 10 per week for sale.
- ♣ Layer poultry egg has local and regional market demand.
- ♣ Per farm average egg production 250 to 300 egg per day.
- ♣ T- Aman has a potential national market.
- ♣ Surplus production of Paddy in Polder 31part
- ♣ Drumstick has local and regional market demand.
- ♣ Mung has a potential national market.
- ♣ Surplus production of Mung in Polder 31 part.
- ♣ Sweet gourd and okra has also local and regional market demand.

| <b>2. Unmet market demand (6)</b>               |   |                 |         |
|---|---|-----------------|---------|
| <b>Weight level maintain criteria (0-5)</b>     | <ul style="list-style-type: none"> <li>♣ is the demand trend increasing, does the market growth by a high %,</li> <li>♣ do you recognize any potential for quick expansion, do buyers clearly seek more than the supply available, than we score this 5,</li> <li>♣ markets who only grow on the basis of population growth get 1, and market demand that is decreasing, some products get out of our diet or are replaced by substitutes =0</li> </ul> |                 |         |
| <b>Score 5</b>                                  | Score 3   | Score 1         | Score 0 |
| <b>Sesame, Drum Stick, Table Fish and Golda</b> | Backyard Poultry Egg, Brinjal , Mung and Bagda  | T-Aman and Baro |         |

Key information against the criteria:

- ♣ Only 50% demand of sesame can meet up.
- ♣ Buyers seek more than the supply available.
- ♣ Opportunity to increase market demand by improving quality of sesame.
- ♣ India and China are major sesame export country and also Japan.



- ♣ Market growth is always high and backyard poultry egg price is higher than commercial poultry egg.
- ♣ Buyers always seek more than the supply available of backyard poultry.
- ♣ Always exist an opportunity to increase size and volume of egg.
- ♣ Egg market growth is high and demand is increasing.
- ♣ Polder 31 part and Khulna City (Huge consumer) communication is very good and easy transportation system is available here.
- ♣ Buyers seek more than the supply available.
- ♣ Opportunity to increase market demand by improving quality of Rice.
- ♣ Market growth is high and demand is increasing.
- ♣ Buyers seek more than the supply available of Drumstick.
- ♣ Opportunity to increase market demand by improving quality of Mung.

| <b>3. Productivity Improvement (6)</b>      |   |                |                |
|---|---|----------------|----------------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ do we know of accessible technological (broad sense) improvements?</li> <li>♣ If no potential to improve productivity, score =0,</li> <li>♣ very limited potential (&lt;10%)=1,</li> <li>♣ Medium potential(10-19%) = 3,</li> <li>High potential to increase productivity (≥20%) =5</li> </ul> |                |                |
| <b>Score 5</b>                              | <b>Score 3</b>  | <b>Score 1</b> | <b>Score 0</b> |
| <b>Sesame</b>                               | Backyard Poultry Egg, T-Aman, Baro, Drum stick, Mung, Golda, Brinjal and Table Fish   |                |                |

Key information against the criteria:

- ♣ Farmers use local seeds but if they use BARI-Til-4 or BINA Til-2(Black) sesame seeds they will get 50% extra production.
- ♣ Farmers are not enough aware of fertilizer application if they use proper fertilizer application they can get 25% more yield.
- ♣ Medium potential for improve productivity. Production can be increased up to 30%.
- ♣ Producer rarely uses supplementary feed to backyard poultry but if they use supplementary feed there is an opportunity to increase productivity.
- ♣ Medium potential for improve productivity of mung. Production can be increased up to 20%
- ♣ Farmers use HYV and Local seeds but if they use certified BADC mung seeds they will get 15% extra production.
- ♣ Farmers are not enough aware of fertilizer application if they use proper fertilizer application they can get 5% more yield of mung.
- ♣ Potential for improve productivity. Production can be increased up to 50%

| <b>4. Expansion of areas/capacity (7)</b>   |   |                |                |
|---|---|----------------|----------------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ If no scope to expand, e.g. T. Amman rice score =0,</li> <li>♣ very limited scope (&lt;10%) =1,</li> <li>♣ Medium scope (10-20%)= 3,</li> <li>High potential (≥20% ) e.g. winter crops where cropping intensity is still very low due to infrastructure constraints=5</li> </ul> |                |                |
| <b>Score 5</b>                              | <b>Score 3</b>  | <b>Score 1</b> | <b>Score 0</b> |
| <b>Backyard Poultry egg and Drum stick</b>  | Poultry egg, Mung, Golda, Bagda and Brinjal   | Bagda          | T- Aman        |

