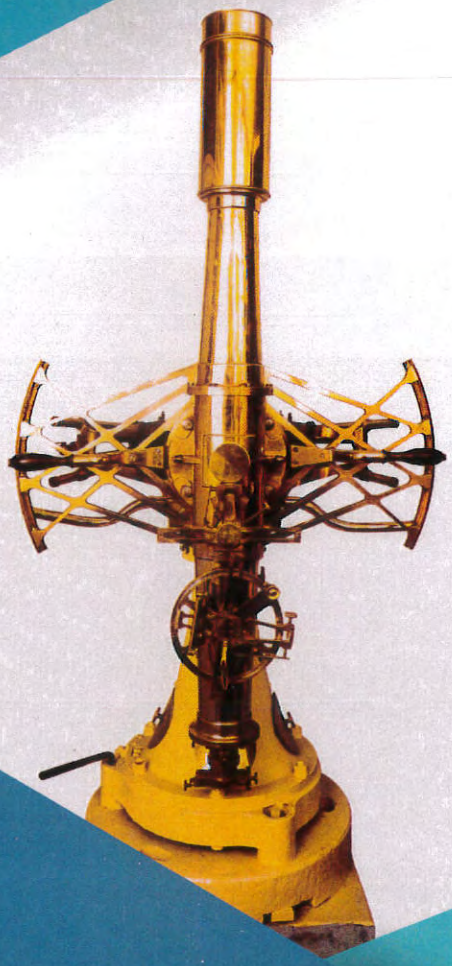
SURVEY OF INDIA

(Dept. of Science & Technology)



2015 -16

ANNUAL REPORT

भारतीय सर्वेक्षण विभाग

SURVEY OF INDIA

(विज्ञान एवं प्रौद्योगिकी विभाग)

(DEPARTMENT OF SCIENCE & TECHNOLOGY)

वार्षिक रिपोर्ट

ANNUAL REPORT

2015 - 2016

भारत के महासर्वेक्षक के आदेश से प्रकाशित
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FOREWORD

Survey of India is the oldest scientific department of the Govt. of India established in 1767. Survey of India has to pioneer un-trodden lands for others to follow and build upon. They have to go to the deepest forests, deserts and the highest snowy mountains; in fact they are the first to reach virgin and uninhabited areas. There they ceaselessly, faithfully and unobtrusively toil to produce the maps so essential for development, defense and administration. Topographical maps have played an invaluable role in the saga of India's nation building and were pivotal in the foundation of almost all major development activities of the modern India.

The topography of the Indian subcontinent varies from the snow-covered Himalayan peaks of the world's highest mountains to the rich and fertile plains of the Ganges, with large undulating areas, thick jungles, deserts, mighty rivers, swamps and a long coastline. The area of independent India (i.e. = 3.8 million sq. kilometers) is largely inhabited by the descendants of migrants from across the Himalaya and, today. it consists of a mixture of various races, cultures, languages and religions.

The early history of surveys in India followed the East India Company's expanding areas of influence and conquest. Fortunately, this quest to explore, expand and conquest more and more areas in India lead to the establishment of a regular government survey organization, one of the earliest country in the world to do so and commence systematic and scientific surveys.

Forerunners of army of the East India Company and Surveyors had an onerous task of exploring the unknown. Bit by bit the tapestry of India terrain was completed by the painstaking efforts of a distinguished line of Surveyors such as Col Lambton and Sir George Everest. Foundation for the scientific survey and mapping of the country was laid with The Great Trigonometric Survey (GTS) in 19th century, by these noted Surveyors.

After Independence, there was an upsurge of development all over the country which has continued till today. With planning for economic development, hundreds of schemes required survey data for scientific planning and execution. The survey of India had to divert most of its potential for developmental projects, the normal topographical surveys being relegated to a secondary place.

Apart from geodetic, topographical, SOI caters for the survey needs of all developmental projects in the country. Numerous developmental surveying & mapping tasks for small/Medium/Large projects as detailed under were carried out by the SOI for various Central/State Government agencies, Central/State PSUs and other organizations.

The Department has met the challenges of surveying the indomitable Himalaya, blazing deserts and disease and animal – infested jungles. The Department is continuously striving to keep abreast of modern technology and has successfully entered the era of Digital Mapping and Geographic Information Systems.

Presently, Survey of India is organized into 08 zones, 23 Geo-spatial Data Centers/Regional directorates, 06 specialized directorates and 01 Training directorate covering 29 States and 09 UTs. The manpower resource consists of total 5500 plus personnel. Each Zone office has several regional directorates under it, each regional directorate is responsible to cater for all topographical and developmental surveying & mapping requirements of that State or group of small States.

The Specialized Directorates are the Geodetic and Research Branch, International Boundary Directorate, GIS & Remote Sensing Directorate, National Geo-spatial Data Centre, Digital Mapping Centre and Map Archival & Dissemination Center.

The Training directorate i.e. Indian Institute of Surveying and Mapping (IISM) runs Basic, Refresher, Specialized and Advanced courses in Photogrammetry, Geodesy, Cartography and GIS domains.

National Map policy (NMP) – 2005 has mandated SOI to prepare National Topographic Database (NTDB) and provide Dual Series Maps viz DSM (Defence Series Maps) to cater the need of defense forces and OSM (Open Series Maps) for all other users.

I appreciate the efforts put in by Sh. R.K. Meena, DSG(Tech.), Sh. Pankaj Mishra, Technical Secretary, and Sh. Vinaik Bist, Survey Assistant for putting in special efforts to prepare " ANNUAL REPORT 2015-16 " which gives a bird eye view of the achievements of the department during 2015-16

R.M. TRIPATHI
Surveyor General of India

CONTENTS

1. INTRODUCTION:

Survey of India,under the Department of Science & Technology, Govt. of India, has been engaged in production and maintenance of various types of Topographical, Geographical and many other public series maps on various scales covering India, for the defence and development of the nation. Besides, being grouped under 'Scientific Surveys' the Govt. of India business rule, it has also been called upon extensively to deploy its expertise in the field of geodetic and geophysical surveys, study of seismocity and seismotectonics, environmental and disaster management, participation in Indian scientific expeditions to Antarctica, glaciology programmes and other projects related to digital cartography and digital photogrammetry etc. to provide basic data for Science & Technology requirements.

2. CHARTER OF DUTIES:

The charter of duties and responsibilities of the Survey of India (SOI) are enumerated below :-

(a) Provision and maintenance of geodetic plan and height control network and provision and maintenance of gravimetric and geomagnetic control network.

(b) Provision of topographical maps for the entire country to meet the national requirements, including those of defense forces.

(c) Collection of tidal data along the coast line and islands and Tidal predictions for 44 ports in the Indian Ocean, Arabian Sea and the Bay of Bengal including ports in Myanmar, Iran, Sri Lanka and Sultanate of Oman in the interest of good Neighborly relations.

(d) Compilation/ mapping and production of geographical maps e. g. Railway Map, Road Map, Political Map, Physical Map etc.

(e) Preparation of the International Map of the World (IMW) series and the World Aeronautical Charts (WAC) series as a commitment to the International Civil Aviation Organization (ICAO).

(f) Surveys for development projects, e.g., power and irrigation, mineral exploration, urban and rural development etc.

(g) Surveying and mapping of forest areas, large cities and preparation of guide maps of cities/ towns/ places of interest.

(h) Surveying and mapping of Cantonments, surveying and mapping for aeronautical maps/ charts for the IAF.

(i) Standardization of geographical names.

(j) Demarcation of the external boundary of India, its correct depiction on maps published within the country. Also advising the Government of India on the demarcation of inter-state boundaries.

(k) Training of officers and staff of the department, trainees from other central and state government departments and trainees from foreign countries.

(l) Promotion of Research & Developmental activities in the field of geodesy, photogrammetry, cartography and printing techniques etc.

(m) Introduction of modern technology in the related fields of data acquisition, Data processing and Geo- Information management.

(n) Co-ordination and control in providing aerial photographic cover for the whole country.

(o) Collaboration with training organizations, educational institutions and scientific bodies on specific projects to promote research and developmental activities.

