



SURVEY OF BANGLADESH

EXECUTIVE SEMINAR
ON
NATIONAL SPATIAL DATA INFRASTRUCTURE (NSDI) FOR BANGLADESH
HELD ON 09 OCTOBER 2021

SUMMARY OF EXECUTIVE SEMINAR

ON

“NATIONAL SPATIAL DATA INFRASTRUCTURE (NSDI)”

“At the “Executive Seminar on NSDI for Bangladesh” on 9th October, 2021, we have witnessed the progress and achievement of the NSDI Project. In front of the honorable Chief Guest, Principal Secretary to the Prime Minister, we expressed our agreement on providing full cooperation and contribution to the NSDI project, as well as taking our responsibilities described in the NSDI Policy.”

1. Introduction

Spatial Data Infrastructure (SDI) is an institutional concept in order to respond to the needs for a wide range of spatially referenced data/information in various problem solving domains. This is being facilitated by the rapid growth of geographic information system (GIS) concepts and technologies for good management of infrastructure development, sustainable economic planning, environmental conservation and a variety of other challenges that we are presently facing in our society. National Spatial Data Infrastructure (NSDI) is therefore a national endeavor that has come to be seen as the technology, policies, criteria, standards and people necessary to promote geospatial data sharing throughout all levels of government, the private and non-profit sectors and academia. NSDI is an umbrella of policies, standards and procedures under which organizations will interact to foster more efficient use, management and production of spatial data. It is a part e-governance strategy of many countries.

First surveying and mapping has been started by United States back in 1840. In the mid-1980s due to rapid growth of technology in terms of hardware and software, the use and sharing of geospatial data was felt by all decision makers. The term spatial data infrastructure was coined in 1993 and NSDI had been developed by USA in 1994. Since then different countries like Australia, New Zealand, Canada, Japan, South Korea, India, Indonesia, Pakistan and other countries have established NSDI for optimum use of their geospatial data. Cooperation, collaboration and harmonization of spatial data and technological development over the years made it technically possible for more people and organizations to be connected in NSDI.

Geospatial resources of a country play a vital role in its economic development. Bangladesh, being a developing country, cannot fall behind in establishment of NSDI. At the NSDI International Seminar held in June 2016, Honorable Prime Minister Sheikh Hasina placed emphasis on the importance and necessity of NSDI in her inauguration address, and issued instructions for Ministry of Defence (MoD) on prompt actions to establish NSDI for Bangladesh. With this instruction, MoD had begun preparations for the enactment of the NSDI Act, and to under the initiative of MoD, Survey of Bangladesh (SoB) implemented NSDI Pilot Project with the technical assistance by Japan International Cooperation Agency (JICA). In this pilot project, the NSDI Working Group was formed with related organizations, and a small-scale prototype system was created as a pilot project in order to demonstrate the

NSDI concept and usefulness, and verify technical and operation issues. Upon the experience and knowledge acquired by the pilot project, SoB has started a successive project titled as “Project for establishing National Spatial Data Infrastructure for Bangladesh (NSDI-BD)” in 2019. In order to understand the importance of the NSDI policy and the activities related to the establishment of the NSDI to date, and to accelerate the developing and promotion of the NSDI, an Executive Seminar on “National Spatial Data Infrastructure (NSDI)” was organized on 09 October 2021 by MoD in association with SoB and JICA.

The main aim of the seminar was to promote awareness among the geospatial data providers, users, policy makers at all levels about the importance of establishing NSDI for Bangladesh and requirement of NSDI policy for implementing full-scale NSDI in Bangladesh.

The quality benefits that a national institutional arrangement can gain from a spatial data infrastructure will become more evident in the coming years. NSDI will ensure the availability of spatial data to the users from different organizations and prevents duplication of effort. It removes redundancy of the spatial data and supports to the economic development at different level. It increases the transparency of government and decision-making, improves cooperation among different organizations. It enhances managing natural and land resource and provides foundation for monitoring and evaluation of important projects. Spatial data infrastructure shall contribute in attaining and monitoring not only Digital Bangladesh but also Sustainable Development Goals (SDGs).

2. Aim

The aim of this paper is to highlight the brief discussion of the Seminar and recommendations brought out from the Executive Seminar on National Spatial Data Infrastructure (NSDI). It is a one day long executive seminar on NSDI for Bangladesh with six presentation sessions. About 134 participants from different organizations have keenly participated in this executive seminar.