Key information against the criteria:

- ♣ 50% area under sesame cultivation.
- ♣ Opportunity to increase sesame cultivation land
- ♣ Around 60 % Household involved in egg production business. There is a high potential for expand due to low investment and easy to rear of backyard poultry.
- ♣ High potential for expand commercial poultry because all services and business enabling environments are available here.
- ♣ Need investment but services are available in Polder area.
- ♣ 100% area under T-Aman cultivation.
- ♣ Need limited or no investment. 8 % area under Mung cultivation.
- ♣ High potential for expand drumstick production.

| <b>5. Value Addition (6)</b>                |   |                            |                      |
|---|---|----------------------------|----------------------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ the potential for farmers or small or micro enterprises to add value and increase earnings locally would score 5,</li> <li>♣ if it requires a much larger investment by a processor at regional level =3 or even 1,</li> <li>♣ when technically there is no value addition possible =0.</li> </ul> <p>If no value addition possible, score =0, very limited chance =1 (&lt;10%), Medium potential (10-19%)= 3, High potential (≥20%)=5</p> |                            |                      |
| <b>Score 5</b>                              | Score 3   | Score 1                    | Score 0              |
| <b>Sesame</b>                               | Mung, Golda, Bagda and Table Fish   | T-Aman, Baro and Drumstick | Backyard poultry Egg |

Key information against the criteria:

- ♣ Farmers usually dry sesame on soil floor. If they dry sesame on blue net or Pucca floor they can get 50 to 100 taka more in 40 kg sesame.
- ♣ Price of blue net is easily affordable for farmers.
- ♣ Farmers use water for sesame fermentation due to lack of Knowledge. If they aware right fermentation process they can get more prices.
- ♣ Limited opportunity for value adding in egg production.
- ♣ Rice Seed production a good idea for value addition.
- ♣ Limited opportunity for value adding in drumstick.
- ♣ Opportunity for value adding in mung been.

## B.Impact(32)

1. Current production(5)
2. No. of HH Involved (5)
3. Contribution to HH income(6)
4. Seasonality-Short or long harvesting season(5)
5. Food Security (6):
6. Nutrition -potential of increasing Nutrition intake (5)

### 1. Current production

**Weight level  
maintain criteria (0-  
5)**

- ♣ The % of the land presently under cultivation of this crop, or
- ♣ The present scale (scavenging versus large broiler farms) or volume of production sets the foundation for the level of impact that can be expected.
- ♣ T. Aman is produced on nearly 100% of the area

|                                      |  |                  |         |
|--------------------------------------|--|------------------|---------|
|                                      | available =5,<br>♣ a crop that only commands a very small percentage of the area =1 and<br>a crop that still needs to be introduced =0, If a crop is produced on say around 50% of land then score=3 |                  |         |
| <b>Score 5</b>                       | Score 3  | Score 1          | Score 0 |
| <b>T-Aman, Sesame and Drum Stick</b> | Backyard Poultry egg, Golda, Bagda, and Table Fish   | Brinjal and Mung |         |

Key information against the criteria:

- ♣ Sesame current production only 50% land of total polder
- ♣ Opportunity to increase current production. Farmers use two chambered sesame seed variety. If they use 4 chambered sesame seed they can get 50% extra production.
- ♣ Only 56% HH rear backyard poultry and there is an opportunity to increase egg production, folk size improvement and no. of House hold.
- ♣ Around 100 HH rear commercial poultry and there is an opportunity to increase house hold and No. of Poultry.
- ♣ T-Aman current production around 100% land of total polder
- ♣ Opportunity to increase current production.
- ♣ Around 80% HH has Drum stick plant and there is an opportunity to increase No. of Plant.
- ♣ But per household production average production around 40 kg.Current production 8% land of total polder

| <b>2. Number of households involved</b>   |   |
|---|---|
| <b>Weight level maintain criteria (0-</b> | ♣ If less than <5% HH Involved, score =0,<br>♣ involvement by (5-20%) =1, |

|  |   |         |         |
|--|---|---------|---------|
| 5)   | ♣ by (20-60%)= 3,<br>High potential (>60% )=5 (explanations are similar as above) |         |         |
| <b>Score 5</b>   | Score 3   | Score 1 | Score 0 |
| <b>Sesame, Backyard Poultry Egg, T-Aman and Drum stick</b> | Bagda, Golda, Brinjal, Baro and Table fish  | Mung    |         |

Key information against the criteria:

- ♣ Around 60% household involve in sesame production.
- ♣ Small and Marginal farmers also cultivate sesame on their lease land.
- ♣ Around 60% household involve in backyard poultry egg production.
- ♣ Around 60 household involve in egg production.
- ♣ Around 95% household involve in sesame production.
- ♣ Around 100 household involve in commercial egg production.
- ♣ Around 10 % household involve in Mung production.

| <b>3. Contribution to HH income and wealth</b> |   |            |         |
|--|---|------------|---------|
| <b>Weight level maintain criteria (0-5)</b>    | ♣ Consider the present versus potential contribution to HH income (contribution to yearly income as %),<br>♣ score =0 (only loss making produce),<br>♣ very limited potential to contribution (>5%) =1 (a produce which will always be low in volume, and value despite productivity improvements),<br>♣ Medium potential (6-25%)= 3,<br>High potential (>25%)=5, |            |         |
| <b>Score 5</b>                                 | Score 3   | Score 1    | Score 0 |
| <b>Sesame, Golda, Table Fish and</b>           | T-Aman, Baro. Backyard  | Table Fish |         |

|              |  |  |  |
|--------------|--|--|--|
| <b>Bagda</b> | Poultry Egg,<br>Drum stick,<br>Mung and<br>Brinjal |  |  |
|--------------|--|--|--|

Key information against the criteria:

- ♣ Sesame is high potential for HH income
- ♣ HH income can be increased more than 25 % by sesame production.
- ♣ High potential for HH income by backyard poultry egg.
- ♣ Limited income for per household but it comes regularly.
- ♣ Commercial poultry egg is high potential for HH income
- ♣ It can be a main income source of a house hold
- ♣ T-Aman is the main source of HH income
- ♣ HH income can be increased more than 10 % by Improved T-Aman cultivation.
- ♣ Drum stick is a high potential crop for HH income
- ♣ Mung is a cash crop
- ♣ HH income can be increased more than 10 %

| <b>4. Short or longer production/harvesting season</b> |  |            |         |
|--|--|------------|---------|
| <b>Weight level maintain criteria (0-5)</b>            | Short peak harvesting window, in combination or not of being perishable or yearlong production with regular income makes a big difference to HH financial situation. A product with a short critical harvesting window, moreover being a perishable product having to be sold rapidly score =0, if short harvesting period but not perishable =1, while a crop with a lengthy harvesting period say milk =3, while the permanent production like betel leaf =5 |            |         |
| <b>Score 5</b>   | Score 3  | Score 1    | Score 0 |
| <b>Backyard Poultry Egg</b>                            | Sesame, T-Aman, Baro, Mung, Brinjal and Table Fish   | Drum stick |         |

Key information against the criteria:

- ♣ Sesame is not being perishable and could be store year round and farmers can sale when they want or year round.
- ♣ Backyard poultry has year round harvesting period and year round regular income
- ♣ Commercial poultry egg has also opportunity to year round harvesting period and year round regular income
- ♣ T-Aman has a long harvesting period.
- ♣ Drum stick has a short harvesting period.
- ♣ Only 30 days drumstick are available in polder area.
- ♣ Mung has a long harvesting period.

