

Memorandum of Understanding (MOU)
for
SoI Maps related Web GIS Services & Applications for Indian
Railways
between

**Survey of India, Dehradun,
(Ministry of Science & Technology,
Department of Science & Technology,
Government of India)**

and

Indian Railways (IR), Ministry of Railways (MoR), New Delhi

Signed on this day 27th of March 2019



**Survey of India,
Department of Science &
Technology,
Dehradun**



**Indian Railways,
Ministry of Railways,
New Delhi**

Memorandum of Understanding

1. PREAMBLE

This Memorandum of Understanding (MOU) is between Survey of India (SoI) and Indian Railways (IR), Ministry of Railways (MoR) with the purpose to effectively use Web GIS Services to meet with survey map requirements and survey related Geospatial data application requirements of IR. Provisions of the various technology based solutions have been included in this document for the benefit of IR to enable them to provide improved transport services in the country.

Survey of India, a 250 years old organization, is the National Surveying and Mapping Agency under the Department of Science and Technology (DST), Ministry of Science and Technology (MoST), Government of India. Survey of India has played a valuable role in the saga of India's Nation Building. The scientific and development initiatives of the organization have played an indispensable pioneering role in defining the country's priorities for growth and development. Survey of India has mandate to take a leadership role in liberalizing access of survey map related spatial data to user groups without compromising with the national security. The responsibility for producing, maintaining and disseminating the topographic map database of the whole country, which is the foundation of all spatial data, vests with Survey of India (SoI).

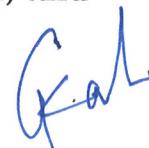
The Indian Railways is a key service provider in the Country's Transport System and in real sense is "Life Line to Nation". Transporting goods and passengers on a massive scale, the Indian Railways plays a critical role in India's economic as well as social fabric, security and cross-border strategic linkages. Indian rail network is the fourth largest rail network by size. Indian Railways runs more than 13000 trains every day.

2. PARTIES TO MOU

This Memorandum of Understanding (MOU) is signed between Indian Railways, Ministry of Railway's, here-in-after called "**IR**" and Survey of India (SoI), Department of Science & Technology, Govt. of India, Dehradun, here-in-after called "**SoI**".

3. AUTHORIZED SIGNATORY

Authorized signatory for IR is Shri B.P. Awasthi, Executive Director (Track-P), Railway Board, Ministry of Railways, New Delhi; and



Authorized signatory for SoI is Lt. Gen. Girish Kumar, VSM, Surveyor General of India, Survey of India, Department of Science & Technology, Government of India, Dehradun.

4. FUNCTIONARIES AND CONTACT DETAILS

4.1 Indian Railways

Designation	Name	Address	Phone/ Fax	Email
Executive Director(Track-P)	Shri B.P. Awasthi	Room No. 141, Rail Bhavan, New Delhi- 110001.	23382619	edtp@ rb.railnet.gov.in
Executive Director (Works),	Shri S.C. Jain	Room No. 129, Rail Bhavan, New Delhi- 110001.	23382102	edw@ rb.railnet.gov.in
GM/CEP/CRIS	Shri Akhilesh Sahu	ITPI Building, 7 th Floor, 4A, Ring Road, IP Estate New Delhi- 110002.	23379954	Akhilesh.sahu@ cris.org.in

4.2 Survey of India (SoI), Dehradun

Designation	Name	Address	Phone/ Fax	Email
Surveyor General of India	Lt. Gen. Girish Kumar, VSM	Surveyor General's Office, Survey of India, Dehradun- 248001, (Uttarakhand)	0135- 2744268	sgi.soi@gov.in
Director	Shri D.N. Pathak	Survey(Air) & Delhi GDC, Survey of India, West Block No.4 R.K.Puram, New Delhi- 110066	26107795	delhi.gdc.soi@ gov.in
Deputy Surveyor General(Tech.)	Shri Pankaj Mishra	Surveyor General's Office, Survey of India, Hathibarkala Estate, Post Box No. 37, Dehradun- 248001, (Uttarakhand)	0135- 2746805	pankaj.mishra.s oi@gov.in

5. EFFECTIVE DATE

5.1 Commencement

The effective date for the commencement of this MOU will be the date of signing of the MoU by SoI and IR.

5.2 Duration

This MOU is valid for duration of 5 years from the date of commencement. If further extensions are required, it shall be by mutual consent of the parties in writing.

6. SCOPE OF THE WORK

To collaborate for sharing survey maps through Web GIS Services from Survey of India, geospatial assets creation for IR, to integrate Web Map Service with various applications of IR, joint design and development of new Web GIS Applications for governance with SoI Web Map Service. Implementation of pilots wherever required and subsequently escalating the scope for full fledged diversified applications/services will be appropriately taken on mutual consent.