3. Welcome Speech by Surveyor General, Survey of Bangladesh

Brigadier General Md Habibul Huq, psc welcomed all to the seminar. He remembered the Father of the Nation Bangabandhu Sheikh Mujibur Rahman, the architect of independent Bangladesh and the martyrs for the war of independence. He described briefly the concept and key benefits and of NSDI. He mentioned honorable Prime Minister as the inaugurator of the NSDI seminar that held in 2016. In that seminar honorable Prime Minister instructed to initiate the NSDI establishment and necessary legal framework realizing the importance and benefits for the nations. He explained the importance of the collaboration of Ministry of Defence and Japan International Cooperation Agency. He make the participants informed that after finishing the NDSI pilot project the now establishment of NSDI is going on and the NSDI portal is ready for data and information sharing. He also said that more than 75 countries around the world have already established NDSI including some of our neighboring countries while Bangladesh is at the initial stage. He described shortly the latest technologies like IOT, AI, AR, ML etc. and role of these technologies to 4th Industrial Revolution. He mentioned that Data will be the new oil of upcoming world. Surveyor General briefly

explained the key variables and expected outcome of NSDI. He also explained the importance of a policy for NSDI. He asked cordial cooperation from all stakeholders and expected that NSDI will be an important contributor to build Digital Bangladesh.

4. Address by JICA Chief Representative, JICA

Mr. Yuho Hayakawa, Chief Representative, JICA Bangladesh, Address on Zoom Platform. He expressed his pleasure to participate the executive seminar on NSDI. He mentioned honorable Prime Minister Sheikh Hasina for digitalization at every sector of the country. He also memorized the long history of Japan-Bangladesh development partnership and JICA-SoB collaboration on digital mapping and surveying. He mentioned that different development projects of Bangladesh can be initiated with better plan using NSDI. He said that there are two vital requirements for establishment of NSDI: Collaboration of all stakeholders and formulation of NSDI policy. He expressed his hope that MoD, SoB and all working group member organizations will work together for a successful NSDI establishment.

5. Address by Bokuro URABE, the Chief Advisor of NSDI Project, JICA

Mr. Bokuro URABE introduced the NSDI project and provides the update of latest achievements. He explained the outputs and necessity of NSDI with some examples. He also explained collaboration process among the stakeholders through NSDI platform and how data will be classified according to ownership and security aspects. Finally he described the necessary actions to achieve the NSDI goals.

6. Keynote presentation by Dr. Nurun Nahar Chowdhury, Joint Secretary, MoD

In her presentation she shortly described basic terminologies like spatial data, SDI, NSDI. She also mentioned the stakeholders, funding source and recent activities of NSDI project. The keynote presenter explained the draft NSDI policy including definitions, purpose, necessity, committees, classification of data access, security, legal framework, price of data and budget etc. She emphasized to formulate the NSDI policy as early as possible to establish a successful NSDI. She explained the draft NSDI policy in Bangla since the draft policy has been articulated in Bangla.

7. Open Discussion:

The Open Discussion session was a lively part of the seminar moderated by Surveyor General. Brief of the session is given below:

- a. Dr. Muhammod Nazrul Islam, the Chairman, Geography and Environment Department, Dhaka University proposed “পারসিরকি” as Bangla word for “Spatial”. He also proposed to make a definition of data collection unit like district, division etc. Surveyor General reassured him that his advices will be considered with importance.
- b. Representative from DLRS appreciated the initiation of NSDI and wished to know the budgetary plan after completion of the project implementation. Surveyor General as

the moderator of the session replied that JICA has proposed a long term action plan for NSDI. So, budgetary issues have time to get an appropriate plan.

- c. Mohammad Abdul Hadi, country manager of ESRI proposed to have a scope to include professional associations regarding spatial technology to the NSDI. The moderator replied that it will be considered later.
- d. Representatives from ERD proposed to add Socio Economic Infrastructure Division and Economic Division to be added to the Implementation Committee (বাস্তবায়ন কমিটি). Moderator replied that it can be considered discussing with the MoD.
- e. Md. Rafiqul Islam, Joint Director, BBS proposed to solve the conflict (if any) of NSDI policy to the Statistics Act by discussion. The moderator said that this issue will be checked carefully.
- f. Captain M Minarul Hoque, Director, Hydrography Department of Bangladesh Navy proposed to include Maritime Spatial Data Infrastructure (MSDI) facilities to the current NSDI since maritime data with special characteristics are also very important data for the nation. Moderator appreciated his proposal and said that current NSDI portal can be suitable for MSDI data.
- g. Salma Siddiqua Mahtab, Deputy Secretary, ICT Division, proposed to use services from Data Center Company as a reliable service provider of the country.
- h. Dr. Mizanur Rahman, Chairman, SPARRSO thanked MoD, SoB and all working group members to forward the establishment of NSDI project as one of the most important project of the country. He suggested addressing data standardization and budgeting issues in the draft policy. He also mentioned that SPARRSO already implementing a project on blue economy regarding potential fishing zone that has plan to share spatial data through NSDI portal. Moderator thanked the chairman, SPARRSO for his suggesting and the ongoing project with provision to access to NSDI.
- i. Abu Saleh Khan, Institute of Water Modeling, wanted to know the price policy of the data to be shared through NSDI system since IWM is a self-sustained organization and has many valuable data with proper prices. Moderator replied that data will remain under the provider's ownership, so price will not make any complexity.