| <b>5. Food Security</b>                     |   |                             |                |
|---|---|-----------------------------|----------------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ If no impact on food security as non-food product score =0,</li> <li>♣ a food product already being produced locally in surplus has very limited impact opportunity =1,</li> <li>♣ Medium potential for impact= 3, a food crop which regularly has to be imported to maintain food security in the area, has high potential to impact=5</li> </ul> |                             |                |
| <b>Score 5</b>                              | <b>Score 3</b>  | <b>Score 1</b>              | <b>Score 0</b> |
| <b>T-Aman and Baro</b>                      | Sesame, Backyard Poultry Egg, Golda, Bagda, Brinjal and Table Fish  | Sesame, Drum Stick and Mung |                |

Key information against the criteria:

- ♣ Sesame mainly export product.



- ♣ Very few people consume sesame oil and its percentage is negligible.
- ♣ But it always creates an opportunity on HH incomes.
- ♣ Farmers purchase other products by selling sesame round the year.
- ♣ Backyard poultry egg production almost regularly and surplus production.
- ♣ Commercial poultry egg has regularly production and surplus production
- ♣ Rice is mainly for consumption and main food of polder dwellers.\
- ♣ Drum stick production is surplus in polder area.
- ♣ Mung bean has a contribution on HH food security. Farmers cultivate mung as cash crop.

| <b>6. Nutrition</b>                         |  |                 |         |
|---|--|-----------------|---------|
| <b>Weight level maintain criteria (0-5)</b> | Some product which is needed to ensure proper nutritional food intake, e.g. some micro elements usually in shortage should score high; If no impact possible on nutritional intake (e.g. no food crop) , score =0, very limited potential =1, Medium potential = 3, High potential =5 e.g. moringa with recognized high nutritional value. |                 |         |
| <b>Score 5</b>                              | Score 3  | Score 1         | Score 0 |
| <b>Backyard Poultry Egg and Drum stick</b>  | Sesame, Mung, Golda, Brijal and Table Fish   | T-Aman and Baro |         |

Key information against the criteria:

- ♣ Sesame is a nutritious product also but very few people habituated with sesame consumption.
- ♣ Egg is a very nutritious food. It is important food for child and women.
- ♣ Egg is a very nutritious food. It is important food for child and women.
- ♣ Rice is a main food of polder dwellers.
- ♣ Limited nutritious food.

- ♣ Muringa is a very nutritious food. It is important food for child and women.
- ♣ Mung is medium nutritious food

### C. Structure of the Industry (15)

1. Forward/backward linkage and MD Approach (5)
2. Existence of Service Providers (4)
3. Favorable Business Environment(4)
4. Other program Interest(2)

| 1. Forward / backward linkages conducive to market based approach |  |         |         |
|---|--|---------|---------|
| <b>Weight level maintain criteria (0-5)</b>                       | <ul style="list-style-type: none"> <li>♣ <u>Consider</u> existence of lead firms, in either inputs, processing or marketing, the suitability of these actors and ease of getting them involved, will determine potential. If no potential for Market linkage or development approach, e.g.</li> <li>♣ due to complete absence score =0,</li> <li>♣ very limited potential =1,</li> <li>♣ Medium potential = 3,</li> <li>High potential =5</li> </ul> |         |         |
| <b>Score 5</b>  | Score 3  | Score 1 | Score 0 |
| <b>Sesame, Golda, Table Fish and Bagda</b>                        | Backyard Poultry Egg, Baro, T-Aman, Drum Stick, Mung and Golda   |         |         |

Key information against the criteria:

- ♣ Sesame has very high potentiality for linkage with processors.
- ♣ Opportunity to Sesame contract farming with private company and collective sales.
- ♣ Egg has medium potential for linkage with market actors.