SoI will establish a Local Node of Web Map Service in IR data center in Delhi which will be linked with various relevant applications of IR. SoI will help/assist IR in establishing its GIS Portal. Railways will share survey map related and other spatial and non-spatial data sets generated in-house under various projects with SoI.

7. METHODOLOGY

Web GIS Services will be enabled for IR for integration with Railways applications, both customer-centric as well as internal to IR. Map servers, as required by IR, will also be deployed for use of SoI Web services for internal use within Railways. SoI node will be established in IR's data centre in Delhi. SoI web application would also be developed to provide a framework for spatial data visualization, analysis and geospatial analysis GIS data. For this purpose, necessary OGC WMS/WFS services will be enabled for IR. IR in collaboration with SoI officials will prepare the structure/preliminary design of the applications considering the consolidated requirements. Web GIS Applications would be designed by SoI and IR with a view to facilitate easy access to spatial analysis and visualizations to non-specialist users and will be hosted on IR/SoI infrastructure.



8. DELIVERABLES AND GUIDELINES ON MAP/DATA SECURITY

8.1 Deliverables

- (a) Setting up of SoI node in Indian Railways for internal use of SoI geospatial solutions by IR.
- (b) Hosting of Applications and services on IR/SoI Platform to facilitate various requirements of IR viz access to topographical database including contour maps as a service.
- (c) Helping/Assisting IR in setting up IR's GIS Platform with asset mapping and publishing on GIS platform.
- (d) Joint projects of SoI and IR to yield specific technologies *e.g.* to enable an advance warning system in unmanned railway crossings and feed for emergency response system.
- (e) All applications and services will be in tune with the requirements of IR, as perceived and agreed by both the parties. Regular updation of data sets and maintenance of the central server.
- (f) Capacity building.

8.2 Data security

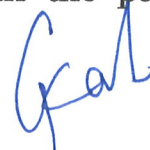
Data security as per prevailing policies of SoI/DST and Ministry of Defence (MoD) and any other prevailing policies of Government of India relating to maps and data would be adhered to. Necessary steps would be taken by both the parties to avoid misuse of data and to ensure the data security. In addition, SoI platform would provide necessary infrastructure for ensuring the security of data.

9. TECHNICAL SPECIFICATIONS

Technical specifications will be spelt out jointly for each application required to be developed. This document will form basis for development of varieties of applications, including IT and web applications. These would be detailed in terms of specifications for design, development and realization as per scope. All Web application development on SoI platform would be carried out with open source tools as far as possible.

10. APPLICABLE DOCUMENTS

- (a) Description of Data and other artifacts to be shared in terms of documentation between SoI and Railways, including the processes involved.
- (b) Design documents, will be jointly prepared by both the parties, for building various applications and Tools.



- (c) User Manuals will be prepared for end use of applications.
- (d) Prevailing SoI/DST and MoD data policy.
- (e) No objection certificates as applicable.

11. RESPONSIBILITIES OF EACH PARTY

11.1 Joint Responsibilities of SoI and Railways

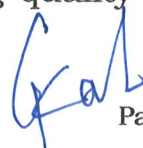
- (a) To jointly design and develop customized Web GIS based governance applications on SoI/Railway Portal with realization of required functions, tools and utilities, as per design.
- (b) To jointly prepare preliminary design of any required applications considering the consolidated requirements.
- (c) To jointly prepare "application project" specifications detailing scope, objectives, data to be used, operational methodology, product delivery, quality standards and limitations.
- (d) To jointly prepare the technical documents as required by various projects.
- (e) Both the parties will ensure data security as mentioned in para 8.2.

11.2 Survey of India (SoI)

- (a) Enable deployment of SoI node within Indian Railways for internal use of SoI maps and geospatial technology by Railways.
- (b) To provide OGC compliant WMS/WFS data services related to SoI Maps, etc., as required for various applications of Indian Railways.
- (c) To take up QA/QC of the geospatial data being generated under various in-house project by Indian Railways and internalize it in National Topographic Database.

11.3 Indian Railways

- (a) To establish infrastructure in Railway data centre for providing Web services and development of applications for use by Railways.
- (b) To facilitate establishment of SoI Local node in Railways (CRIS) Data Centre.
- (c) To specify requirements of SoI geospatial data for use by various Indian Railways' applications, developed by Railways and hosted on its infrastructure.
- (d) To understand the scope and provide specific requirements, inputs for the development of Geospatial solutions and assuring quality checks for hosting.



- (e) Procure geospatial data from SoI, as required, for specifically identified special projects.
- (f) To share with SoI, the geospatial data collected by Railways.
- (g) Providing regular feedback to SoI for improving the applications, particularly from the end users point of view.