8. Address by H.E. Ambassador of Japan to Bangladesh.

His Excellency, Mr. ITO Naoki, Ambassador of Japan to Bangladesh thanked the respected guests in the seminar. He mentioned NSDI project an important collaboration of Bangladesh and Japan. He remembered honorable Prime Minister of Bangladesh since she showed interest in establishing NSDI at the International Seminar in 2016. He said that soft infrastructure like NSDI is very important as hard infrastructure like Padma Bridge, Metro Rail etc. One main task to make the NSDI fruitful is to integrate different organizations related to spatial data. He also mentioned that NSDI can be very efficient to formulate effective plan and monitoring the progress. He expressed special thanks to the NSDI management team for efficiently forwarding the project. He mentioned that in Japan the spatial data are free through NSDI and those data fruitfully used during the east Japan great earthquake. He expected that in Bangladesh also NSDI will contribute efficiently at any emergency. Finally he thanked the 27 organizations those are already involved in running NSDI activities.

9. Address by Principal Secretary to the Prime Minister.

Dr. Ahmad Kaikaus, Principal Secretary to the Prime Minister, Government of the People's Republic of Bangladesh expressed his greeting to all the participants. He mentioned that the NSDI project is a very important project for planning and monitoring different projects. He said that every year 1% of the total arable land is being transformed to residential area by urbanization that should be controlled at planning stage. He expressed his hopefulness about Japan's involvement to this project because of their efficiency and success rate in this country. Respected Chief Guest said that data can integrate our activities but should not be used for destruction. He mentioned his hope that honorable Prime Minister would be happy to see the progress of NSDI. He encouraged to think about short term planning so that the changes can be recognized in the single tenure of a government. The Chief Guest urged to formulate the NSDI policy with necessary consent from proper authorities. Finally he appreciated Japan Government for contributing technically and financially to the NSDI project.

10. Address by Senior Secretary, Ministry of Defence.

Dr. Md. Abu Hena Mustafa Kamal, ndc, Senior Secretary, Ministry of Defence, expressed his gratitude to Chief Guest, Special Guest, Speakers and all participants to present this Seminar as the Chairperson of the Seminar. He said that knowledge and technology are the main equipment of 4th Industrial Revolution. NSDI can assist government's aim of bringing government services to the doorsteps of people. He said that Father of the Nation Bangabandhu Sheikh Mujibur Rahman gave us independence and his daughter honorable Prime Minister Sheikh Hasina leading Bangladesh for development by growth and poverty reduction. NSDI can reduce redundant effort of creating spatial data. He requested all related organizations to continue their support to achieve a successful NSDI.

11. Updates about NSDI by Project Director:

Md. Abul Kalam, Director, Development, Survey of Bangladesh and Project Director, NSDI Project described a short update of the Project including project duration and main objectives. He informed all that the topographic base map for the NSDI portal had already been completed and added to the portal. Other base maps of ortho-photo and elevation is being prepared and will be provided in time. He also informed that the NSDI portal is now prepared for all working group members and validated by sample data provided by working group members. He mentioned that the data to be shared through NSDI not necessary to be worried about security since data will be stored in the Bangladesh Computer Council Data Center, the most secured one in Bangladesh. He confirmed all the stakeholders that ownership of the data will remain to its original creator, NSDI team will only arrange the sharing facilities. The Project Director let the participants know that there are many important features available in the NSDI portal, more to be added in future. He thanked JICA for their support and appreciated MoD for their cordial guidance and coordination.