(p) Representation at various international and national conferences to promote the growth of surveying and cartography and to introduce the state-of-the-art technology for optimum results

(q) Support to Third World countries e.g., Nigeria, Afghanistan, Kenya, Iraq, Nepal, Sri Lanka, Zimbabwe, Indonesia, Bhutan, Myanmar and Mauritius etc. by providing technical know-how and expertise in various disciplines of surveying and survey education.

Besides above activities, the Surveyor General of India is associated with the under mentioned Expert Groups/ Committees/ High Level forums

(a) De-facto leader/Member of Indian representation in all United Nations Groups, High level forums, Committee, Divisions, Sessions and conferences on Cartography, Geo- information management & Surveying and Toponymy.

(b) Chairman of Standing Committee on Cartography and Mapping under NNRMS Programme.

(c) Member of Central Geological Planning Board (GPB) for Management of Geological Survey of India.

(d) Member of Governing Body of Wadia Institute of Himalayan Geology, State Remote Science Centres, Central Ground Water Board, NWDA, CWC etc

(e) The Surveyor General of India acts as an adviser to various ministries of the Government of India on all surveying and cartographic matters. Survey of India also renders advice on the specifications of surveys and furnishes necessary data / maps to various central and state government departments for development, planning and defence applications.

3. NATIONAL MAP POLICY (NMP) - 2005:

Preamble:

All socio-economic developmental activities, conservation of natural resources, planning for disaster mitigation and infrastructure development require high quality spatial data. The advancements in digital technologies have now made it possible to use diverse spatial databases in an integrated manner.The responsibilities for producing, maintaining and disseminating the topographic map database of the whole country, which is the foundation of all spatial data vests with the Survey of India (SOI). Recently, SOI has been mandated to take a leadership role in liberalizing access of spatial data to user groups without jeopardizing national security. To perform this role, the policy on dissemination of maps and spatial data needs to be clearly stated.

Objectives:

To provide, maintain and allow access and make available the National Topographic Database (NTDB) of the SOI conforming to national standards.

To promote the use of geospatial knowledge and intelligence through partnerships and other mechanisms by all sections of the society and work towards acknowledge based society.

TWO SERIES OF MAPS:

To ensure that in the furtherance of this policy, national security objectives are fully safeguarded, it has been decided that there will be two series of maps namely

(a) **Defence Series Map (DSM):**

These will be the topographical maps (on Everest/WGS-84 Datum and Polyconic /UTM Projection) on various scales (with heights, contours and full content without delution of accuracy). These will mainly cater for defence and national security requirements.

This series of maps (in analogue or digital forms) for the entire country will be classified, as appropriate, and the guide lines regarding their use will be formulated by the Ministry of Defence.

(b) **Open Series Map (OSM):**

OSMs will be brought out exclusively by SOI, primarily for supporting development activities in the country. OSMs shall bear different map sheet numbers and will be in UTM Projection on WGS-84 datum. Each of these OSMs (in both hard copy and digital form) will become "Unrestricted" after obtaining a one-time clearance of the Ministry of Defence. The content of the OSMs will be as given in Annexure 'B'. SOI will ensure that no civil and military Vulnerable Areas and Vulnerable Points (VA's/VP's) are shown on OSMs. The SOI will issue from time to time detailed guidelines regarding all aspects of the OSMs like procedure for access by user agencies, further dissemination sharing of OSMs amongst user agencies with or without value additions, ways and means of protecting business and commercial interests of SOI in the data and other incidental matters. Users will be allowed to publish maps on hard copy and web with or without GIS database. However, if the international boundary is depicted on the map, certification by SOI will be necessary. In addition, the SOI is currently preparing City Maps. These City Maps will be on large scales in WGS-84 datum and in public domain. The contents of such maps will be decided by the SOI in consultation with Ministry of Defence.

National Topographical Data Base (NTDB) :

SOI will continue to create, develop and maintain the National Topographical Data Base (NTDB). (NTDB) in analogue and digital forms consisting of following data sets:

(a) National Spatial Reference Frame,
(b) National Digital Elevation Model,
(c) National Topographical Template,
(d) Administrative Boundaries, and
(e)Toponomy (place names).
Both the DSMs and OSMs will be derived from the NTDB.

Map Dissemination and Usages:

Open Series Maps of scales larger than 1:1 million either in analogue or digital formats can be disseminated by SOI by sale or through an agreement to any agency for specific end use. This transaction will be registered in the Registration database with details of the receiving agency, end use etc.

4. NATIONAL DATA SHARING ACCESSIBILITY POLICYNDSAP-2012:

Preamble:

Asset and Valuable potential of data are widely recognised at all levels. Data collected or developed through public investments, when made publicly available and maintained over time, their potential value could be more fully realised. There has been an increasing demand by the community, that such data collected with the deployment of public funds should be made more readily available to all, for enabling rational debate, better decision making and use in meeting civil society needs.

A large quantum of data generated using public funds by various organisations and institutions in the country remains inaccessible to civil society, although most of such data may be non- sensitive in nature and could be used by public for scientific, economic and developmental purposes. The National Data Sharing and Accessibility Policy (NDSAP) is designed so as to apply to all sharable non – sensitive data available either in digital or analogue forms but generated using public funds by various Govt. of India. The NDSAP policy is designed to promote data sharing and enable access to Govt. of India owned data for national planning and development.

Objective:

The objective of this policy is to facilitate the access to Govt. of India owned sharable data and information in both human readable and machine readable forms through a network all over the country in a proactive and periodically updated manner, within the framework of various related policies. Acts and rules of Govt. of India, thereby permitting wider accessibility and use of public data and information.

5. CITIZEN CHARTER:

Survey of India, under the Ministry of Science and Technology, Government of India, is the national survey and mapping organization and has mandate to take a leadership role in liberalizing access of 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). In order to improve the delivery of our services, Survey of India has decided to formulate this Citizens' Charter.

This Charter is the declaration of our vision, values and standards to achieve excellence in the formulation and implementation of National Map Policy for the benefit of Public, Govt. / Private organizations and other stakeholders. This Citizens' Charter will also be the benchmark to determine our efficiency and would be a dynamic document, which would be reviewed at least once in five years.

Our Strategy:

The strategy for achieving our mission shall comprise the following:

- Benchmarking of products / data.
- Enhancing the use of information technology.
- Measuring conformance to service delivery standards.
- Evolving cooperative initiatives with other government and private agencies.

Our Clients:

Government and private organizations as well as private individuals associated with defence / security, information technology, education and research, navigation, tourism, disaster management, engineering and production, environment, mining, drilling, development, agriculture, fishing, utilities etc.

Our Expectations:

We expect citizens to:

- Uphold and respect the rules and regulations governing the geospatial data dissemination.
- Fulfill their duties and legal obligations in time.
- Be honest in furnishing information.
- Be co-operative and forthright in inquiries and verifications.
- Avoid unnecessary litigation.

This will enable us to serve the nation in an effective and efficient manner.

Our Commitment:

We shall strive to:

- be at the service of our country
- work to ensure the national security.
- make our procedures and transactions as transparent as possible
- carry out our tasks with:
    - integrity and judiciousness
    - impartiality and fairness
    - courtesy and understanding
    - objectivity and transparency
    - promptness and efficiency.

6. INTERNATIONAL BOUNDARY SURVEY:

(i) Boundary Survey Work:

Survey of India carries out boundary survey works on behalf of Ministry of External Affairs i.e. Boundary demarcation, relocation of boundary pillars of International boundary with Nepal, Bhutan, Bangladesh, Myanmar, Pakistan and China. SoI also advises State Government and Government of India on matters of International Boundary and State / UTs Boundaries and carries out Surveys as and when required to resolve the disputes as Extra- Departmental jobs.
Surveying tasks associated with the International Boundary were carried out as given below.

- **Indo- Bhutan International Border** (West Bengal, Arunachal Pradesh – Bhutan Sector)**:** Joint inspection / maintenance of boundary pillars.
- **Indo- Pak International Border** (Punjab and Rajasthan Sector)**:** Joint inspection / maintenance of boundary pillars.
- **Indo- Nepal International Border:** Joint demarcation /relocation /inspection /maintenance works.
- **Indo- Bangladesh International Border:** Joint demarcation /relocation /inspection /maintenance works.
- **Indo- Myanmar International Border:** Joint demarcation /relocation /inspection /maintenance works.