12. PROJECT SCHEDULE

All schedules of activities shall be defined for each application sector with the milestones as per mutual agreement made by both the parties. The hosting on website will be in tune with the supply of data from indenting party and the NOC/Approvals as applicable. This process will be carried out for each of the application sector and the milestones shall be achieved as defined by the schedule. The duration of 5 years has been given as Project Time Line. The Details will be worked out during design phase.

13. SCHEDULE OF PRICES

For the services being currently provided by SoI or envisaged in future for Govt. of India, no charges shall be levied.

14. SCHEDULE OF INSTALLATION, SUPPLY AND ACCEPTANCE TEST

Not Applicable

15. CONSIDERATION

Not Applicable

16. FUNDING AND TERMS & CONDITIONS OF PAYMENT

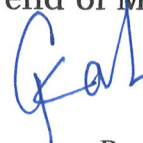
Both parties shall meet expenditure of their commitment as mentioned at point 11 from their own resources.

17. TRAINING

Training for Trainers will be carried out by SoI. In addition, online help material will be provided for training purpose on SoI web services. Railways shall make use of necessary technical/training material for conducting future proliferations and sensitization within Indian Railways.

18. WARRANTY

Software tools developed as per MOU will be maintained and operating issues arising due to bugs will be taken care of by SoI till the end of MOU.



19. PROJECT MONITORING

The project monitoring committee shall be constituted with members from Railways and SoI and shall monitor the progress of works from time to time. The committee shall submit its brief report and provide overall guidelines for meeting the commitments undertaken and sufficient course correction, if any, keeping in mind latest technologies and user requirements.

20. CONFIDENTIALITY

The confidentiality of the data/documents or any other materials shall be maintained by both the parties as per the sensitivity defined for it by prevailing policies.

21. INTELLECTUAL PROPERTY RIGHTS

- (a) The originals of any reports and documents or materials prepared or inventions or information produced as a result of the services and all intellectual property rights therein, unless otherwise specifically stated in any subsequent agreement, shall be and shall remain the property of both or individual organization (SoI/Railways), that has prepared/developed such artifacts applications.
- (b) SoI and Railways reciprocally guarantee that all technical information and data generated under this MOU shall be treated as confidential and shall not be divulged by either party without prior written consent of the other even after the expiry of this MOU.
- (c) For all the data provided by Railways, all responsibility and rights shall rest with the Railways. Likewise, for any data provided by SoI, all responsibility and rights shall rest with the SoI.

22. CHANGE IN SCOPE OF WORK

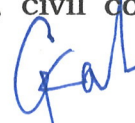
Any change in scope of work would be with mutual consent of both the parties.

23. MODIFICATIONS

Any further modifications to this MOU, if required, would be through amendments with mutual consent in writing.

24. FORCE MAJEURE

Neither party shall be held responsible for non-fulfillment of their respective obligation under the agreement due to exigency of one or more of the unforeseen events such as but not limited to Acts of God, war, flood, earthquake, cyclones, strikes, lockouts, epidemics, riots, civil commotion



etc., provided on the occurrence and cessation of such events, the party affected thereby shall give notice in writing to other party within one month of such occurrence or cessation. If the force-majeure conditions continue beyond six months, the parties shall then mutually decide about the future course of action.

25. INDEMNITY

Each party (SoI or Railways) shall exercise reasonable skill, care and diligence in the performance of this MOU and indemnify and keep indemnified the other in respect of any loss, damage or claim howsoever arising out of or related to breach of MOU, statutory duty or negligence by the other party or its employees, agents or sub-contractors in relation to the performance or otherwise of the services to be provided under this MOU.

Each party will indemnify and keep indemnified the other in respect of any loss, damage or claim whatsoever arising out of the use of data shared by each party with the other.

26. DISPUTE RESOLUTION

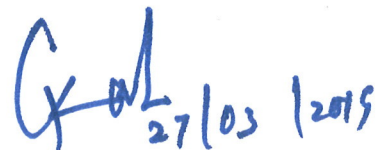
In the event of any dispute or difference between the parties hereto, such disputes or differences shall be resolved amicably by mutual consultation. If such resolution is not possible, then unresolved disputes or differences will be resolved as per latest rules of Government of India on the subject.

This MOU is hereby signed in their respective names on this 27th day of March, 2019.



27.03.19

B. P. Awasthi
Executive Director (Track-P),
Ministry of Railways
Railway Board,
Rail Bhavan,
New Delhi



27/03/2019

Lt. Gen. Girish Kumar, VSM,
Surveyor General of India,
Survey of India,
Department of Science & Technology,
Ministry of Science & Technology,
Government of India, Dehradun