Terms of Reference for Consulting Services

FEASIBILITY STUDY AND ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR CONSTRUCTION OF A NEW CSD WITH ANCILLARY FACILITIES AT DAKSHIN SURMA UPAZILA OF SYLHET DISTRICT.

1. Introduction and Background

Ministry of Food (MoFood) under the Government of Bangladesh (GoB) is responsible for managing food grain operations in Bangladesh and maintaining emergency food grain stocks. The food grains are stored in flat Godowns called LSD/CSD and concrete silos.

At the beginning of 2009, food storage capacity was 14.00 lakh MT. Most of the Godowns were built during 1940s through late 1990s. Against the backdrop of emerging issues like global warming, the increasing frequency of natural disasters, volatile food prices and shortages of food during times of urgent need, food insecurity and malnutrition, GOB has undertaken initiatives to construct food storage Godowns through a number of projects. As a result, the present storage capacity now stands at 2.2 million MT. At present the identified a total of 653 nos. storage facilities in Bangladesh with 633 Nos Local Supply Depots (LSDs) 12 central Storage depots (CSDs) with 8 silos, and one (1) multistoried warehouse under DG food Department. Together they occupy a total of 1,6795 acres of land across the country and have a rated capacity of 2.2 million metric Tons (MT). of which 1.93 million MT are functional.

Although the population of the country has substantially increased during the last decade, the effective storage capacity of MoFood has not increased as required. This has created a great impediment in tackling the volatile food grain market situation. The govt. is very keen to address such situation effectively which requires an affordable security stock. With this view the govt. has planned to increase the storage capacity to 37 lakh MT by i.e. within the Eighth Five years' plan (EFYP).

In view of the global food market context, the GoB needs to maintain a higher food stock in the future in order to achieve food security during crisis. In this context, public food stock needs to be increased to support an expanding safety net programme. Sudden sharp increase in food prices along with normal seasonal vicissitudes will also require larger public intervention to have an effect on the expanding market. Further, increased frequency of natural disasters with greater damage to the economy requires higher emergency food operation. The size of the stock will depend on the size of the Public Food Distribution System (PFDS) and other factors including anticipated food grain situation in domestic and international markets and trade polices of exporting countries. Proper management mechanism that ensures quality and effective distribution are key to taking full advantage of these stocks and reducing the vulnerability of Bangladesh to external shocks.

Public stocks serve the triple purpose of ensuring adequate distribution under food-based safety nets, stabilizing prices/reducing prices for consumer and ensuring emergency relief. The price volatility experienced over the recent past has indicated that the govt. needs to maintain a good buffer stock to maintain uninterrupted supply of grains through the targeted channels of the PFDS to mitigate the sufferings of the poor, and through monetized channels (Open Market Sales (OMS) Food friendly Programme & Vulnerable Group Development (VGD) to stabilize price to whatever extent possible. Adequate physical storage capacity is also required for offering price incentives to the farmers through domestic food grain procurement.

In view of the country's vulnerability of crop failure due to natural calamities, a comfortable reserve of public food stock is required to meet emergencies and to stabilize prices. Building of food grain stock is contingent upon the government's capacity to procure grains either from

domestic production or from external sources (aid or commercial purchase). The aggregate physical storage capacity is also an important determinant of maintaining annual stock of grains in the country.

In view of the above situation, the GoB has planned to increase the present storage capacity from 22.82 lakh MT to over 37.00 lakh MT by the year 2025. In compliance with this decision; a feasibility study project can be taken to identify suitable location where a smart CSD to be constructed.

The GoB has started buying paddy directly from the farmer's quantity being about 700 thousand MTs. since 1st May 2016 to 31st September 2016. In order to provide price incentives to the small and marginal farmers the govt. planned to construct paddy silos and new conventional food godowns across the country. The govt. has to send this huge quantity of paddy to the registered private millers in order to get resultant rice from them. For obtaining the milling services, the govt. has been paying off at the rate of Tk.1150 and Tk. 1250 per MT to the husking and automatic mill owners respectively. The govt. has been spending Tk. 50-60 crores annually as milling charge of its paddy. In the meantime, many food godowns already been turned to dilapidated which needs to be renovated. In every financial year dilapidated food gowns along with ancillary facilities are repaired and constructed under revenue budget. But no new food godowns were constructed under revenue budget till date. As a matter of fact, the effective capacity of existing godowns is diminishing. Considering the facts and features, the govt. planned to construct new food godowns in different strategic locations across the country. as well as a new smart CSD/Warehouse.

