



Bangladesh Space Research and Remote Sensing Organization (SPARRSO)
Agargaon, Sher-e-Bangla Nagar, Dhaka-1207
www.sparrso.gov.bd

Selection of Consulting Firm for
Feasibility study for Rocket Manufacturing & Launching Station, Satellite
Manufacturing Industry & AIT Lab and Space Industrial Park of SPARRSO

Terms of Reference (TOR)

A. Background

In 1972, a space research programme in Bangladesh named Earth Resources Technology Satellite (ERTS) Program was initiated in line with the ERTS Programme of NASA. In continuation, Bangladesh LandSat Programme (BLP) was included in Bangladesh's 1st Five Year Plan (FYP) in 1975. Additionally, Space and Atmospheric Research Center (SARC) was established. Later in 1980, Space and Atmospheric Research Center (SARC) and Bangladesh LandSat Programme (BLP) were merged to establish a national space agency named as Bangladesh Space Research and Remote Sensing Organization (SPARRSO). It emerged as a statutory body through the enactment of Act No. 29 of 1991.

SPARRSO is a statutory organization for multi-disciplinary research and peaceful applications in the field of space science and technology in Bangladesh. Its Vision is to contribute to the improvement of people's living standards and national development through the acquisition of knowledge of space science and technology and its peaceful use.

Space technology is a vital element for advancement in modern science and space economy is going to be a trillion-dollar business in the near future. Thus, it is very urgent to start projects in Bangladesh focusing on Space Technology including the Satellite Manufacturing Industry, and Rocket Launching Station to place the satellites into orbit with low cost and establish a Space Industrial Park to attract local and foreign investments in R&D.

These steps will pave the way to put Bangladesh at a prestigious position in the world as well as earn a lot of foreign currency by providing worldwide services in modern science and technology.

B. Objectives

- (a) To establish a rocket manufacturing and launching facility in Bangladesh.
- (b) To establish different types of satellite manufacturing facilities including AIT.
- (c) To establish a hi-tech space industrial park to attract local and foreign investment in R&D and produce space-grade components.
- (d) To save money for the country and earn foreign currency by placing local and foreign satellites in different orbits.
- (e) To provide satellite data and space application-based services for TV, Internet, telecommunication, natural resource monitoring, disaster management, blue economy, research on agriculture, water resources, forestry, space weather, sea surface

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temperature, upper atmosphere, electricity management, traffic & transportation, aviation navigation, marine vehicle tracking, and many more along with important national decision-making purposes.

- (f) To establish our legal rights in our space and Orbit system.
- (g) To develop skilled manpower and human resources in advanced scientific fields including space science & technology to keep pace with the 4IR.
- (h) To conduct space missions for scientific research, spaceflight and space mining.
- (i) To participate in the Trillion Dollar Space-based Economy including space technology and other advanced engineering sectors and play a significant role in the GDP growth of Bangladesh.
- (j) To collaborate with local and foreign entities in advanced science and technology.

C. Concept of the Project under Feasibility Study

1.	(a) Associated Ministry (b) Executing Office	:	Ministry of Defence Bangladesh Space Research and Remote Sensing Organization (SPARRSO)
2.	Name of the Projects (Project to be taken after FS)	:	<ul style="list-style-type: none"> ❖ Establishment of “Rocket Manufacturing & Launching Station” ❖ Establishment of “Satellite Manufacturing Industry & AIT Lab” ❖ Establishment of “Space Industrial Park”
3.	Duration for the Feasibility Study	:	09 Months.
4.	Estimated Timeline for the Development Projects	:	<ul style="list-style-type: none"> a. Start: July 2025 b. Complete: June 2030

D. Stakeholders & Beneficiaries

The primary stakeholders of this project are-

- Prime Minister’s Office/ Chief Advisor’s Office
- Ministry of Defence
- Ministry of Agriculture
- Ministry of Fisheries
- Ministry of Food
- Ministry of Science and Technology



- Ministry of Education
- Ministry of Land
- Ministry of Environment, Forest and Climate Change
- Ministry of Planning
- Ministry of Power, Energy and Mineral Resources
- ICT Division
- Posts and Telecommunications Division
- Water Development Board
- Power Development Board
- Local Government and Engineering Division (LGED)
- Public Works Department (PWD)
- City Corporations
- Coast Guard
- Different Universities
- Research Organizations and many more.