- ♣ 3 feed & medicine sellers are available in polder area.
- ♣ 3 local egg collectors are also available in polder area.
- ♣ High potential for linkage with rice market actors. All types of input companies' services are available in polder area.
- ♣ High potential for linkage with mung processors.
- ♣ Opportunity to Contract farming with BADC for rice seed production and collective sales.
- ♣ Potential for linkage with drumstick market actors.

| <b>2. Existence of service providers</b>    |   |         |         |
|---|---|---------|---------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ <u>Similar to above, existence and performance of public and private service providers to the value chain actors.</u> If no existence for SP, score =0,</li> <li>♣ very limited presence (1/2) =1,</li> <li>♣ Medium presence (2-5)= 3,<br/>High existence (&gt;5) =5</li> </ul> |         |         |
| <b>Score 5</b>                              | Score 3   | Score 1 | Score 0 |
| <b>T-Aman and Baro</b>                      | Sesame, Backyard poultry egg, Drum Stick and Golda  |         |         |

Key information against the criteria:

- ♣ One BADC dealer present in Polder area.
- ♣ Also DAE field staff Sub assistant agriculture officer present in Polder area.
- ♣ Local Sesame paikars also available in polder area.
- ♣ 6 paravets are present in polder area but they are mainly interest in large ruminant. But medicines are available in polder area. Farmers often get services (vaccination) from some Lead famers.
- ♣ Feed & medicine sellers are available in polder area, embedded services also available by input seller.
- ♣ All medicines are available in polder area. And vaccination managed by farmers themselves from Khulna city or Paikgacha.

| <b>3. Favorable business environment</b>    |   |                |                |
|---|---|----------------|----------------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ Consider relevant issues in the BEE. Absence of constraints or existence of support measures to doing business scores high, the extent of government involvement distorting the market could be negative.</li> <li>♣ If business environment is obstructive in several ways score =0, score higher in accordance with the business environment being more developed (e.g. aquaculture standards are available) and supportive (any subsidies, high on government policy priorities) or not.</li> </ul> |                |                |
| <b>Score 5</b>                              | <b>Score 3</b>  | <b>Score 1</b> | <b>Score 0</b> |
| <b>T-Aman and Baro</b>                      | Sesame, Backyard Poultry Egg, Drum Stick, Mung, Golda, Bagda, Brinjal and Table Fish  |                |                |

Key information against the criteria:

- ♣ Farmers can easily sale sesame in Batiyaghata hat( Outside Polder).
- ♣ Farmers can also sale sesame at farm gate.  
Sometimes Bepari or Processor comes to Nearest Sukdara hat adjacent Polder.
- ♣ All types of Business enabling environment are available in polder area.  
All norms, low and traditions are familiar to backyard poultry learning.
- ♣ Farmers can easily sale Paddy in Gaowghora hat.
- ♣ Farmers can also sale Paddy at farm gate.

| <b>4. Other programme interests</b>         |  |   |                |
|---|--|---|----------------|
| <b>Weight level maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ The extent there is opportunities for coordination, complementary action and synergy with other local programmes.</li> <li>♣ If no NGO/Orgn working in the same sector, score =0,</li> <li>♣ very limited presence (1-2) =1,</li> <li>♣ Medium presence (3-5)= 3,</li> <li>♣ High presence (&gt;5)=5</li> </ul> |   |                |
| <b>Score 5</b>                              | <b>Score 3</b>   | <b>Score 1</b>                              | <b>Score 0</b> |
| <b>Golda, Bagda and Table Fish</b>          | T-Aman, Sesame and Brijal  | Baro, Backyard Poultry, Drum Stick and Mung |                |

Key information against the criteria:

- ♣ FAO supply seeds and fertilizer but yet not provide training. FAO intervention only for one time and there is no follow up support available by FAO.
- ♣ No NGO/ Organization working on backyard poultry
- ♣ No NGO/ Organization working on backyard poultry
- ♣ No NGO/ Organization working on T-Aman
- ♣ No NGO/ Organization working on backyard poultry
- ♣ No NGO/ Organization working on T-Aman