12. Address from the JICA Expert Team

a. Mr. Hiroto Fujita, JICA Expert Team, NSDI-BD said that requirements for the establishment and promotion of the NSDI shall consist of institutional, organizational, data and system aspects, and it is necessary to do a lot of things. NSDI platform is a core of IT service and IT system. NSDI platform should have collaboration with other geospatial information system operated by government organizations. Each organization can use SoB's data as base map through IT technology (API), and will not have to prepare the base map by individual effort. Sharing metadata and sharable information on the NSDI platform will restrict redundant investment of creating geospatial information. In NSDI platform, NSDI portal beta version was launched in 2018. Currently, SoB is developing and enhancing NSDI platform based on the results of NSDI Working Group activities. The upgraded version will be launched in March 2022. Since, system is not to only development, but to utilize it, JICA expert team proposes to implement a demonstration experiment using NSDI platform in order to utilize it. Seven demonstration experiments have been discussed with NSDI Working Group Members. He thinks these ideas shall be contributed to not only Digital Bangladesh but also SDGs. He also mentioned about a five-day workshop for NSDI is planned to be held in March 2022 in order to improve the capacity building related to the geospatial information. Tentative theme is "UX x NSDI" and slogan is "Create a good User experience through the NSDI".

b. Mr. Tomohiko Hatori, JICA Expert Team NSDI-BD described that NSDI needs a set of geographic information standards. Usually, each organization has their own system. He described the reason to have the standards as the common rules for the NSDI. He explained an overview of DPS. Finally, he announced that they are planning a DPS Workshop for working-level officials on 17th and 18th of this October. Since the last September 2020, SoB's NSDI Project Cell, Esri Bangladesh and JICA Expert Team have conducted several seminars and trainings for DPS. SoB's NSDI Project Cell and Esri Bangladesh have also visited several WG Member organization's offices directly to discuss about DPS. The visiting and meeting at WG member organization's offices are still undergoing. In order to share the interim results of these activities, the team is planning a DPS Workshop for the working-level officials of the WG Member organizations soon, just one week from now.

13. Speech from Prof. Md. Mafizur Rahman, Bangladesh University of Engineering and Technology (BUET) on Role of NSDI

Prof. Md. Mafizur Rahman, Bangladesh University of Engineering and Technology (BUET) described the engineering aspect of NSDI and related needs, demand, attribution to NSDI. He has explained the importance and working procedure with some practical examples. He expressed his gratitude to MoD, SoB and JICA for their initiation.

14. Prof. Dr. Manzurul Hassan, Geography and Environment, Jahangirnagar University

Prof. Dr. Manzurul Hassan discussed some basic idea of NSDI, importance to 3rd Agricultural Revolution and 4th Industrial Revolution. He also said about the data standardization, security, accessibility, utilization, scale deviation, coordinate system issues etc. Finally he expressed his best wishes for NSDI.

15. Concluding remarks by Chairperson

The chairperson Dr. Md. Abu Hena Mustafa Kamal, ndc, thanked everyone for patiently attending the seminar. He said that a new technology is going to be introduced by NSDI project. It can reduce lack of sharing, duplication, redundancies and lack of knowledge to use spatial data. The suggestions and opinions given by the participants during ‘Open Discussion’ and ‘Feedback Session’ are noted carefully and will be addressed with importance. The Chairperson called for the end of the Seminar after thanking again everyone.

16. Conclusion

The concept of NSDI is to prepare national spatial data for different organizations for providing one stop service and preventing from duplicated investment. Survey of Bangladesh is keen to act as the lead organization to develop NSDI for the country which will bring all the Geospatial data providers, users and the policy makers under one umbrella. Coinciding with the fast development of spatial data and the expansion in the use of digital spatial data, SDI has become in the last three decades an important spatial aspect. NSDI has taken the biggest place in this development in comparison with others levels of SDI (Local, Regional, and Global). In order to implement a successful NSDI in any country, there are many challenges which must be overcome before and through the implementation of such project.

i) The following guidelines may be adhered to:

- a. Since most of the people in Bangladesh are yet to have adequate knowledge and idea about NSDI, therefore public awareness should be promoted about the benefits, importance and implications of NSDI.
- b. Bangladesh Government is going to formulate a national committee under the Ministry of Defence to make short, mid and long term strategic plan and provide necessary guidelines for establishing NSDI in Bangladesh.
- c. Necessary steps should be taken to complete formulating the NSDI Policy as soon as possible.

ii) During the discussion in the seminar, following recommendations have been brought out:

- a. All concerned organizations should take steps to enhance the expertise of Spatial Data Providers, Users and Analyzers so that it helps Decision Makers at all level.
- b. Uniform map policy with Basic Framework i.e. a unique coordinate system (BUTM 2010), map projection (Transverse Mercator), unique map datum (WGS84), unique spheroid (WGS84) and unique elevation datum (Mean Sea Level) should be strictly adhered to.

- c. As the project is technically and financially supported by JICA, representatives from ERD may be included in the implementation committee of NSDI as proposed in the draft Policy of NSDI.