(ii) Joint Boundary Meetings:

(1) India – Myanmar Boundary:

Indian delegation led by Dr. Swarna Subba Rao, Surveyor General of India, along with Sh. S.K. Sinha, Director & Sh. U.S. Prasad, Superintending Surveyor, International Boundary Directorate (SGO) attended 9th Heads of Survey Department meeting in **Yangon, Myanmar** from 9th to 10th April,2015.

Directors' Level meeting between Survey Departments of India & Myanmar was held at **Tamu (Myanmar)** on 4th Nov,2015. The Indian delegation was led by Mr. Nitin Joshi, Director, Meghalaya and Arunachal Pradesh GDC while the Myanmar delegation was led by Mr. U Aung Moe, Director, Survey Department, Ministry of Environment Conservation and Forestry.

21st Sectoral Level Meeting between India and Myanmar was held in Mumbai from 12th to 14th May,2015. Sh. Sh.Uday Shankar, Prasad, Superintending Surveyor, International Boundary Directorate represented the department in the meeting.

(2) India – Bangladesh Boundary:

Sh. Sanjay Kumar, Director Settlement & Land Records and Surveys (Ex- Officio) Tripura and Director, WB & Sikkim GDC, attended 6th meeting of The Joint Boundary Working Group (JBWG) at Dhaka, Bangladesh from 22nd to 25th July,2015.

India – Bangladesh, International Boundary meeting

Joint Field Inspection meeting of the Director Settlement & Land Records and Surveys (Ex- Officio) Tripura and Director, WB & Sikkim GDC, India and the Director General Department of Land Records & Surveys, Bangladesh was held at Dhalai (Tripura), India – Moulvibazar Bangladesh sectors from 9th to 10th Jan,2016.

Sh. Sanjay Kumar, Director Settlement & Land Records and Surveys (Ex- Officio) Tripura and Director, WB & Sikkim GDC, participated at MEA, New Delhi to attend meeting in MEA, New Delhi to discuss steps for boundary demarcation in adverse possession and un-demarcated sector between India – Bangladesh from 15th to 16th Sept,2015.

(3) India – Pakistan Boundary:

Joint Staff Officers Level Meeting for survey work of relocation of boundary pillars on Indo-Pak boundary was held at JCP Attari (India side) on 07.09.2015.Sh. Pradeep Singh, Director, Punjab, Haryana & Chandigarh GDC and Sh. Neeraj Kumar, Superintending Surveyor, Rajasthan GDC attended the meeting.

DG Level Bi-Annual Meeting between DG BSF and DG Pak Rangers was held in New Delhi (India) from 9th to 10th Sept, 2015 in connection with repair, replacement of damaged / missing / uprooted and berried Boundary Pillars along Indo- Pak border. Mej Gen Anil Kumar, Additional Surveyor General, Survey of India represented the department in this meeting.

(4) India – Nepal Boundary:

The 2nd meeting of Nepal – India Boundary Survey Official's Committee (SOC) was held in Kathmandu, Nepal from 28th to 30th June, 2015. The Nepalese delegation was led by Mr. Kalyan Gopal Shrestha, Deputy Director General of the Topographical Branch, Survey Department of the Government of Nepal. The Indian delegation was led by Dr. S.K. Singh, Director, Uttarakhand & West Uttar Pradesh Geospatial Data Centre (UK&WUP GDC) Survey of India.

The 2nd meeting of India – Nepal Boundary Working G roup (BWG) was held at Dehradun (India) from 24th to 26th Aug,2015. The Indian delegation was led by Sh. Rajendra Mani Tripathi, Surveyor General of India. while the Nepalese delegation was led by Sh. Madhu Sudan Adhikari, Directro General, Survey Department of Nepal.

(5) India – Bhutan Boundary:

10th Secretary Level Meeting between India & Bhutan on Border Management and Security was held in Thimpu (Bhutan) from 3rd to 4thNov,2015. Sh. Nitin Joshi, Superintending Surveyor, Meghalaya and Arunachal Pradesh GDC represented Survey of India in this meeting.

Joint Technical Level meeting between the Survey Departments of India & Bhutan on Boundary Task was held at **Phuentsholing (Bhutan)** from 23rd to 24th Nov,2015. Indian delegation was led by Sh. Nitin Joshi, Director, Meghalaya and Arunachal Pradesh GDC.

7. TECHNICAL ACTIVITIES IN SOI:

7.1 Generation of National Topographical Digital Database on Various Scales:

National Digital Topographical Data Base of the entire country on 1:250K , 50K and some parts of the country on 1:25K scales has already been completed. Generation of Digital Topographical Data Base of remaining existing maps on 1:25K scale available in the hard copy as printed maps, PT sections, Air Survey sections, scribing sections etc are in progress.

Progress of Digitisation on 1:25K during the year is as under.

Digitisation (sheets)	QC(sheets)	Preparation of OSM (sheets)	Hard & Soft copy examination(sheets)
795	709	265	270

7.2 Updation of National Topographical Database on various Scales:

Survey of India is the National Mapping Agency (NMA) of the country and bears the responsibility to ensure that the country's domain is surveyed and mapped suitably.SOI provides topographical base maps on 1:25K,50K,250K scales to carter for the security and developmental needs of Geo- Spatial data of the country.

To fulfill the requirements of high quality spatial data for socio- economic developmental activities, conversation of natural resources, planning for disaster mitigation, expeditious infrastructure and development works of the nation, Survey of India has proposed and executed the work of preparation of updated OSM and DSM datasets (DTDB & DCDB) with pre- field updation using High Resolution Satellite Imagery (HRSI) followed by revision survey on ground and the same is being undertaken by all Geo- spatial Data Centers.

SoI has completed the updation of Topographical data on 1:250K, 1:50K and 1:25K scales as detailed below.

1:50K scale

Pre-field Updation (sheets)	Revision Survey (sheets)
122	17

1:25K scale

Pre- field Updation (sheets)	Revision Survey (sheets)	Post field Updation (sheets)
575	136	58

7.3 Generation Of OSM Hindi and OSM Regional Languages Version:

Survey of India has completed Open Series Maps (OSMs) on 1:50,000 scale English version and are available for use by the users. To fulfill the requirements of OSM Hindi version and Regional languages version, Preparation of OSM (Hindi) and OSM (Regional Languages) is going on and is as under.

OSM Hindi (sheets)	OSM Regional Language(sheets)
426	6

7.4 Providing OSM DTDB data for WEB services like WMS /WFS:

Survey of India has been providing Web Map Service (WMS) based on 1:50K OSMs through SOI portal "surveykshan.gov.in" for the open viewing as mandated by the NDSAP- 2012. Efforts are underway to provide the data service of feature data through Web Feature Service (WFS).Progress of WMS and WFS during the year is as under.

Web Map Service(sheets)	Web Feature Service(sheets)
569	944

7.5 GEODETIC AND GEOPHYSICAL:

(1) Geodetic Control:

The following tasks were carried out by the Department to provide the horizontal and vertical control for fixing alignment of various structures, Dam deformation studies, Crustal movement studies & Monitoring stability of National Heritage Monuments etc.

i)	GPS Observation for GCP Library	71 Stations
ii)	Triangulation	15 stations
iii)	High Precision Levelling for Redefinition of Indian Vertical datum	402 Lin km (Fore & Back)
iv)	Precision Levelling for Project Surveys	411.57 Lin km
v)	EDM Distance	165.61 km
vi)	Angular observation for projects	345 Stations
vii)	No. of bases for project surveys	250 bases
viii)	GPS observation for projects	110 Stations
ix)	Gravity observation	235 Stations

(2) Gravity:

One Automated Gravimeter (CG-5) was used for gravity observations on 209 stations along H.P. Levelling line in Uttarakhand.

(3) Geomagnetic:

Automatic recording of variation of the three geomagnetic elements i.e. Horizontal Force (HF), Vertical Force (VF), Declination (D) and their absolute measurement were continued throughout the year. Absolute measurement from DIM and ENVI-Mag has been done in order to control the base line values of variographs. Data has been made available for scientific studies to other Govt. Departments also.

Geomagnetic observations were carried out on 50 stations to provide Horizontal Force (HF), Vertical Force (VF) and Declination (D) in the South and West India.

Astronomical observations on 17 stations for Geoid Model in Hyderabad and Bengaluru have been completed during the period under report.

