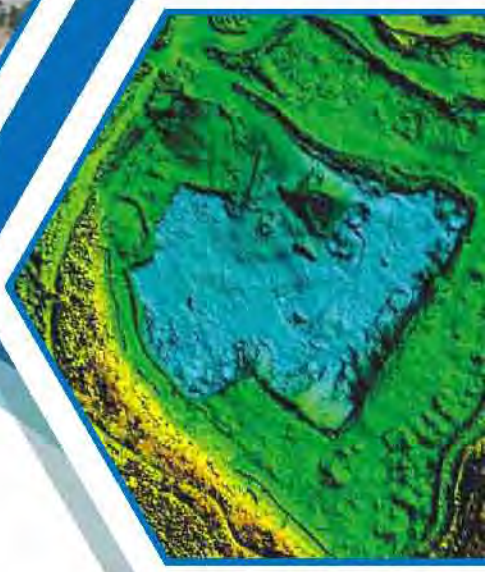
भारतीय सर्वेक्षण विभाग
SURVEY OF INDIA



विज्ञान एवं प्रौद्योगिकी विभाग
(DEPARTMENT OF SCIENCE & TECHNOLOGY)

वार्षिक रिपोर्ट
ANNUAL REPORT
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भारत के महासर्वेक्षक के आदेश से प्रकाशित
Published by The Order of the Surveyor General of India

संरक्षक

लेफ्टिनेंट जनरल गिरीश कुमार, वी०एस०एम०
भारत के महासर्वेक्षक

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Surveyor General of India

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सर्वेक्षण सहायक

DATA COMPILATION & PREPARATION

Sh. Vinaik Bist
Survey Assistant

Surveyor General of India's Message

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 (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 the painstaking efforts of a distinguished line o 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 4500 + 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. Pankaj Mishra, Deputy Surveyor General (Tech), Sh. Pardeep Singh, Technical Secretary, and Sh. Vinaik Bist, Survey Assistant for preparing "ANNUAL REPORT 2017-18".

(Lt General Girish Kumar, VSM)
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:

National Map Policy (NMP) – 2005 mandates Survey of India (SoI) to provide, maintain and allow access and make available the NTDB (National Topographical Data Base). NTDB comprises the following data sets:

A. National Spatial Reference Frame:

i. Continuously Operating Reference Stations (CORS) network.
ii. National Ground Control points (GCPs) Library: At 25-30 kms across country.
iii. Precision Bench marks (BMs): At 35-40 kms across country.
iv. Geodetic Surveys for precision controls (Horizontal & Vertical)
v. 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.
vi. Geo- physical or Gravity surveys across country.
vii. Geo- magnetic surveys across country.

B. National Digital Elevation Model (DEM):

i. National DEM of ± 10 metre accuracy of the country is available for use
ii. High Resolution DEM of ± 3 - 5 metre accuracy covering areas mapped under various projects.
iii. Ultra high Resolution DEM of ± 50 cm accuracy covering areas mapped under various projects in the country.

C. National Topographical Template:

i. Preparation of Topographic maps on all scales.
ii. Compilation/ mapping and production of geographical maps e. g. Railway Map, Road Map, Political Map, Physical Map etc.
iii. Surveys for development projects, e.g., power and irrigation, mineral exploration, urban and rural development etc.
iv. Preparation / Updation of Aeronautical charts including special purpose surveys for Airports /Air fields of AAI / Navy/ Coast guard.
v. Preparation of Maps for Indian Air Force on 1:0.5/1/2/10 Million scales and Flip-Book Part-II.
vi. Disaster mitigation maps & high resolution data for NDMA (NDMA plans- 2016 as per DMACT-2005)
vii. Mapping of river topology.
viii. High resolution or large scale GIS datasets.

D. Administrative Boundaries:

i. International Boundary (IB) Survey/Demarcation/Relocation, Preparation of IB Strip Maps, Depiction of correct external boundaries of India on maps, Scrutiny and Certification of correct external boundaries / Coastlines of India on maps published by other agencies including Private publishers, advice on IB matters to MEA.

ii. Inter-State Boundary (ISB) Survey/Demarcation/Relocation, Preparation of ISB Strip Maps

iii. Advice on ISB matters to MHA/Hon'ble Supreme Court/High Court/Other Courts.

iv. Preparation of Administrative boundaries data up to village level.

v. Demarcation of Hazard line along the Indian coasts as per (Coastal Regulation Zone Notification dated 02 July,2018, MoEF &CC)

E. Toponomy (Place names):

SoI is responsible to provide Standardized Geographical names i.e New or change of place including names Railway station names to MHA, Govt. of India. These names are field verified to ensure correct linguistic phonetics in spellings followed with transliteration as per Govt. approved system.