Recently, the agricultural sector of Bangladesh has accomplished a massive development and the rice production has been increased significantly. Bangladesh has earned sovereignty in rice production. After meeting own demand, the country has started to export rice to other countries. So, Bangladesh needs to enhance storage capacity for ensuring fair price to the farmers and to preserve food grains. Having considered all these, the govt. has decided to construct new conventional godowns at different strategic locations across the country. The govt. wants to modernize existing facilities, or invest in modern facilities, rather than perform extensive, repeated repairs and renovations of current facilities. Modern facilities provide the physical and logistic advantages of better moisture control and inventory management and may be less likely to require frequent repair. If grains can be stored in better conditions for long period, it will aid greatly in reducing unnecessary transactions and operation costs. Furthermore, with increased storability.

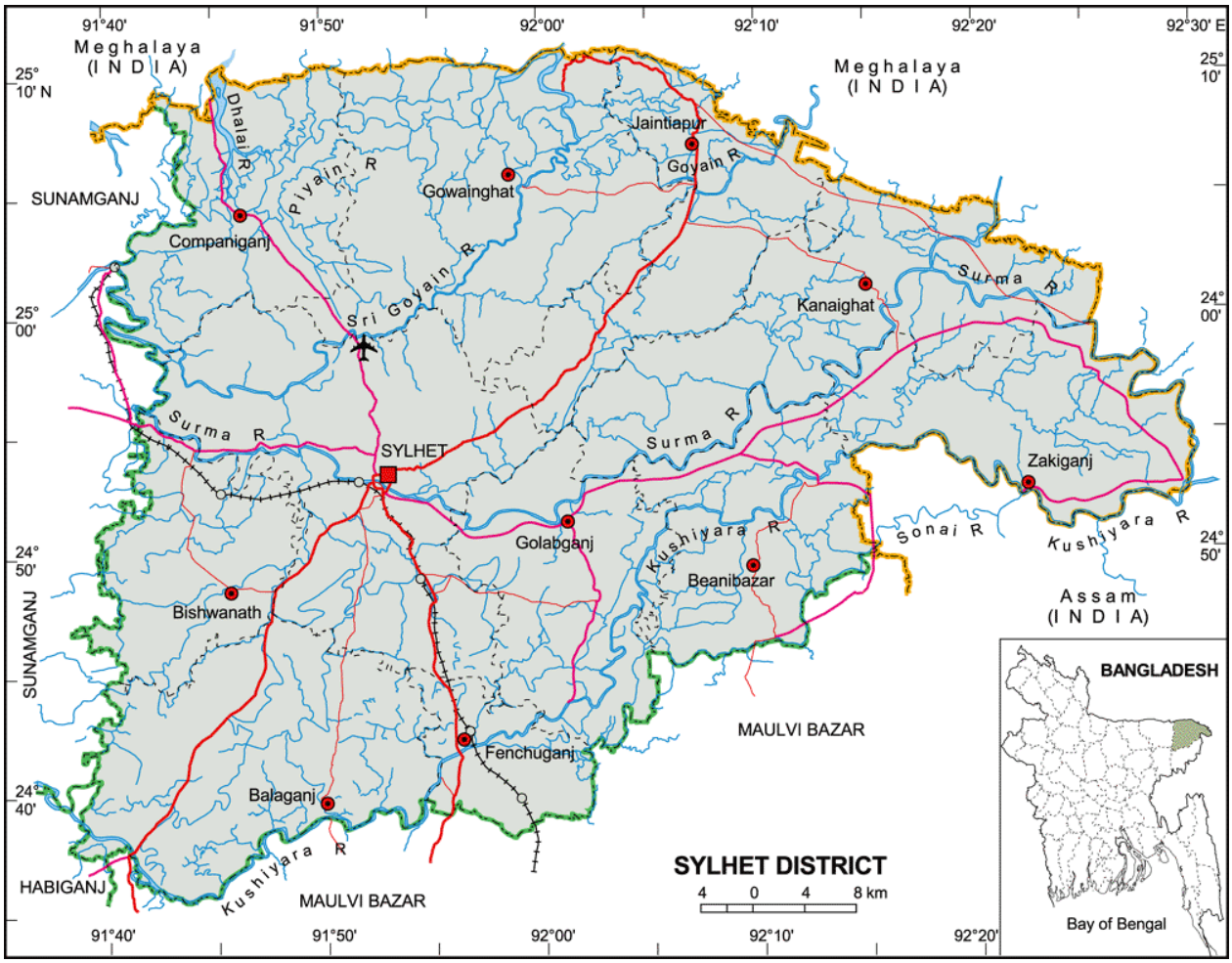
In this contest, Directorate General of Food (DG Food) under MoFood decided to construct a New Smart CSD with ancillary facilities at Dakshin Surma upazila of Sylhet district.