#### D. Gender and Employment (17)

1. Involvement of women (9)
2. Employment Generation (8)

| <b>1. Involvement of women</b>              |  |
|---|--|
| <b>Weight level maintain criteria (0-5)</b> | Focus is on the contribution to women empowerment, not just more work while they are already overburdened and only would be to the |

|  |   |                      |         |
|--|---|----------------------|---------|
|  | detriment of the family. Aim is to give them for example an opportunity to retain income. If no women involvement potential, score =0, very limited potential =1, Medium potential = 3, High potential =5 |                      |         |
| <b>Score 5</b>                           | Score 3   | Score 1              | Score 0 |
| <b>Native Poultry Egg and Drum Stick</b> | T-Aman, Baro, Sesame, Brinjal and Mung  | Golda and Table Fish | Bagda   |

Key information against the criteria:

- ♣ Women are mainly involve in drying, Cleaning and storage.
- ♣ Women are also involved in harvesting sesame.
- ♣ It is manly operating by women, like feeding, housing and egg sellingIncomes get female directly and they use it as their plan.
- ♣ Drumstick is manly operating by women.
- ♣ Women are mainly involve in drying, Cleaning and storage.
- ♣ Women also involved in Seed storage.

| <b>2. Employment generation</b>             |   |                           |            |
|---|---|---------------------------|------------|
| <b>Weight level maintain criteria (0-5)</b> | Labour intensity of the envisaged intervention (could be area expansion, adding value, productivity increase). Number of employment creation, the type (quality) of employment and oportune timing thereof. If no potential for employment generation, score =0, very limited potential (<5%)=1, Medium potential (5-10%)= 3, High potential (>10%)=5 |                           |            |
| Score 5                                     | Score 3   | Score 1                   | Score 0    |
| T-Aman                                      | Baro, Backyard Poultry Egg, Golda, Table Fish and Mung  | Sesame, Brinjal and Bagda | Drum stick |

Key information against the criteria:

- ♣ Usually farmers harvest their sesame by themselves and they hire labor rarely.
- ♣ Only they hire power tiller or tractor for tillage.
- ♣ Women friendly and women can easily operating this egg business.
- ♣ Backyard poultry needs low investment.
- ♣ Poor and extreme poor people can also participate in this business.
- ♣ Women friendly and women can easily operating this business and low investment.
- ♣ Usually farmers harvest their paddy by themselves and they also hire labor.
- ♣ They also hire power tiller or tractor for tillage.
- ♣ During paddy cultivation labor demand increases.
- ♣ Usually women harvest their mung by themselves and they also hire labor.

#### E. Collective action opportunities (4):

| 1. Collective action opportunities              |   |              |         |
|---|---|--------------|---------|
| <b>Weight level<br/>maintain criteria (0-5)</b> | <ul style="list-style-type: none"> <li>♣ Does this product lend itself to Business ideas for cooperatives, on the input or market side, and producer groups benefitting of doing these collectively.</li> <li>♣ If no opportunities for collective action (working in collaboration/ as cooperatives), score =0,</li> <li>♣ very limited potential =1,</li> <li>♣ Medium potential = 3,</li> <li>♣ High potential =5</li> </ul> |              |         |
| <b>Score 5</b>                                  | Score 3   | Score 1      | Score 0 |
| <b>Sesame</b>                                   | T-Aman, Backyard poutry egg, Drum   | Baro, Golda, |         |

|  |                   |                               |  |
|--|-------------------|-------------------------------|--|
|  | Stick and Brinjal | Bagda, Table<br>Fish and Mung |  |
|--|-------------------|-------------------------------|--|

Key information against the criteria:

- ♣ High opportunity to collect or purchase sesame inputs collectively.
- ♣ High opportunity to contract farming of sesame.
- ♣ Also opportunity to sale collectively sesame and rice.
- ♣ Medium opportunity to collective action of backyard poultry.
- ♣ Farmers usually sales their egg at farm gate level to local egg collectors.
- ♣ Medium opportunity to collective action of commercial egg. Farmers generally sales their egg at Fulbari bazaar , some farmers at Khulna baro bazaar.
- ♣ High opportunity to collect or purchase rice inputs collectively.
- ♣ Also opportunity to sale rice collectively.
- ♣ Medium opportunity to collective action. Farmers generally sales their mung at Sukdara or farm gate, some farmers at Khulna
- ♣ Also opportunity to sale drum stick collectively.