(4) Tidal Works:

Survey of India maintains a series of tidal observatories located all along Indian Coast and Islands. Tidal observations are carried out on regular basis for tidal predictions. Tidal data generated through tide gauges installed in tidal observatories is quality controlled and then used for upgradation of Harmonic constituents. These in tune are used for tidal predictions which are brought out in the form of Indian Tide Tables**.**

Aftermath Tsunami of 26th December 2004, Survey of India has contributed immensely in establishing **Tsunami Early Warning System**. Under the project **"Modernization and Expansion of Indian Tide - Gauge Network"** along east and west coast of India and its Islands and it was decided to equip all its tidal observatories with State- of- the- Art digital tide gauges and Dual frequency GPS receivers co-located with Real Time Data Transmission facilities through dedicated V-SAT network.

Tidal and GPS data received at National Tidal Data Centre / National GPS Data Centre in Real time through dedicated VSAT network is processed for ascertaining any signature of Tsunami or any impending disaster related with seismotectonic and crustal movement.

7.6 Progress of Important Projects of SOI:

(1) NUIS Project:

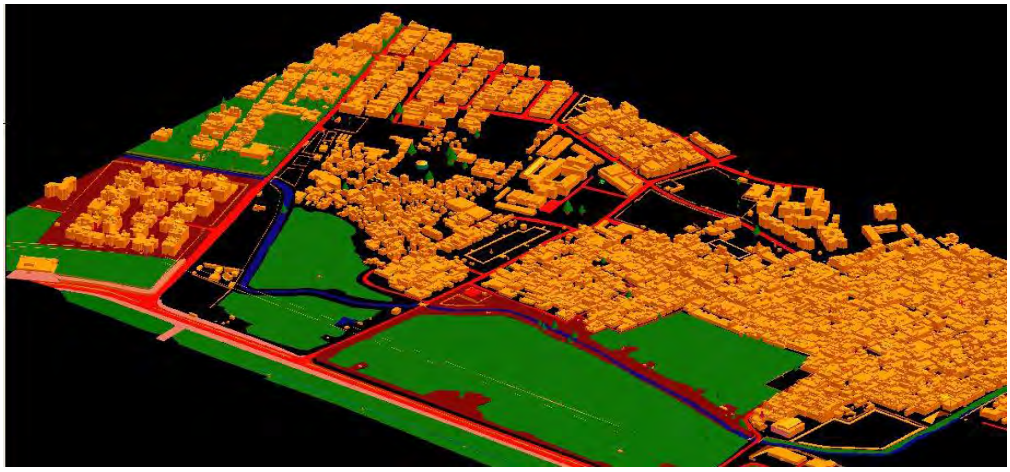
Survey of India in collaboration with Ministry of Urban Development has undertaken the task of mapping of 152 towns on 1:2000 scales for core area and 1:10,000 scale for the peripheral areas under National Urban Information Scheme (NUIS)

(i) 1:10,000 Scale Survey:

Geo referenced Satellite Imagery & Thematic mapping of all 152 towns have been completed, Data of 152 towns have been sent to State Nodal Agency for Attribute collection in which 130 towns have been completed.

(ii) 1:2,000 Scale Survey:

Ground Control and 2D feature extraction for all 152 towns have been completed. Data pertaining to 152 towns handed over to State Nodal Agency for attribute collection. Attribute data collection for 151 towns has been completed.



3 D Image of Urban Area

(2) Mapping and Delineation of Hazard Line:

Due to the increasing population, urbanization and accelerated developmental activities, the coastal environment has been assuming greater importance in recent years, The Ministry of Environment and Forest (MoEF) had initiated a project titled **"Integrated Coastal Zone Management (ICZM) Project".** The project will enhance India's economic infrastructure such as maritime facilities, petroleum industries, renewable energy resources, import based industries and for safety of the community and their property located all along the coastline. Survey of India has to generate a 0.5 meter elevation contour map on 1:10,000 scale as base map to delineate the Hazard Line for the entire mainland coast of India upto the maximum width of 7 Km from shore line on the landward side.

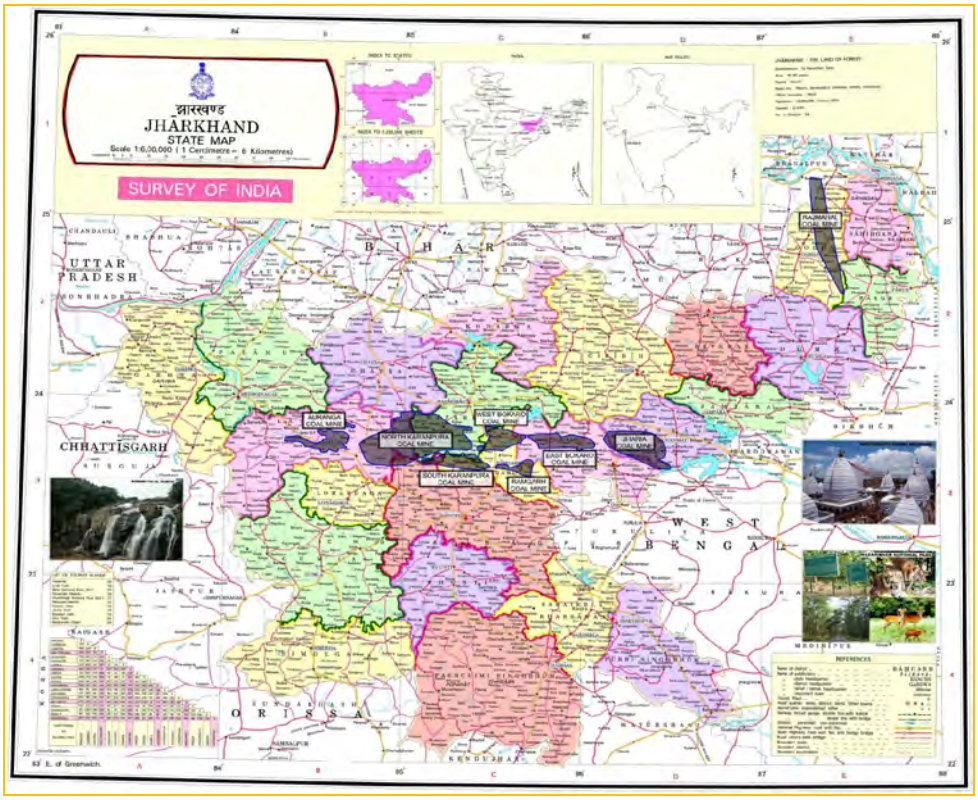
Control work consisting of GPS and leveling of the entire coastal area(75930 sq.km), Arial Photography of the project area, QA/QC of Arial Photography and 32 days tidal observations for densification of secondary ports with required for delineations of Hazard Line as per recommendation of World Bank has been completed by the department.

Eight GDCs (Gujarat, Maharashtra, Karnataka, Kerala, Tamil nadu, Andhra Pradesh, Orissa and West Bengal) of the department have been engaged in various ICZM activities like Field Control, Quality Control, Data handling etc.

(3) Coal Mine Project:

To generate updated Topographical Maps of Major Indian Coal fields (27 coal fields) on 1:5000 scale with contour interval 2 meters in plain and 3-5 meters in case of hilly terrain in GIS form based on Digital Photogrammetric Techniques using high resolution aerial photographs. Following GDCs are involved in the execution of this project.

- Chhattisgarh GDC
- Jharkhand GDC
- Madhya Pradesh GDC
- Maharashtra & Goa GDC
- Meghalaya & Arunachal Pradesh GDC
- Orissa GDC
- West Bengal & Sikkim GDC.



Coal Mines in Jharkhand State under Coal Mine Project

The following stages of works has been carried out as part of this project by SOI.

Primary Control provision (construction of BM/GPS pillar) GPS observation and DT leveling	27 Coal Fields
Model Block Control points provision (GPS observation and ST Levelling)	10 Coal Fields
2 D Feature Extraction	1232 sheets (10 Coal Fields)
3 D Feature Extraction	986 sheets (10 Coal Fields)
Field Verification	854 sheets (10 Coal Fields)

(4) Survey for A.P. State Capital Area:

Government of Andhra Pradesh has requested Survey of India to supply the 1:5,000 scale Survey Maps with contour interval 1 metre for use in physical planning for various infrastructural works in the proposed capital city area (approximately 220 sq.km) in Guntur district.