So, As per modern storage capacity building with adapting new Machinery & Equipment for Modernization of Food grain storage for the proposed project by introducing Automatic Conveyor Belt system, CCTV Surveillance System for centrally monitoring, hermetically sealed Smart Grain Warehouse Gate, Wall Mount Mechanical Ventilator Exhaust Fan, and Precision Environment monitoring system with Moisture stabilizer for grain warehouse, Smart Rice Bag Stacker, Heavy Duty Plastic Danez etc. for stacking food grains on this new establishment.

2. Proposed Project Area

The Project area covers Sylhet District (map attached)

Location Map of the Proposed Project Area



3. Objective of Consulting Service/Study and Scope

The main objective of this Consulting service (the Services) is for the following:

a) A Feasibility Study (FS) with Environmental Impact Assessment (EIA) for the Construction of a New Smart CSD with Ancillary Facilities at Dakshin Surma upazila of Sylhet district;
b) Review of previously completed departmental feasibility for construction of new food Godowns;
c) Preparation of Masterplan of the construction of new smart CSD food Godowns by acquisition/purchasing of new Land which is well connected with other Upazila/Thana/highway/railway following the detailed feasibility;
d) Preliminary Design, Drawing and Cost Estimation of the new proposed smart CSD food Godown with Preparation of DPP;
e) Market/Demand Analysis
f) Environmental Sustainability, Climate Resilience and Disaster Risk Analysis
g) Cost-Benefit Analysis

h) Human Resource and Administrative Support Analysis
i) Institutional and Legal Analysis
j) Risk (uncertainity) and Sensitivity Analysis
k) Alternative/Options Analysis
l) Provision and access to land acquisition with required Resettlement action plan.

4. Scope of Services

To fulfill the scope of services, the consulting firm will perform the following tasks:

- A feasibility study of Establishment/Construction of a new CSD Food Godowns at Dakshin Surma upazila of Sylhet district, with a Location to collect and dispatched food grains around the Sylhet District through country-wide;
- Review of previously completed departmental feasibility (if any) for construction of new food Godown Project;
- Detail Master Plan as CSD with smart food grain (mostly Rice) warehouses/godowns with related all ancillary Modern facilities & infrastructures;
- Sub-Soil Investigation;
- Digital Survey Report, Detailed Layout plan, Architectural Plan and Construction design (Approx.) of the new construction of CSD Project (new altogether having godowns' Capacity as a whole 30,000 MT (Full capacity utilization should be ensured) with all necessary facilities such as Staff quarters, Security Shade, Dormitory etc.
- Market/Demand Analysis
- Technical/Technological & Engineering Analysis
- Environmental Sustainability, Climate Resilience and Disaster Risk Analysis;
- Carryout Cost benefit computation of EIRR, FIRR, NPV and Sensitivity Analysis for all components selected under the project according to the requirements of GOB;
- The proposed Sylhet CSD needs to have both road and rail connectivity facilities for inter-district transportation of food grains for connectivity with highways. The total project cost should include related expenses.
- The cost of building 30 nos. godowns of 1000 metric tons' capacity each can be seen by examining the comparative cost of building a total of 6 godowns of 5000 metric tons' capacity.
- Construction of multiple truck scale (Weigh Bridge) and 25 feet wide Sustainable RCC road can be constructed around the godown to facilitate fast truck movement in order to avoid congestion of trucks during food grain collection season;
- 5,000 in each godown to facilitate food grain transportation, loading and unloading and warehouse building process. Porch with common loading dock can be provided on both sides of ton capacity warehouse;
- In case of construction of CSD of 30,000 MT capacity, site development should be done by land filling along with construction of boundary wall after completion of land acquisition process;
- By means of moveable conveying system, arrangements can be made for loading and unloading of food grains in the warehouse.
- Godown ventilation system can be operated manually as well as automation system;
- Considering the high flood level, the ground level of CSD Campus should be at least 1.00 meters higher than the high flood level and the floor of the godowns to be constructed from CSD Ground Level can be constructed 1.30 meters higher;
- It is necessary to have a quick drainage system from the campus;
- Sylhet is an earthquake prone area. Before construction of infrastructure, the design of

food warehouses, quarter roads, etc. can be considered for earthquakes;