Moreover, this project will earn foreign currencies through space programmes and contribute to the national GDP. Advancement in Space Technology will also boost the growth of technological development in all aspects creating a large amount of employment and entrepreneurship opportunities in Bangladesh. So, the socio-economic development of the mass people of Bangladesh is the prime goal of this project. At the end, Bangladesh will achieve goodwill and get a good financial return from this project.

E. Scope of Services

Following relevant policies, in particular with the relevant laws and policies of Bangladesh, the consulting firm will undertake tasks including but not limited to the following:

1. Legal Regulatory Matters related to this project

Conducting successful space mission depends on sophisticated technology. So, the firm should suggest necessary guidelines, collaboration scope, cooperation, MoU, relevant documentation, legal procedures, permissions, contracts with local and foreign entities, international treaties, act for space activities, formulation of national space law, etc.

2. Technical Matters

i. Design & Architecture

The firm will submit a preliminary design according to the requirements of the projects. The report should suggest suitable locations, area, safety range, safety measures, necessary preparation of the lands to meet the requirements of the sites, etc. Important components for the projects and regional research centers should be included in the final report for cost estimation with yearly projection and proper planning of the Project Proposal (DPP/TPP/TAPP).

Some components are provided as examples in the list below-



a)	<p><u>Name of the Project:</u> Establishment of “Rocket Manufacturing and Launching Station”</p> <p><u>Tentative Location:</u> Kuakata, Patuakhali</p>	<p><u>Expected Components of the Project:</u></p> <ul style="list-style-type: none"> ❖ Necessary specification and assembling cost of two (2) rockets. ❖ Categories and amount of fuel for suitable type of Rocket. ❖ Mission Control Station ❖ Spacecraft Tracking & Control Station ❖ Satellite Ground Station ❖ Tracking, Telemetry & Command Station ❖ Rocket Launchpad (To be reclaimed from the sea) ❖ Preparatory Actions for Launching. ❖ Propellant Storage Facility for Rocket ❖ Space Economy Cell ❖ Space Observatory with High-Quality Telescope ❖ Space Debris and Terrestrial Threat Monitoring Station ❖ Research and Testing Laboratory. ❖ Regional Research and Training Center
<p>N. B. Total area of land for the establishment of Rocket Manufacturing and Launching Station must be reclaimed from the Bay of Bengal.</p>		
b)	<p><u>Name of the Project:</u> Establishment of “Satellite Manufacturing Industry & AIT”</p> <p><u>Tentative Location:</u> Madhupur, Tangail</p>	<p><u>Expected Components of the Project:</u></p> <ul style="list-style-type: none"> ❖ Antenna, Sensor & Other Subsystem Design and Testing Facility ❖ Fabrication Lab ❖ Assembly, Integration & Testing Facility (AIT) ❖ Satellite Production Facility with specification and cost for both Polar Constellation and Geostationary Satellites. ❖ Satellite Ground Control Station ❖ Space Observatory with High Quality Telescope ❖ Regional Research and Training Center
c)	<p><u>Name of the Project:</u> Establishment of “Space Industrial Park”</p> <p><u>Tentative Location:</u> Kaliakoir, Gazipur</p>	<p><u>Expected Components of the Project:</u></p> <ul style="list-style-type: none"> ❖ Spacecraft Subsystems Design and Testing Facility ❖ Fabrication Lab ❖ Microelectronics and Nano Technology Research Facility ❖ Artificial Intelligence & Advanced Robotics Engineering Facility for Space Mining ❖ Space Biology & Biomedical Research Facility ❖ Space Observatory with High-Quality Telescope ❖ Space Debris and Terrestrial Threat Monitoring Station ❖ Regional Research and Training Center

- ii. **Maintenance & Support:** The report should suggest necessary requirements on electrical power supply, substation, generator, IT and telecommunication facility, server & data center, etc.
- iii. **Safety:** The report should suggest about surveillance, evacuation, hazard mitigation, methods of waste disposal, etc.
- iv. **Transportation:** Necessary methods of communication and transfer of human and goods can be done by different transportation within the sites and to the project locations. Study should also include preparation about this facility. Transportation method can be Rail/Route/Air/River/Sea, etc.