SOI completed the following job during the year.

GPS observations	350 points
Levelling	510 lin.km.
Feature Extraction (Digital Photogrammetry)	45 sheets

(5) Special Survey for Indian Air Force:

Survey of India also prepared IAF-OGM, PGM, JGM, Landing Approach charts LAC,LNC etc. and carried out abstracting survey work for Indian Air Force.SOI has completed the following maps and data for IAF .

IAF (OGM)	25 sheets
IAF (PGM)	47 sheets
Landing Approach Charts(LAC)	15 parts
JGM	22 sheets
Verification of Landing chars on 1:50K scale including obstruction Survey for 30NM from ARP for IAF	10 Charts

7.7 Other Special Survey Projects:

The following projects survey were continued / carried out during the year 2015 – 2016 :

SPECIAL SURVEY PROJECTS		
Sl,. No.	Name of GDC	Name of Special Survey
1.	Andhra Pradesh	HPCL Project, Visakh Refinery
	-do-	Andhra Pradesh State Capital City Survey
	-do-	Electronics Corporation of India Limited, Hyderabad ,
2	Himachal Pradesh	Surgani – Sundla HE Project
	-do-	Chanju HE Project
	-do-	Deothal Chanju HE Project
	-do-	Manali –Aut HE Project
3.	Karnataka GDC	DRDO Campus Survey Project

4.	Punjab Haryana & Chandigarh	Indo – Pak boundary work
	-do-	Haryana UP Boundary Demarcation Survey
	-do-	Ganguwal Chandigarh Levelling Project
5.	UP West & Uttrakhand	Jolly Grant Airport (Control work)
	-do-	Rajiv Gandhi International Cricket Stadium, Dehradun
	-do-	Shiv Nadar Foundation, Noida
6.	West Bengal & Sikkim	BANDU (Puruliya) Pumped Storage Project

7.8 Status of Printing:

The following maps/specials products were printed during the period of report :-

STATUS OF PRINTING OF MAPS		
Sl. No.	**Name of Job**	**No of Maps**
1.	Topo/ OSM (Final & Reprint)	997
2	DSM Maps	70
3..	1:50,000 (Final &Reprint)	2
4.	1:250,000 (Reprint)	6
5.	IAF(PGM,OGM,OLM,LAC etc.)	77
6.	State, Guide, Geographical, Railways &Tourists Maps etc	13
7.	3 D Plastic Relief Maps	400
8.	Miscellaneous Maps/ Indices / Charts etc.	119

Name of Publication	Status
Hugli River Tide Table,2016	Published
Indian Tide Table,2016	Published
Magnetic Bulletin 2014	Completed
Annual Magnetic Bulletin 2014 of Sabhawala observatory	Supplied to IIG, Mumbai for publication
Magnetic Declination Chart epoch 2015.0	In final stage

8. COLLABORATIVE SCIENTIFIC ACTIVITIES:

Following collaborative scientific activities in the field of Geodesy and Geophysics were continued:

(1) Magnetic data has been supplied regularly to IIG, Mumbai and also supplied to World Data Centre whenever it required.

(2) Supply of Mean Sea Level data of 18 Indian ports to International Permanent Service for Mean Sea Level (IPSMSL), U.K. for various scientific studies by the International Geodetic Community.

9. RESEARCH AND DEVELOPMENT:

The main thrust of the research and developmental activities of the Geodetic & Research Branch during the period under report has been focused towards:

(1) **35th Indian Scientific Expedition to Antarctica:** Two teams from SoI visited Antarctica. Detail survey work has been completed in Larsemann Hill - 5.56 sq.km. on scale 1:5000 with contour interval 2 meter and Schirmacher Oasis – 3.85 sq.km. on scale 1:10,000 with contour interval 5 meter. Digitisation work is under progress. 1 week GPS observation at Larsemann Hill and Schirmacher Oasis for inter plate movement study of Antarctica plate with respect to Indian plate has been completed. GPS observation on pre-established GCP's has been carried out on 9 Nos. of GCP at Larsemann Hill and 10 Nos. out of 27 Nos. at Schirmacher Oasis has been completed.

A Glimpse of Antarctica Station

(2) Processing / analysis of pre & post Tsunami GPS data of Antarctica for crustal deformation & seismotectonic movement studies.

(3) Backup and archival of data received from permanent GPS stations.

(4) Downloading of precise ephemeris of IGS stations from web sites through internet.

(5) Adjustment of Second Level Net in India (data compilation).

(6) Data processing / analysis and tidal predictions for year 2013 and 2014.

(7) As a sequel to above programs, the following activities were initiated / completed.

(8) Data acquisition with Global Positioning System in static relative mode to obtain transformation parameters between the Everest Spheroid and WGS-84.

(9) Gravity data acquired for equal crustal movement studies across faults / thrust zones as well as for Geodetic and Geophysical studies for International Geodynamics projects is being restructured and formatted, so as to meet the requirements (of redesigned mathematical model).

(10) Research & Development Programme in Sea level studies, Glaciology, Earthquake prediction etc.

10. CONFERENCES / SEMINARS / MEETINGS:

(1) Dr. Swarna Subba Rao, Surveyor General of India, attended 1st meeting of JWG of DST and ISRO in DST, New Delhi on 17.04.2015.

(2) Dr. Swarna Subba Rao, Surveyor General of India, attended meeting on Village Information System to NRDMS, DST, in Andhra University from 20.04.2015 to 21.04.2015.

(3) Dr. Swarna Subba Rao, Surveyor General of India attended contract Management Committee Meeting of ICZM at Bangalore on 01.05.2015. He also attended seminar on Cartosat-1 at NRSC, Hyderabad on 05.05.2015

(4) Dr. Swarna Subba Rao, Surveyor General of India, attended 1st meeting of JWG of DST-ISRO in DST, New Delhi on 17.04.2015.

(5) Sh. S.K.Sinha, Director, International Boundary Directorate,(SGO) attended meeting on Application of Space Technology in development of Highway Infrastructure in the country in the Ministry of Road Transport & Highways in New Delhi on 15.05.2015

(6) Sh. R.M.Tripathi, Surveyor General of India attended meeting in the Ministry of Home Affairs and DST, New Delhi from 01.06.2015 to 02.06.2015. at New Delhi.

(7) Sh. R.M.Tripathi, Surveyor General of India, attended meeting in the Ministry of Home Affairs, New Delhi on 08.06.2015.

(8) Sh. Sreedhar Sahu, Superintending Surveyor, GIS & RS attended Training Programme for National Data Providing Organisations and State SDI agencies in IIT, Khargpur on 23.06.2015.

(9) Sh. R.M.Tripathi, Surveyor General of India, made a presentation of SOI at "DST-ABC-2015" in Hyderabad from 06.07.2015 to 07.07.2015.

(10) Sh. R.M.Tripathi, Surveyor General of India, held discussion with Cadre Controlling Authorities (CCAs) regarding Engineering Services Examination (ESE), Rail Bhawan, New Delhi on 14.07.2015.

(11) Sh. R.M.Tripathi, Surveyor General of India, attended 2nd meeting of India – Nepal boundary working group in MHA, New Delhi on 07.08.2015.

(12) Sh. R.M.Tripathi, Surveyor General of India, attended 10th meeting of Executive Committee of NSDI in DST, New Delhi on 02.09.2015.

(13) Sh. R.M.Tripathi, Surveyor General of India, attended meeting of Committee of Secretaries (CoS) in MHA regarding Holistic Development of Islands at New Delhi on 11.09.2015.

(14) Sh. U.N. Mishra, DSG, IIS&M, attended the National Seminar on "**Advance Survey Techniques (LiDAR, GPR, 3D Survey) & Applications"** on 25.09.2015 & 26.09.2015 at Hyderabad. He also delivered a lecture on Airborne LiDAR Survey in Mapping.

(15) Sh. Rajiv Kumar Shrivastava, Superintending Surveyor, G&RB, attended Indian Ocean Sea Level Science Workshop & session of the group of experts meeting for Global Sea Level Observing System (GLOSS) from 19.10.2015 to 21.10.2015 at National Institute of Oceanography, Goa.