- Corks sheet can be used in the cavity part in the construction of the cavity wall to protect the tolerable temperature inside the food warehouse;
- Solar panels can be installed on Roof Top;
- Taking into consideration High Flood Zone, along with R. C. C Floor about 6 feet (5-inch R. C. C + 5-inch Brick Works) high flood wall should be constructed.
- Preparation of environmental and social baseline survey as per Environmental and Social Safeguard guidelines;
- Potential impact identification and evaluation;
- Environmental mitigation measures suggestion; and
- Preparation of the Environmental Management and Monitoring Plan (EMMP);
- Human Resources and Administrative Support Analysis
- Institutional and Legal Analysis
- Risk Uncertainity and Sensitivity Analysis
- Alternative/Options Analysis
- Resettlement action plan: Provision and access to land acquisition with required Resettlement action.

4.1. Detailed scope of services

Full Feasibility Study and Environmental Impact Assessment (EIA) for establishment a new Food Godowns as CSD; the Client's Requirement for the Feasibility Study and Environmental Impact Assessment (EIA) of Smart (mostly Rice) godowns with related all ancillary Modern facilities as CSD at Dakshin Surma, Sylhet (Directorate General of Food under Ministry of Food).

- **Type of facilities:**

  - Damp-proof construction with smart door features;
  - Controlled environment (Temperature, humidity, airflow to ensure pest control and prevent loss ofexcessive moisture (weight) from the grain);
  - No use of chemical pesticide;
  - Conveyer System Adaptation;
  - Specification, types and country-of-origin of the key components to be specified.

- **Detail requirement of Land:**

  - Land Acquisition;
  - Required overall land for the proposed smart CSD;
  - Find the easy connectivity and cost-effective road/rail/river;
  - Also find the proposed land for the approach road/rail.

- **Detail requirement of Survey:**

  - Topographic Survey;
  - Geotechnical Survey;
  - Market Demand Survey;
  - Environmental Baseline Survey;
  - Social Survey;
  - LAP and RAP.

- **Types of Grain and Capacity:**

- Bagged Rice to be stored on Danez (No. of layers of bagged to be confirmed to ensure desired level of storage and meet the target capacity (Shantahar Warehouse facility failed to ensure utilization of designed capacity; present utilization is 15000 MT against the Designed capacity of 25000 MT);
- No other crop or grain needs to be considered (paddy, wheat etc. are not required), Specified system for wheat;
- Capacity of Store 30,000 MT (Full capacity utilization should be ensured).

- **Required level of Automation (Loading, unloading, Inventory, transportation etc.):**

- Smart warehouse management system (environment control and monitoring system) with real time monitoring;
- HVAC System to ensure the long storage of rice without pest attack, loss of weight (beyond allowable limit). (Loading/unloading frequency is to be specified);
- Real-time monitoring of temperature, moisture, humidity of each of the compartment;
- Grain quality monitoring based on laboratory tests on a periodical basis and continuous update of quality;
- Real-time inventory of the storage and delivery with bag weight;
- Automated conveyor belt loading to various compartment (with minimum human labor);
- Possibility of gravity unloading from upper floors to optimize power consumption to be explored;
- Sustainable and energy efficient technology to be used.

- **Required level of Control of the Temperature, Moisture, Aeration etc.:**

- Relevant international standards and recommended good practices/standards by FAO, ASHRAE to be followed.

- **Storage pattern (Bagged):**

- Bagged rice storage in 2000 MT (will be studied to find the optimum size of individual room) capacity compartments (Total 30,000 MT +/- Capacity).

- **Transportation System:**

- The access to the nearby highways and railway system should be made to ensure easy carrying of the rice bags to and from the CSD;
- Provision of loading and unloading to railway wagon. Connection to nearby railway track;
- The facility will cater neighboring districts (Sunamganj, Hobiganj, Moulvibazar).

- **Resettlement action plan:**

- Provision and access to land acquisition with required Resettlement action.

- **Other Features:**

- Fire protection system;
- Potential solar power generation through roof top PV panel;
- Ensure stable power and study the need for backup power;
- Recommend the procurement method ensuring quality and cost;
- CC Camera surveillance;
- Required Land for connectivity of Railway (Double Track).

- **Lessons Learnt from Shantahar Multi Storage Warehouse and Other CSD:**

1. Excessive loss of moisture from grain and also loss of weight of the grain (permissible loss of weight is to be determined.
2. The capacity of the CSD could not be fully utilized, due to improper storing pattern Not optimal in terms of energy efficiency.
3. Unpleasant odor in the store- the reason should be found out to avoid this.