- v. Human Resources: The firm should design a basic organogram and institutional structure with educational background of the officials for successful operation of the sites.
3. Financial & Economic Matters

The report should include an estimated budget to complete the projects and possible source of funding (either GoB or other national/international partners).

The rate of return, economic analysis, financial analysis, viability, impact on social and economic values, employment, impact on GDP and national economy, sustainable development, etc. should be analyzed and included in the Feasibility Study report. Cost-benefit analysis should include physical, financial, strategic and knowledge based aspects. Relevance to the national policies like SDG, FYP, Perspective Plan, Delta Plan, etc. should also be discussed in the reports.
4. Business Analysis

The commercial aspects of these projects, impact on social and economic structures, market analysis, business forecast, market competitors, supply chain, focus products, goodwill of the country for technological advancements, prospects on foreign investments and possibilities of space economy, etc. should be derived and included in the Feasibility Study report.
5. Resettlements

For land acquisition of the project sites, reconcile census and joint verification data of each affected household within the land acquired for the sites as per the final design; identify affected structures, trees and crops with the number of the affected households/ persons; and collect land acquisition schedule, cost and plot index approved by the Deputy Commissioner.

N.B.: In necessary cases, proper planning and processing should be described for land reclamation from the Bay of Bengal and necessary land and other developments.
6. Social & Environmental Impacts

There may be some social and environmental impacts during project period and after completion of the projects. These should be studied and mentioned clearly in the Feasibility Study report.
7. Others

F. Experience, Resources & Capacity Required

- (a) Must submit valid documents about at least 05 (Five) years of working experience in feasibility study. There should be a detailed list and assignments of the manpower, man-hours and other eligibility. They should also confirm the availability of resources for the study and proof of financial clearance with legal documents.
- (b) The team must comprise current/retired expert(s) from reputed space agencies (e.g., NASA, ESA, ROSCOSMOS, JAXA, KARI, etc.) or similar industries.



- (c) The number of working partners (National/International) and details of each one in case of joint venture (if any).
- (d) Submit the list and process of availability of the hardware, instruments, facilities and other requirements in detail specifications necessary for the study.
- (e) A firm(s)/company(s) will be selected under the Public Procurement Act 2006 and Public Procurement Rules 2008.
- (f) The firm/company must submit CVs of the team members with recent photographs, NID, academic and professional certificates, work distribution for the study and other necessary documents. The probable team* formation for the feasibility study team can be as below-

S/N	Probable Human Resource for Feasibility Study
1	Team Leader/ Lead Consultant
2	Consultant (Space Science & Technology)
3	Consultant (Market Analysis, Finance & Economy)
4	Consultant (GIS, Disaster & Environment)
5	Consultant/ Design Engineer (Geotechnical/ Civil)
6	Architect
7	Design Engineer (Electrical)
8	Design Engineer (Mechanical)
9	Expert (Socio-Economic, Resettlement/URP)
10	Consultant (Legal and External Relations)
11	Draftsman/ 3D Designer
12	Surveyor
13	Typist
14	Supporting Staff

* Interested firm(s)/company(s) may follow the above team for this study. However, the final team will be formed during the contract agreement.

G. Relevant Instructions

- I. The consulting firm will directly report to the Chairman of SPARRSO. However, frequent interactions with the relevant officials of SPARRSO and the consulting firm will be essential.
- II. All reports should be kept confidential unless SPARRSO decides on what to disclose.

H. SWOT Analysis

The inception report should comprise the SWOT analysis of the projects and SPARRSO including the plan for the present and future status and scenario of the country.

I. Deliverables

- i. Inception Report.
- ii. Monthly Progress Update to Chairman, SPARRSO.
- iii. Interim, Draft and Final Feasibility Study Report for the development projects.
- iv. Basic Design, Requirements, area and suitable location of the sites.
- v. Market/Demand Analysis, Knowledge Transfer, and Cooperation methods.
- vi. Estimated Budget and Possible Source of Funding.

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- vii. List and method of ‘Legal actions plan’ and ‘Contracts’ required.
- viii. Environmental, Socio-Economic and Other Impact Assessment Report.
- ix. Resettlement Plan & Cost Assessment report for 3 projects.
- x. Reports/minutes after Focused Group Discussion and Workshops.
- xi. Training for SPARRSO officials.
- xii. Any other relevant report/proposal/output.