(16) Sh. R.M.Tripathi, Surveyor General of India, attended meeting with Secretary, DST alongwith Head NRDMS on 19.11.2015 at New Delhi.

(17) Sh. R.M.Tripathi, Surveyor General of India, alongwith senior officers of SOI participated in XXXV INCA International Congress on **"Spatial Governance for Development, Planning Smart Cities and Disaster Management"** organised by the Centre for the Study of Regional Development , School of Social Sciences, Jawaharlal Nehru University, New Delhi from 15.12.2015 to 17.12.2015.

(18) Sh. S.K. Sinha, Director, International Boundary Directorate, attended meeting in MEA, New Delhi regarding exact Co-ordinates /Grid reference of the India-Bhutan – China Tri junction at Batang La on 30.12.2015.

(19) Sh. R.M. Tripathi, Surveyor General of India, along with Thailand officials visited IIS&M on 01.02.2016 for the Inaugural function of special course under Indo-Thai Geospatial co-operation project.

(20) Sh. R.M.Tripathi, Surveyor General of India, attended 10th meeting of NNRMS standing Committee on Cartography & Mapping at DOS Branch Secretariat, New Delhi on 26.02.2016.

(21) Sh. R.M.Tripathi, Surveyor General of India, inaugurated Indo – Thailand project training programme at IISM, Hyderabad on 01.02.2016.

(22) Sh. Sanjay Kumar, Director Settlement & Land Records and Surveys (Ex- Officio) Tripura and Director, WB & Sikkim GDC attended 8th JBWG meeting in MEA, New Delhi from 21.03.2016 to 22.03.2016.

11. TECHNICAL PAPERS:

Dr. M. Stalin, Director, Chattisgarh GDC submitted the paper **"Geoid Model OF INDIAN TERRITORY"** in the journal International Journal of Scientific Research in Science, Engineering and Technology

12. FOREIGN VISITS / STUDY TOURS / DEPUTATION:

(1) Sh. R.M.Tripathi, Surveyor General of India, participated in the 20th United Nations Regional Cartographic conference for Asia and Pacific (UNRCC-AP) in **Jeju Island (Republic of Korea)** from 06.10.2015 to 09.10.2015.

(2) Sh. S.V. Singh, Director, GIS&RS, visited **Bangkok, Thailand** to participate 2nd Joint Committee meeting of Nodal Officers/ Project Coordinator of two projects in Thailand from 12.10.2015 to 14.10.2015.

13. VISIT TO SOI OFFICES:

Myanmar delegation at Surveyor General of India Office, Dehradun

(1) Northern Printing Group, Dehra Dun:

(i) 4 teacher & 50 students of Gandhi Smarak Trivedi degree college, Ajamgarh

(ii) 21 students & 3 staff members of Jawaharlal Nehru Smarak P.G. College, Maharajganj, U.P.

(iii) 20 Trainees & 2 faculty members of IIRS, Dehradun.

(iv) 62 students & 35 teachers of Unison World School, Dehradun.

(v) 95 officers of Department of Space, IIRS, Dehradun.

(vi) 125 students & 14 teachers of The Director General, Govt. of M.P, MPCST, Bhopal.

(vii) 44 students of Geophysics, Banaras Hindu University, Varansi.

(2) National Geo-spatial Data Centre, Dehra Dun:

(i) Dr. Sanjeev Kumar Chaudhary of Satish Chandra P.G. College, Balia, U.P. with their 17 students.

(ii) 43 students with 3 staff persons of Department of Geographical R.R. P.G. College Amethi, U.P.

(iii) Dr. Harindra Singh Patel of Ganga Gauri P.G. College, Ramnagar, Azamgarh U.P. with a group of students.

(iv) 30 cadets and 2 master trainer of Rashtriya Indian Military College, Dehradun.

(v) Assistant Head Master P.K. Nair of Doon School, Dehradun with 15 studenrts.

(vi) Lecturer Sh. Manish Rawat of Graphic Era Hill University Dehradun with 67 students of BE (Civil Engineering).

(3) National Survey Museum (G &RB):

(i) Dr. V.S.Rathore with 8 students from Birla Institute of Technology, Ranchi.

(ii) Mr. Paul Gresham Roberts, Woodstock School, Mussoorie.

(iii) Sh. Mithilesh Mishra, IAS, Director, Land Records Survey, Bihar

(iv) Mrs Neil Steven Buhrich and Mrs Lynette Mary Buhrich from Australia.

(v) Prof. G.P. Singh and Prof M.J.K. Srivastava with 43 students from Department of Geophysics, Benaras Hindu University, Varanasi.

(vi) Mr. R. Thamil Selvan Master with 35 cadets from Rashtriya Indian Military College, Dehradun.

(vii) 5 Naval officers from National Hydrography Office (NHO), Dehradun

14. CULTURAL AND EDUCATIONAL ACTIVITIES:

Hindi Pakhwada was celebrated at various offices in Survey of India located at different cities from 14.09.2015 to 30.09.2015. Hindi essay writing, noting – drafting and quiz competition was also organized to encourage the officers and staff to work in **"Rajbhasha Hindi'** during the period.

(i) National Science Day:

National Science Day was celebrated on 28-02-2016 at various offices of Survey of India located at different places of the country. The Theme on this National Science Day was **"Make In India: S&T Driven Innovation".** An open day was observed on this day. Instruments used in the past and present were put in the exhibition. School children and general public visited museums of survey of India offices and shown interest in Instruments used in past & present by the department.

15. USE OF HINDI IN OFFICIAL WORK:

In accordance with the Official Languages Rules, 1976, 15 Geo-Spatial Data Centres / Directorates / Printing groups including headquarter of Survey of India are located in Region 'A' while 6 Geo-Spatial Data Centres in Region 'B' and 20 Geo-Spatial Data Centres / Training Institute / Printing groups / Zonal Offices are in Region 'C'. The position regarding the use of Hindi in the department for the year 2015-2016 remained as under:-

(1) Correspondence:

During the year 2015-2016 intensive measures were taken for transacting the official work of the union in Hindi by the various offices of the department. 4,924 documents were issued bilingually under section 3(3) of the Official Languages Act, 1963. Letters received in Hindi were replied in Hindi. Region wise position regarding correspondence in Hindi remained as under:-

Sl. No.	Correspondence in Hindi by the offices located in Regions- 'A, B & C	% of Use
1.	Correspondence in Hindi by the offices located in Region 'A'	
1.1	With 'A' and 'B' Region	82.3%
1.2	With 'C' Region	59.7%
2.	Correspondence in Hindi by the offices located in Region 'B'	
2.1	With 'A' and 'B' Region	90.9%
2.2	With 'C' Region	77.4%
3.	Correspondence in Hindi by the offices located in Region 'C'	
3.1	With 'A' and 'B' Region	36.8 %

(2) Training:

During the period under report 7 officers/employees passed Hindi Prabodh, Praveen and Pragya examination and 6 LDCs' passed Hindi Typing examination, under Hindi Teaching Scheme

(3) Hindi workshop / Seminar:

(i) With a view to acquaint with the Official Language orders/rules and the target laid down in the Annual Programme Hindi workshops were organized in Surveyor General's office, Dehra Dun, Specialised Zone, Dehradun, Punjab Haryana & Chandigarh GDC, Chandigarh, Eastern Zone, Kolkata, Kerala & Lakshdweep GDC, Thiruvanantpuram & Karnataka GDC, Bangluru.219 officers/Employees received training in these workshops.

(ii) Sh. Dhoom Singh, Assistant Director (O.L) Surveyor General's Office, Dehra Dun attended the Regional Rajbhasha Puraskar Conference at Amritsar on 16.10.2015.

(4) Incentive Scheme:

During the year 2015-2016 incentive schemes for noting and drafting for doing official work in Hindi, Hindi typing and Hindi stenography remained continued.

(5) Inspections:

(i) During the year inspection regarding the use of Hindi was carried out in Punjab, Haryana & Chandigarh GDC, Chandigarh on 30.06.2015 by Northern Regional Implementation Office – I (Delhi) Ministry of Home Affairs (Department of OL)

(ii) During the year inspection regarding the use of Hindi was carried out in Karnataka GDC, Bangluru by Ms Daya Pant, Joint Director (OL), Ministry of Science & Technology, New Delhi on 04.09.2015.