The Consultant shall carry out the detailed feasibility assessments and Environmental Impact Assessment for Establishment/construction of a new smart food grain (mostly Rice) godowns with related all ancillary Modern facilities as CSD at Dakshin Surma, Sylhet under DG Food in terms of technical, economic, social and environmental criteria. The study shall follow applicable Bangladesh Govt. food safeguard policies and Safety Guidelines as applicable, as well as a special assessment and analysis of vulnerabilities of existing godowns under DG Food.

The Consultant's tasks shall include, but not be limited to, the following:

a) **Preliminary Baseline:** Assemble a preliminary baseline for each facility's site, including but not limited to the following:

   I. Topography: Collect or produce aerial photographs and prepare a new Master Layout Plan of the proposed project's Structures/utilities of godowns. Identify, map and characterize its infrastructures and related ancillary facilities. Carryout adequate engineering surveys necessary for the feasibility assessments.
   II. Collect all the information about the site including GIS maps, Google maps, remote sensing, land use maps and contour maps, available reports relevant to the construction of new project.
   III. Land Use: Characterize the proposed land use within the area of influence of each godowns.

b) **Infrastructure Survey:** Collect information on existing access and relevant infrastructure including roads, inland waterways, railways, border infrastructure including their capacity, condition, the traffic they currently carry, and required improvement to suit the proposed new godowns development for internal traffic. Document/propose any last-mile links/infrastructure that are needed to be developed including river ports, access roads, parking areas, etc.

c) **Preparation of Land Use Plan with Master Plan:** Land Use Plan and Master Plan with the preliminary engineering designs for all the New Godowns requirements (design of land development, high security boundary walls, roads, drainages, offices for Staffs, maintenance yard, toilets facilities, staff quarters and other utility buildings on the basis of identification of requirements) including alternative/options designs for comparison purposes. The Land Use Plan and Master Plan should take into account the recommendations of the environmental and social screening and scoping, so as to avoid or minimize environmental and social impacts where feasible.

d) **Market/Demand Analysis:** Market /Demand analysis section assesses the need for public investments and involves the elements of problem statement, relevance of the project idea, proposed project interventions, stakeholder's identification, demand analysis and SWOT analysis.

e) **Technical/Technological & Engineering Analysis:** Technical/Technological analysis with including Description of project area, Technical Design, Output Plan, cost estimates and timeline of implementation.

f) **Economic and Financial Analyses:** Estimate investment/maintenance costs for the possible alternatives, benefits, and carryout comparative and financial analyses, sensitivity and risk analyses for design options/alternatives and under different investment scenarios, considering construction and key impact mitigation and dismantling costs, rehabilitation and maintenance lifecycle costs.

g) **Environmental Impact Assessment:** Preparation of environmental and social baseline survey as per Environmental and Social Safeguard guidelines. Identify important environmental and social components that are likely to be impacted from the project, impact identification and evaluation. Environmental mitigation measures suggestion; and Preparation of the Environmental Management and Monitoring Plan (EMMP);

h) Prepare the following outputs:

I. Land Use Plan and Master Plan of the New Godowns design, layout, and linked infrastructure including last mile connectivity needs such as access roads, river etc. The plan should show all the necessary infrastructure, equipment and service lines that are necessary to operate the New Project. Alternative plans to be developed to assess the different possible options.
II. Cost estimates and cost-benefit projection/analysis, including economic and financial analyze and sensitivity analyses.
III. Preliminary project implementation plans including construction technology considerations.
IV. Resettlement Action Plan (RAP) preparation;
V. EIA report including Environmental Management Plan (EMP);
VI. Obtain ECC from DoE;
VII. DPP preparation.

i) Preliminary Detailed Design

The detailed tasks and responsibilities under detailed survey and detailed engineering design include relevant all kinds of utility services as required.

- Prepare the Preliminary Detailed Architectural and Engineering Design for a new Construction a New Smart CSD with ancillary facilities at Dakshin Surma, Sylhet with all infrastructures which shall include landscaping, boundary walls, security tower, buildings, approach/ inside roads, retaining and protection structures, drainage, river training, slope stabilization and water supply and sanitation, electrical supply and electrification, telecommunication, pavement works suitable for godowns construction as applicable, and miscellaneous ancillary works for garbage management and other supporting amenities in accordance e with the approved preliminary design.
- All the design works must follow the requirement and standard code of practices acceptable to (MoFood).
- The Consultant shall furnish the important documents, design reports, drawing and other necessary information in the DG food acceptable format (as attached) in Hard/soft copies.