J. Duration

The duration of the Feasibility Study is **09 (Nine) months** up to the final report submission.

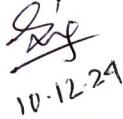
S/N	Deliverables	Timeframe (from the date of signing the contract)
1	Inception Report	1 st Month
2	Focused Group Discussion Report	
3	Interim Report	3 rd Month
4	1 st Workshop Report	
5	Draft Report	6 th Month
6	2 nd Workshop Report	
7	Training	6 th Month
8	Final Feasibility Study Report	9 th Month

K. Knowledge Transfer & Training

Method of Knowledge Transfer Location: SPARRSO.	Description	Minimum Duration
Focused Group Discussion for Inception Report, Two Workshops for Interim Report and Draft Report.	Focused Group Discussion will include experts from similar backgrounds as SPARRSO. The workshops will be arranged by the firm to delineate the idea and components of the study. Around 100 delegates from different Ministries, Professors from Universities, Researchers, and Journalists will be invited to the programs for open group discussion and concept sharing.	3 Days
Training on Feasibility Study, ToR, etc.	Training should be provided to at least 20 officials of SPARRSO by relevant experts.	3 Days
Training on DPP, TPP, TAPP and project formulation according to PPR.	Training should be provided to at least 20 officials of SPARRSO by relevant experts.	5 Days

L. Copyright and Action

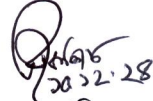
All the documents or resources to be generated and used under this Feasibility Study will be regarded as the property of SPARRSO. This organization reserves the right and authority to postpone or cancel, without assigning any reason thereof, this notice or the proceedings hereunder, wholly or partially for national interest or any other reasonable cause considered fit and proper for SPARRSO. At any time SPARRSO may alter, amend, or modify this ToR as and when necessary. Any change in the duration or the exit plan of the study will be followed by PPA and PPR. All reports and documents (excel/doc/pdf/ppt/others) should be available for SPARRSO and should be kept confidential unless SPARRSO decides on what to disclose. The payment schedule and amount will be decided according to the agreement with the partner(s). The firm is entirely responsible for all such facilities as arranging office, accommodation of staff, vehicles, equipment, logistic support, and secretarial services for their study.



10.12.24

মুহাম্মদ শরীফ
এ্যাসিস্ট্যান্ট ইঞ্জিনিয়ার, স্পারসো
ও
সদস্য-সচিব

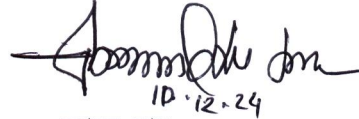
Feasibility Study সম্পাদনের জন্য ToR
প্রস্তুতকরণ ও প্রাক্কলিত ব্যয় নির্ধারণ কমিটি



20.12.24

রুবেল কান্তি দে
ইনফরমেশন অফিসার, স্পারসো
ও
সদস্য

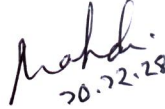
Feasibility Study সম্পাদনের জন্য ToR
প্রস্তুতকরণ ও প্রাক্কলিত ব্যয় নির্ধারণ কমিটি



10.12.24

জগবন্ধু সোম
সিনিয়র ইঞ্জিনিয়ার
ও
সদস্য

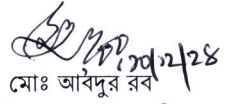
Feasibility Study সম্পাদনের জন্য ToR
প্রস্তুতকরণ ও প্রাক্কলিত ব্যয় নির্ধারণ কমিটি



20.12.24

মোহাম্মদ মাহদি হাসান,
সিনিয়র সায়েন্টিফিক অফিসার, স্পারসো
ও
সদস্য

Feasibility Study সম্পাদনের জন্য ToR
প্রস্তুতকরণ ও প্রাক্কলিত ব্যয় নির্ধারণ কমিটি



20.12.24

মোঃ আবিদুর রব
সদস্য (প্রয়োগ) (যুগ্মসচিব)
ও
আহবায়ক

Feasibility Study সম্পাদনের জন্য ToR
প্রস্তুতকরণ ও প্রাক্কলিত ব্যয় নির্ধারণ কমিটি