(iii) During the period inspection was carried out by Sh. Dhoom Singh, Assistant Director (O.L) and Sh. K.S. Negi Hindi Translator, Surveyor General's Office, Dehra Dun at Eastern Printing Group & Eastern Zone, West Bengal & Sikkim GDC, Kolkota from 21.12.2015 to 23.12.2015

(6) Hindi Day / Fortnight / Function:

Hindi day / Hindi fortnight / Hindi functions were organized in the month of September in various offices of the Department. To encourage the use of Hindi various competitions pertaining to Hindi were organized on this occasion and the winners were awarded.

Chal Vaijayanti Running Shield was given to the **Work Study & JCM section** for doing maximum work in Hindi in Surveyor General's Office, Dehra Dun. On this occasion prize distribution ceremony, Hindi Quiz Competition was also organized besides recitation of poems in Hindi.

Prize distribution during of Hindi Pakhwara at Surveyor General's Office Dehradun

(7) Publication of in-house Magazine in Hindi:

The following offices published in-house magazines in Hindi during the period under report :-

Sl. No.	Name of SOI Office	Name of Magazine
1.	Surveyor General's office, Dehra Dun	Sarvekshan Darpan
2.	Town Official Language Implementation Committee, DDun	Doonvani
3.	Northern Zone, Chandigarh	Jagriti
4.	Geodetic and Research Branch, DDun	Jhalak
5.	Andhra Pradesh GDC, Hyderabad	Kalakal
6.	Kerala & Lakshadweep GDC, Thiruvananthapuram	Sampreshan
7.	Rajasthan GDC, Jaipur	Naya Prayas
8.	Bihar GDC, Patna	Sandesh
9.	Eastern UP GDC, Lucknow	Bhu- Darpan
10.	Southern Printing Group, Hyderabad	Prerna
11.	GIS&RS, Hyderabad	Pushpanjali

(8) Meetings:

(i) During the year 2015-16 quarterly meetings of the official Language Implementation Committee were held in almost all the GDCs and Directorates etc. of the Department located in Region 'A', 'B' and 'C'. In these meetings discussions were held to achieve the targets given in the Annual Programme issued by the Govt. for transacting the official work of the union in Hindi.

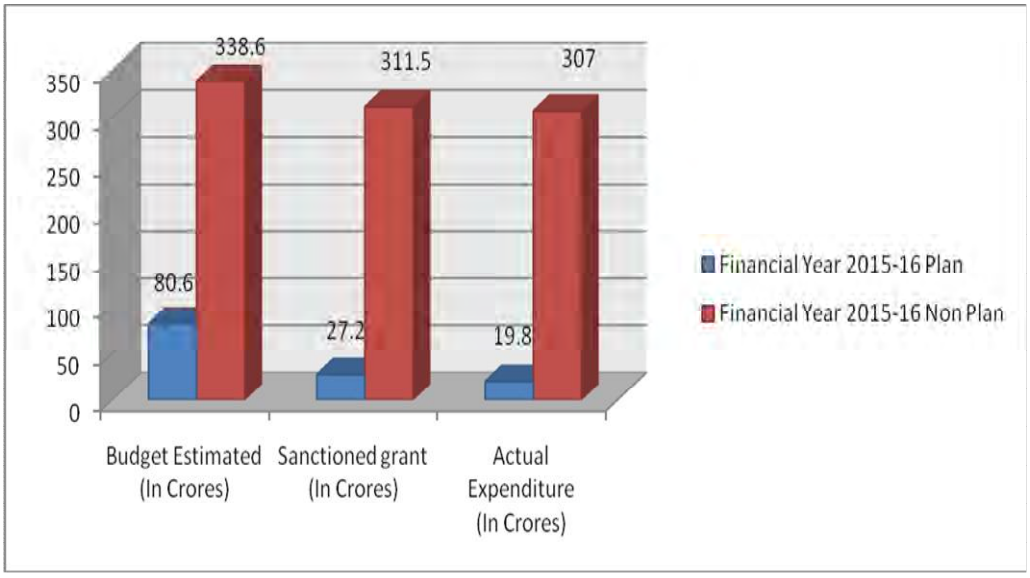
(ii) Half yearly meetings of the Town Official Language Implementation Committee, Dehra Dun were also organised under the chairmanship of Surveyor General of India during the period.

16.

ORGANOGRAM OF SURVEY OF INDIA

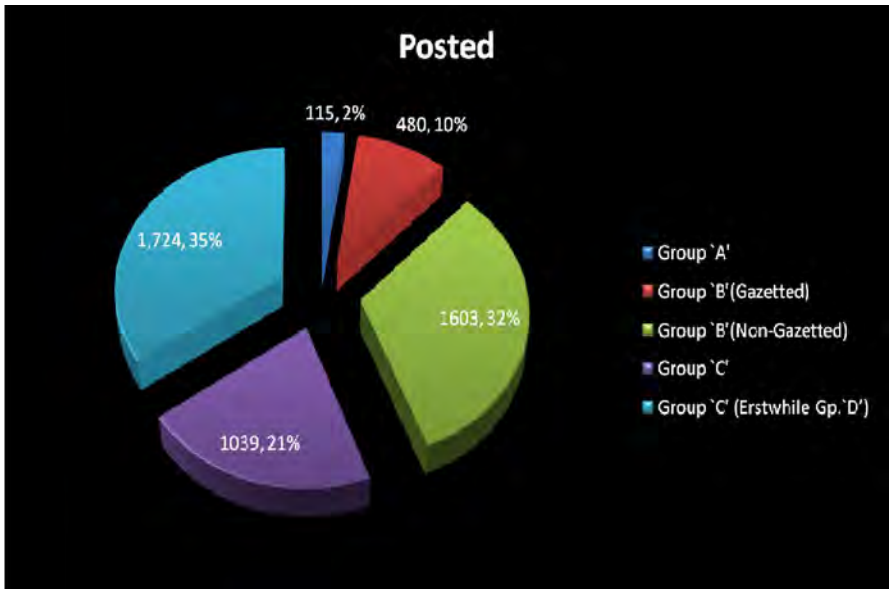
17. EXPENDITURE OCCURRED DURING THE PERIOD:

EXPENDITURE OF SURVEY OF INDIA		
Expenditure Type (In Crores)	**Financial Year 2015-16**	
	Plan	**Non Plan**
Budget Estimate	**80.6**	**338.6**
Sanctioned Grant	**27.2**	**311.5**
Actual Expenditure	**19.8**	**307**



18. MAN POWER RESOURCES:

Service Groups	Posted Strength as On 31-03-2016
Group `A'	115
Group `B' (Gazetted)	480
Group `B' (Non - Gazetted)	1603
Group `C'	1039
Group `C' (Erstwhile Gp.`D')	1,724
Total	**4961**



19. ACADEMIC AND CAPACITY BUILDING:

Indian Institute of Surveying & Mapping (IISM), imparting training to the officers and staff of Survey of India and other Government organizations, Private individuals and Scholars from various Afro-Asian countries. IISM, Hyderabad conducts M.Tech. (Geomatics) and M.Sc (Geospatial Science) post graduate programme of two years duration in collaboration with Jawaharlal Nehru Technological University (JNTU), Hyderabad.

184 trainees including 7 foreign, 29 extra-departmental & 7 private candidates have been undergoing training in various courses run by Indian Institute of Surveying & Mapping, Hyderabad as per details given below.

REGULAR/ SCHEDULED COURSES

SL. NO.	COURSE NO.	NOMENCLATURE	DEPARTMENTAL	EXTRA DEPARTMENTAL	FOREIGN	OTHERS	TOTAL
1	125.03	Administrative Management	10	0	0	0	10
2	320.05	Digitisation of Cartographic Documents	0	03	0	0	03
3	340.47	Digitisation of Cartographic Documents	0	03	0	0	03
4	400.93 #	Surveying Supervisor	0	0	06	0	06
5	400.94	Surveying Supervisor	102	0	0	0	102
6	400.94(A)	Surveying Supervisor	03	0	0	0	03
7	440.23 #	Digital Cartographic &GIS Application	0	02	0	0	02
8	465.05	GIS Application	01	01	0	0	02
9	480.42#	Digital Photogrammetry& Remote Sensing	0	03	0	02	05
10	480.43	Digital Photogrammetry& Remote Sensing	0	0	0	02	02
11	500.75	Surveying Engineer	18	0	0	0	18
12	690.32	Control & Detail Survey by GPS & Total Station	0	08	0	0	08
13	690.33	Control & Detail Survey by GPS & Total Station	0	04	0	03	07
14	700.24	Advance Geodesy	03	0	01	0	04
15	710.31	Advance Photogrammetry & Remote Sensing	04	0	0	0	04
16	820.03	GPS, Total Station, Mobile Mapping, GIS & Digital Photogrammetry	0	05	0	0	05
		Total	**141**	**29**	**07**	**07**	**184**

Courses continuing from previous year.