5. Duration of Services

Considering the different activities proposed herein and their logical sequence, a total of 6-month period is estimated as follows:

Within 6-months from Start Date:

(i) A feasibility with EIA study of Construction a New Smart CSD/Warehouse with ancillary facilities at Dakshin Surma, Sylhet;

(ii) Review of previously completed departmental feasibility for construction of new food Godowns;
(iii) Topography Survey with Detailed Master plan and Preliminary design (Approx.) of the 30000 M.T Capacity New Smart CSD with ancillary facilities at Dakshin Surma, Sylhet;
(iv) A Detailed Study of Required land for construction of new food Godowns;
(v) Resettlement action plan: Provision and access to land acquisition with required Resettlement action;
(vi) Detailed Layout plan, Architectural Plan and Structural design (Approx.) of the 30000 M.T Capacity New Smart CSD with ancillary facilities at Dakshin Surma, Sylhet.

6. The Consultant's Team, Qualifications and Inputs

The proposed services under these Terms of Reference shall be carried out by a consulting firm having at least 15 years of overall experience and must have experience in successfully completing at least one contract for conducting a Detailed Feasibility Study for a government project, with a minimum value of Tk. 2 crore within the last five years. The firm must have experience in successfully completing at least 2 nos. specific Feasibility Study on Food Godown/LSD/CSD within the last five years.. Experience in Environmental Impact Assessment (EIA), Resettlement Action Plan (RAP) preparation is obligatory. Familiarity with the requirements for establishing new projects and preparing DPP documents for Food Godown/LSD/CSD food godowns and their ancillary facilities.

Responsibilities of Key Personnel

SN	Proposed Position	Assigned Task	Man Month
1.	Team Leader/Project Coordinator	Coordination and team leadership, liaison with all stakeholders and the client, preparation of reports, overall management and monitoring of project activities, and formulation and preparation of design methods and analyses for various structural designs, drawings, and documentation for the entire project.	6
2.	Principal Architect	Formulation and design of various architectural elements of the project.	3
3.	3D Visualizer	Create 3D models to visualize design concepts, illustrate environmental impacts, and produce detailed renderings to support design refinement and presentations.	2
4.	Urban and Regional Planner	Analyze the proposed site for topography, subsoil conditions, and accessibility; map and assess existing utilities; and prepare the project master plan.	2
5.	Mechanical Expert	Plan and design tools, engines, machines, and other mechanical equipment; design and develop automated industrial processes, systems, and components.	2
6.	HVAC and Control System Expert	Prepare layouts for HVAC maintenance and control systems, design to ensure HVAC operations achieve optimal effectiveness and efficiency, adhering to accepted engineering practices, procedures, policies, and applicable codes.	2
7.	Electrical Engineer	Develop the electrical master plan, taking into account all potential electrical loads, methods of internal and external power distribution, and sub-station capacity. Additionally, create the FDAS (Fire Detection and Alarm System) master plan, considering addressable fire detection and alarm zones.	2
8.	Civil (Structural) Engineer	Supervise the geotechnical investigation and recommend a suitable foundation system, develop the conceptual structural system considering all anticipated loads, prepare the design	3