## F. Risks

| ♣ Major risks (No, High,Medium, Low)      |   |           |
|---|---|-----------|
| <b>Weight level<br/>maintain criteria</b> | Consider major risks for this product (the absence of risks will score green, general prevalence of risks orange, but risks with high certainty of occurrence and extremely damaging to the produce should be give red. |           |
|   | Sesame, T-Aman, Golda, Okra,<br>Sweet gourd, Mung, Egg  | Drumstick |



## 22.2. Opportunity and Constrains of Selective Value chain

### Sesame VC

Sesame is a cash crop( 90 to 100days crop) in polder 22. Farmers usually produce Brown (Red) Sesame in Polder 22. But some farmers also produce Black Sesame also. Farmers usually BARI Till-2 and now BARI Til-3 and BARI-4 are also popular. BARI Til-4 is high yielding variety. Sesame grown February to May on summer session. It needs light irrigation. During summer sweet water is very precious both for irrigation and also for drinking. For these reason farmers can't cultivate other crops. Even farmers also avoid T-Aus for harvesting problems and also land preparation problems for T- Aman.

Sunflower, Maize and other field crops need more irrigation and production cost is higher than sesame. So farmers chose easy option like-sesame cultivation.

#### **The Opportunity:**

- Tremendous export potential (China & Japan).

- Present production can only meet 25% of the demand.
- Opportunity to increase production by introducing different varieties (Black Sesame, BARI -3, 4) and opportunity for horizontal expansion.
- Farmers can earn Tk 200 more by cultivating Black Sesame instead of Brown sesame per mound.
- Soil salinity tolerant crop.
- Easy to sell round the year.
- Main Cash crop and easy to store.
- Less cost intensive.

### **The Challenges:**

- Poor drainage system and water logging one of the major constrain.
- Limited irrigation facilities.
- Farmers often use their own seeds, for using own seed for long times, seeds are suffering (inbreeding depression).
- Lack of quality seeds availability.
- Lack of Knowledge on Improved production technology , Post harvest technologies (Grading and Packaging).

## Rice VC

Rice mean T-Aman( Transplanting Aman) is main crop in Polder 22. Around 100% area under T-Aman cultivation. Farmers usually use high yielding variety like BR-23, BR-28 and BR-29. Farmers also use local variety like- Ghunsi/ Ranifelot/Pattnai balam/ kachra Vutay felot. Local varieties are low yielding but water logging resistance. They are mainly deep water paddy. T-Aman production season June to December. During this season always heavy rainfall occurs. Due to heavy rainfall

and temporary water logging (1-2 days) no other crops can be cultivated in polder area field. And also ensuring food for round the year, farmers produce T-Aman.

### **Opportunity:**

- High market demand in national market.
- Main food in Bangladesh.
- Market actors are available.
- High demand of By-product.

### **The Challenges:**

- Farmers usually use their own seeds which is creating inbreeding depression.
- Lack of knowledge and technologies particularly about the use of balanced fertilizer.
- Irrigation and drainage problems
- Pest and disease management problems
- Highly dependent on rain water.
- Unavailability of quality inputs.
- Lack of drying facilities.

## **Scavenging bird Egg VC**

Scavenging bird (Local duck and hen) are the main sources of protein for polder dwellers. Around 60% house hold has folk (folk size 6-10). There is available water body and land for rearing Scavenging bird. It needs small space for rear in house. And it cost is low. Polder dwellers mainly eat eggs and they also sales some egg also. They also eat Scavenging bird's meat also. This is very popular in polder area because women can earn money directly by selling eggs at farm gate level.