SPECIAL COURSES FOR SPECIFIC USERS							
SL. NO.	**COURSE NO.**	**NOMENCLATURE**	**DEPARTMENTAL**	**EXT DEPARTMENTAL**	**FOREIGN**	**OTHERS**	**TOTAL**
1	Spl.	Training in Modern Surveying Technology for National Institute of Defence Estate Management Officers	0	19	0	0	19
2	Spl.	Training on Surveying for the students of IIT, Hyderabad	0	0	0	23	23
3	Spl.	Training in Application of GIS for Land use planning for the students of Bapatla Engineering College, AP	0	0	0	22	22
4	Spl.	Training in Control & Detail Survey by GPS & Total Station, Map updation using Mobile Mapping system.	0	08	0	0	08
5	Spl.	One day training in Digital Mapping, Photogrammetry and other related Survey and Mapping.	0	42	0	0	42
6	Spl.	Training in Modern Surveying Techniques for the student of Vasavi Eng. College, Hyderabad.	0	0	0	35	35
7	Spl.	-do-	0	0	0	35	35
8	Spl.	One day Training in "Digital Mapping, Photogtammetry and other related Survey and Mapping"	0	10	0	0	10
9	Spl.	Training on Remote Sensing & DIP for the students of Jamia Millia, Delhi	0	0	0	26	26
10	Spl.	Training on Indo-Thai Geospatial Co-operation Project.	0	0	07	0	07
11	Spl.	GPS and Total Station for ACE Engineering students	0	0	0	15	15
		Total	**Nil**	**79**	**07**	**156**	**242**
# Courses continuing from previous year.							

ACADEMIC COURSES							
SL. NO.	**COURSE NO.**	**NOMENCLATURE**	**DEPARTMENTAL**	**EXTRA DEPARTMENTAL**	**FOREIGN**	**OTHERS**	**TOTAL**
1	Academic	M.Tech (Geomatics)- 2013-15	0	0	0	16	16
2	Academic	M.Sc (Geo-Spatial Science & Technology) – 2013-15	07	0	0	01	08
		Total	**07**	**Nil**	**Nil**	**17**	**24**
# Courses continuing from previous year.							

20. REPRESENTATION OF SC/ST & OBCs:

SC/ST/OBC REPORT - I

ANNUAL STATEMENT SHOWING THE REPRESENTATION OF SC's, ST's AND OBC's AS ON 01-01-2016 AND NUMBER OF APPOINTMENTS MADE DURING THE PRECEDING CALENDAR YEAR- 2015

MINISTRY / DEPARTMENT / ATTACHED / SUBORDINATE OFFICE :- **SURVEY OF INDIA**

Groups	Representation of SCs/STs/OBCs (As on 01-01-2016)				Number of appointments made during the calendar year 2015										
					By Direct Recruitment				By Promotion			By Deputation/Absorption			
	Total Number of Employees	SCs	STs	OBCs	Total	SCs	STs	OBCs	Total	SCs	STs	Total	SCs	STs	OBCs
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group A	107	5	7	3	0	0	0	0	0	0	0	0	0	0	0
Group B	485	79	62	20	0	0	0	0	60	2	1	0	0	0	0
Group C (Excluding Sweepers)	4235	1004	243	248	16	7	0	1	632	16	3	0	0	0	0
Group C (Sweepers)	79	75	0	2	0	0	0	0	0	0	0	0	0	0	0
Total	**4906**	**1163**	**312**	**273**	**16**	**7**	**Nil**	**1**	**692**	**4**	**4**	Nil	Nil	Nil	Nil

SC/ST/OBC REPORT – II

ANNUAL STATEMENT SHOWING THE REPRESENTATION OF SC's, ST's AND OBC's IN VARIOUS GROUP `A' SERVICES AS ON FIRST JANUARY, 2016 AND NUMBER OF APPOINTMENTS MADE IN THE SERVICE IN VARIOUS GRADE IN THE PRECEDING CALENDAR YEAR – 2015

MINISTRY / DEPARTMENT / ATTACHED / SUBORDINATE OFFICE :- **SURVEY OF INDIA**
SERVICE :-

Pay Band & Grade Pay	Representation of SCs/STs/OBCs (As on 01- 01- 2016)				Number of appointments made during the calendar year 2015									
					By Direct Recruitment				By Promotion			By Other Method		
	Total Number of Employees	SCs	STs	OBCs	Total	SCs	STs	OBCs	Total	SCs	STs	Total	SCs	STs
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PB-3 5400	29	2	1	1	0	0	0	0	0	0	0	0	0	0
PB-3 6600	18	1	1	2	0	0	0	0	0	0	0	0	0	0
PB-3 7600	17	0	1	0	0	0	0	0	0	0	0	0	0	0
PB-4 8700	9	1	4	0	0	0	0	0	0	0	0	0	0	0
PB-4 8900	13	0	0	0	0	0	0	0	0	0	0	0	0	0
PB-4 10000	21	1	0	0	0	0	0	0	0	0	0	0	0	0
HAG & above	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**107**	**5**	**7**	**3**	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

21. SC/ST/OBC& PERSONS WITH DISABILITIES:

PWD REPORT - I

ANNUAL STATEMENT SHOWING THE REPRESENTATION OF THEPERSONS WITH DISABILITY IN SERVICES (As on 01-01-2016)

MINISTRY / DEPARTMENT :- **Ministry of Science & Technology**
ATTACHED / SUBORDINATE OFFICE :- **Survey of India**

GROUP	Number of Employees				
	Total	In Identified Posts	VH	HH	OH
1	**2**	**3**	**4**	**5**	**6**
Group A	107	3	0	0	3
Group B	485	2	0	0	2
Group C/ Group D	4235	27	0	0	27
Group D (Safai Karamchari)	79	0	0	0	0
Total	**4906**	**32**	**Nil**	**Nil**	**32**

Note: (I) VH Stands for Visually Handicapped (persons suffering from blindness or low vision)
(II) HH Stands for Hearing Handicapped (persons suffering from hearing impairment)
(III) OH stands for Orthopaedically Handicapped (persons suffering from locomotor disability or cerebral palsy)

PWD REPORT - II

STATEMENT SHOWING THE NUMBER OF PERSONS WITH DISABILITIES IN SERVICES
(AS ON 01.01.2016)

MINISTRY / DEPARTMENT :- Ministry of Science & Technology
ATTACHED / SUBORDINATE OFFICE :- Survey of India

GROUP	Representation of VH/HH/OH (As on 01.01.2016)				No. of Appointment made during the calendar year 2015											
					By Direct Recruitment				By Promotion				By Deputation			
	Total	VH	OH	HH	Total	VH	OH	HH	Total	VH	HH	OH	Total	VH	HH	OH
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
GROUP A	107	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP B	485	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP C	4235	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP C (Safai Karamchari)	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4906	Nil	32	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Note: (I) VH Stands for Visually Handicapped (persons suffering from blindness or low vision)
(II) HH Stands for Hearing Handicapped (persons suffering from hearing impairment)
(III) OH stands for Orthopaedically Handicapped (persons suffering from locomotor disability or cerebral palsy

VISION

Survey of India takes a leadership role in providing customer focused, cost effective and timely geo-spatial data, information and intelligence for meeting the needs or security, sustainable national development and new information markets.

MISSION

Survey of India dedicated itself to the advancement of theory, practice, collection and applications of geo-spatial data, and promotes an active exchange of information, ideas, and technological innovations amongst the data producers and users who will get access to such data of highest possible resolution at an affordable cost in the near real-time environment.