SN	Proposed Position	Assigned Task	Man Month
		criteria and conduct design analysis for various structural elements of the project, document all aspects of the project.	
9.	Traffic and Railway Engineering Expert	Study the loading and unloading requirements as well as traffic volume, prepare a plan for the road network, parking, and railway connectivity.	2
10.	Economic and Financial Analyst	Conduct data collection and perform project viability analysis through economic and financial analyses.	2
11.	GIS Expert	Prepare an ArcGIS-based base map, land use map, and contour map of the project area	2
12.	Environmental Expert	Prepare the environmental and social baseline according to Environmental and Social Safeguard guidelines; predict and evaluate impacts; suggest environmental mitigation measures; prepare the Environmental Management Plan (EMP); and obtain the Environmental Clearance Certificate (ECC) from the Department of Environment (DoE).	3
13.	Agricultural Expert	Collect and analyze data for the baseline study area, focusing on soil characterization, farming practices, cropping patterns and intensity, cropped area, and crop production. Identify agricultural impacts and suggest mitigation measures.	2
14.	Fisheries Expert	Collect and analyze data for the baseline study area, including fish habitat description, fish production and effort, fish migration, fish biodiversity, and fisheries management. Identify impacts on fisheries resources and suggest mitigation measures.	2
15.	Ecological Expert	Prepare a baseline assessment of ecological resources, including terrestrial and aquatic ecosystems and habitat information. Identify sensitive habitats, assess ecological changes and potential impacts, and suggest mitigation measures.	2
16.	Entomologist	Survey and identify potential pest species in the study area that could affect the stored food. Evaluate the potential impact of these pests, recommend integrated pest management strategies, and assess the environmental impact of pest control measures on non-target species and ecosystems. Ensure that pest management practices comply with local and national environmental regulations.	2
17.	Social Expert/ Sociologist	Conduct a socio-economic baseline survey, prepare checklists for FGDs (Focus Group Discussions) and KIIs (Key Informant Interviews), and carry out public consultations. Identify key social impacts and suggest possible mitigation measures. Prepare the Environmental and Social Management Plan (ESMP), and compile the report and presentation.	2
18.	Resettlement Expert	Develop study tools (FGDs, KIIs, interviews, questionnaires, and checklists), conduct a socio-economic census/survey, and prepare the Resettlement Action Plan (RAP).	3
19.	Cost Estimation Expert	Prepare all types of designs and estimates for various elements of the project.	2
		Total man-Months	**46**
The total estimated number of key professional man-months required for the assignment is 46. In addition to this, the consulting firm should propose the number of other professionals needed for the assignment, including additional technical experts (Data Analyst, Communication/Liaison Officer and so on), research assistants, field surveyors, data entry operators, and any other relevant roles. The			

SN	Proposed Position	Assigned Task	Man Month
proposal should include the qualifications and expected inputs of these professionals. This approach ensures that all necessary expertise and support are appropriately accounted for and allocated, based on the specific requirements of the project.			

Qualification and Experience of the Experts

Position	Academic Qualification	Professional Experience	Desirable Specific Experience
Team Leader/Project Coordinator	• B.Sc. in Civil Engineering and M.Sc. in Civil Engineering/Environmental Engineering. PhD will be considered an advantage.	20 Years	• Must have 20 years of professional experience and 15 years of experience in relevant project. • Project related experience as Team Leader in Feasibility study within last 10 years; • Must have work experience in a multidisciplinary team in conducting study, site planning, structural design, and estimation of development projects; • Liaison with all stakeholders and client.
Principal Architect	• Minimum B.Arch. in Architecture • Master's will be given preferences	15 Years	• Must have 15 Years of professional experience and 10 years' experience in relevant Project; • Project related experience in feasibility study with masterplan as a principal architect; • Assist the team leader to conduct the study and prepare conceptual layout, design drawing etc.
Urban and Regional Planner	• B.Sc. in Urban and Regional Planning • Master's will be given preferences	12 Years	• Must have 12 Years of professional experience and 8 years' experience in relevant Project; • Project related experience in feasibility study with masterplan as the urban and Regional Planner; • Assist the team leader to prepare Master Plan, Layout Plan etc.
3D Visualizer	• B.Arch. in Architecture	7 years	• Must have experience as 3D visualizer in drawing and design of govt./semi-govt./autonomies sector; • High proficiency in max, 2D, 3D AutoCAD, Adobe Photoshop/illustrator, Sketch up.
Mechanical Expert	• M.Sc. in Mechanical Engineering	15 years	• Must have 15 Years of professional experience and 10 years' experience in relevant Project; • Project related experience in feasibility study in govt./semi-

Position	Academic Qualification	Professional Experience	Desirable Specific Experience
			govt./ autonomies sector;
HVAC and Control System Expert	• B.Sc. in Mechanical Engineering • Master's in Mechanical Engineering will be given preferences	12 years	• Must have 12 Years of professional experience and 8 years' relevant experience in selection of HAVC systems and monitoring of Project; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector;
Electrical Engineer	• B.Sc.in Electrical Engineering • M.Sc. Electrical will be given preferences	12 years	• Must have 12 Years of professional experience and 8 years' experience in relevant Project; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector;
Civil (Structural) Engineer	• B.Sc.in Civil Engineering • M.Sc. in Civil Engineering will be given preferences	15 years	• Must have 15 (ten) years of professional experience in the field of develop the concept Structural design system with consideration of all anticipated loads, planning, monitoring, costing, and preparing Master plan of govt./ semi-govt./ autonomies Institution; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector;
Traffic and Railway Engineering Expert	• B. Sc. in Civil Engineering and M. Sc. in Transportation Engineering	12 Years	• Must have 12 years of professional experience and 8 years' experience in relevant Project; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector.
Economic and Financial Analyst	• B.Sc. in Economics • MBA/ M.Sc. will be given preferences	10 Years	• Must have 10 years of professional experience and 8 years relevant experience in economic analysis and calculating BCR, NPV, FIRR, EIRR etc.; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector.
GIS Expert	• B.Sc. in Urban and Regional Planning (URP)/B.Sc. in Geology/Geography • M.Sc. degree in Urban and Regional Planning (URP) will be given preferences	10 years	• Must have 10 years of professional experience and at least 8 years' of working experience in producing GIS coverage, contour map, Digital Elevation Model etc.; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector;
Environmental	• M.Sc. degree in	15 Years	• Must have 15 years working