### Opportunity:

- High demand of meat and egg.
- Easy to rear and women friendly.
- Comparatively more Disease resistant than commercial birds.
- Low investment.
- Poor people can easily participate in this business.

### The Challenges:

- Lack of services for disease control and prevention.
- Malnutrition due to under feeding high cost of feed and lack of quality feed.
- Inadequate knowledge on Improve Production Technologies.
- Weak linkage with Department of Livestock
- Natural calamities and intrusion of salinity.

### Poultry Egg VC

Layer egg production is a potential industry in polder 22. Around 100 House hold has layer farm and their main income source from egg selling. Due to easy connectivity from polder to nearest big markets at Khulna, layer industry grows very quickly. All types of inputs and services what a producer needs are available here. But drinking water for layer are light costly for farmers. Layer farm owners always buy water from mobile water supplier, who carries out water from outside the polder.

### The Opportunity:

- High demand of Egg round the year.
- Nearby high demand zone.
- Existence of production cluster.
- Available Day old Chick Company and feed company retailer.
- Support services are available
- Feeds and Day Old Chicks also available in Credit.

### **The Challenges:**

- Lack of services for disease control and prevention.
- Inadequate knowledge on Improve Production Technologies.
- Weak linkage with Department of Livestock
- Natural calamities and intrusion of salinity.
- High price of poultry feed
- High price of pure drinking water for Poultry bird due to salinity problem in polder area.
- Unavailability of Electricity

### **Drum stick VC**

Drum stick is an important vegetable in polder area. It grows all over the polder. In every house hold has one or two drum stick plant. It is easy to cultivate and harvesting season on March to April. A mature plant can produce 50 to 80 kg. It is a nutritious vegetable. It has medicinal quality. Its leaf is also nutritious but polder dwellers only eat its fruit.

### **The Opportunity:**

- High demand in season.
- High nutrition and medicinal value.
- Scope to increase number of trees.
- Production cost near about zero.
- Propagation can be easily done by its cuttings.
- Fallow and roadside land can be utilized.
- Long shelf life.
- Perennial crop.

### **The Challenges:**

- Short duration vegetables only One month selling period.
- Cannot tolerate water logging.
- Low price at farm gate level.
- 

### Sweet gourd VC

#### Opportunity:

- Tremendous unmet demand of Vegetables in Khulna district.
- Opportunity to introduce new varieties and new vegetables.
- Exist huge land
- High value of vegetables.
- Easy to sell at local and district market round the year.
- Easy market connectivity

#### Challenges:

- ❖ Poor drainage and irrigation system in Polder area.
- ❖ Salinity problem in winter season.
- ❖ Unavailability of renown quality vegetables seed like Lal Teer , Metal, A.R Malik, United etc.
- ❖ Lack of Knowledge on Improved production technology of vegetables.
- ❖ Numbers of input sellers are very poor and embedded service are not always available and sometimes did not fulfill farmer's requirement.
- ❖ Lac of knowledge on Post harvest technologies. Grading and Transport, packaging.
- ❖ Low ability to investment on vegetables production.
- ❖ Unavailability of micro nutrient
- ❖ Weak market linkage

### Okra VC

#### Opportunity:

- Tremendous unmet demand of Vegetables in Khulna district.
- Opportunity to introduce new varieties and new vegetables.

- Exist huge land
- High value of vegetables.
- Easy to sell at local and district market round the year.
- Easy market connectivity

### Challenges:

- ❖ Poor drainage and irrigation system in Polder area.
- ❖ Salinity problem in winter season.
- ❖ Unavailability of renown quality vegetables seed like Lal Teer , Metal, A.R Malik, United etc.
- ❖ Lack of Knowledge on Improved production technology of vegetables.
- ❖ Numbers of input sellers are very poor and embedded service are not always available and sometimes did not fulfill farmer's requirement.
- ❖ Lac of knowledge on Post harvest technologies. Grading and Transport, packaging.
- ❖ Low ability to investment on vegetables production.
- ❖ Unavailability of micro nutrient
- ❖ Weak market linkage