Position	Academic Qualification	Professional Experience	Desirable Specific Experience
Expert	Environment Engineering /Environment Science PhD will be considered an advantage.		experience and 10 years relevant experience in environmental and social Impact assessment; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector.
Agricultural Expert	• M.Sc. in Agriculture/Crop Science • PhD will be considered an advantage.	15 Years	• Must have 15 Years of professional experience and 10 years' relevant experience; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector.
Fisheries Expert	• M.Sc. in Fisheries	12 Years	• Must have 12 Years of professional experience and 8 years' relevant experience.
Ecological Expert	• M.Sc. in Ecology/Zoology	15 Years	• Must have 15 Years of professional experience and 10 years relevant experience.
Entomologist	• M.Sc. in Entomology	15 Years	• Must have 15 Years of professional experience and 10 years' relevant experience.
Social Expert/ Sociologist	• M.Sc. in Sociology/Social Science • PhD will be considered an advantage.	15 Years	• Must have 15 years professional working experience and 12 years experiences in relevant field; • Project related experience in feasibility study in govt./semi-govt./ autonomies sector.
Resettlement Expert	• M. Sc. in Sociology/Social Sciences	15 Years	• Must have 15 Years of professional experience and 10 years' relevant experience in resettlement and rehabilitation, action plan preparation etc.
Cost Estimation Expert	• B.Sc. in Civil Engineering	10 Years	• Must have work experience as a Quantity Surveyor/Estimator in preparing feasibility study, cost estimation, budget; bill of quantities and other tender documents for govt./semi-govt./ autonomies sector.

7. Implementation Schedule and Reporting Requirements

Key Activities	Timing	Reporting	Delivery Conditions
Mobilization, Data/report collection, desk study, detailed scheduling of activities and preparation of inception report	1 Month from Start Date	Inception Report	5 hard/ 1 soft copy
Topographical Survey and Detailed preliminary design for a new smart CSD food grain godown, including a master plan, draft feasibility study and EIA report.	4.5 months from Start date	Draft detailed design report and Draft feasibility study, EIA and resentment action plan report	5 hard/ 1 soft copy; including a presentation at the Employer's office
Draft Resettlement Action Plan Report	5 months from Start date	Draft Resettlement Action Plan Report	5 hard/ 1 soft copy; including a presentation at the Employer's office
Final Master Plan as CSD with smart food grain (mostly Rice) warehouses/godowns with related all ancillary Modern facilities & infrastructures including draft final feasibility study, EIA and resettlement action plan report.	5.5 month from Start Date	Draft final detailed design report/master plan and Draft final feasibility study, EIA and resentment action plan report	5 hard/ 1 soft copy; including a presentation at the Employer's office
Final design drawing, feasibility study, EIA, Resettlement Action Plan (RAP) report with DPP.	6 month from Start Date	Final design and drawing, feasibility study, EIA and resentment action plan report	5 hard/ 1 soft copy; including a presentation at the Employer's office

8. Facilities and Equipment to be provided by the Consultant

During the study, the Consultant shall provide all the facilities for their staff/consultants and other logistical requirements on their own to fulfill their obligations. These will also include support staff and office facilities, office equipment and supplies, required equipment and materials for field data collection, vehicles, and communications as required. The Consultant will set out the phase wise requirements in the technical proposal and provide the financial cost estimates for these in their financial proposal.

9. Facilities to be provided by the Directorate General of Food

The client will provide the Consultant with all available studies and reports and data relevant to the services. The client will provide information required for the study and provide assistance where the Consultant, for the purpose of executing these services, needs to coordinate with other Government agencies, and non-government agencies. The client will also participate in all stakeholder consultation events related to the environmental and social assessments, with the technical and logistical support of the consultant as required and relevant data and information for establishment of proposed Smart CSD.