Other Important Activities:

i. SoI is responsible to promote the use of Geospatial knowledge and intelligence through partnerships and other mechanism by all sections of the society and work towards a knowledge based society.

ii. Allowing access of data through Geospatial Services, Portals, Mobile Apps etc. apart from printed / digital maps.

iii. Training of officers and staff of SoI, Central / State Govt.

iv. 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

i. As delegation 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.

ii. Surveyor General of India spearheads the matter related to Inter State Boundaries (ISB) disputes resolution as forwarded by Ministry of Home Affairs, Supreme Court, High Court and other Courts.

iii. Surveyor General of India heads the International Boundary meetings as under :
- Heads of Survey Departments (HOSD) : India and Myanmar
- Boundary Working Group (BWG) : India and Nepal
- Joint Boundary Conference (JBC) : India and Bangladesh

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 responsibility 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 POLICY (NDSAP)-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:

- Bench marking 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 BOUNDARIES:

(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.

- Joint Inspection/Maintenance of boundary pillars along Indo – Bhutan boundary.
- Joint Inspection/Maintenance of boundary pillars along Indo – Myanmar boundary.
- Joint survey construction/relocation of missing pillars along Indo - Pak Boundary (Punjab and Rajasthan Sector).

Punjab Sector

Traverse (lin.km)	Traverse (Station)	Pillars
86.94	270	71

- Joint survey construction / relocation of missing pillars and coordinating by GPS along Indo–Nepal boundary.

(ii) Joint Boundary Meeting:

(a) India – Myanmar Boundary:

- 2nd Joint Boundary Working Group (JBWG) meeting between India and Myanmar was held during 21st to 22nd Sept, 2017 at Dehradun. Maj Gen V.P. Shrivastava, Surveyor General of India represented the Survey of India in the delegation.
- 21st National Level Meeting (NLM) between India and Myanmar was held during 6th to 7th July, 2017 in Myanmar. Sh. S.K.Sinha, Director, International Boundary D (SGO) New Delhi was Survey of India representative in this meeting.
- Director Level Meeting between India and Myanmar was held during 27th to 28th October, 2017 at Tammu (Myanmar). The Indian delegation was led by Sh. Nirmalendu Kumar, Director, Meghalalaya and Arunachal Pradesh GDC, Shillong. Myanmar delegation was led by Uze Ya Htwe, Director, Survey Department, Ministry of Natural Resources and Environmental Conservation. Govt. of Myanmar.
- 23rd Sector Level Meeting between India and Myanmar was held during 8th to 9th January, 2018 at New Delhi. Sh. Nirmalendu Kumar, Director, Meghalalaya and Arunachal Pradesh GDC, Shillong represented Survey of India in this meeting.

Indo- Myanmar boundary meeting

(b) India – Bangladesh Boundary:

No meeting was organized during this period.

(c) India – Pakistan Boundary:

- Lt Col K.A. Grewal, Superintending Surveyor and Maj Siddarth Shekhawat, Superintending Surveyor, attended the Joint Staff Officers level meeting for survey work of relocation of boundary pillars on Indo-Pak boundary held at JCP Attari (India side) on 3rd November,2017.

- DG Level Bi-Annual Meeting between DG BSF and DG Pak Rangers was held in New Delhi (India) from 8th to 10th November, 2017 in connection with repair, replacement of damaged / missing / uprooted and berried Boundary Pillars along Indo- Pak border. Sh. M.C. Gaur, Director, Rajasthan GDC, Jaipur was a part of the Indian delegation.

- Sh. Chandra Pal, Director and Sh. R.M. Ghildiyal, Superintending Surveyor, attended the Joint Director's inspection for Indo- Pak boundary relocation work on 12th to 14th March,2018 at BP No. 191/8 and BP No. 188/8.

(d) India – Nepal Boundary:

- 6th Survey Official committee (SOC) meeting between India and Nepal was held during 21stto23rd June,2017 at Kathmandu (Nepal). Indian delegation was led by Sh. Rajiv Shrivastava, Director UK & West UP GDC while Nepalee delegation was led by Sh. Suresh Man Shrestha, Deputy Director General of Topographical Survey Division, Survey Department of Govt. of Nepal.
- 4th Boundary Working Group (BWG) meeting between India & Nepal was held during 28th to 30th Auguest, 2017at Dehradun. Indian delegation was led by Maj Gen V.P. Shrivastava, Surveyor General of India while Nepalee delegation was led by Sh. Ganesh Prasad Bhatt, Director General, Survey Department, Govt. of Nepal.

Maj Gen V.P. Shrivastava, Surveyor General of India, inaugurating the BWG meeting

- 7th Survey Official committee (SOC) meeting between India and Nepal was held during 13th to 15th Sept, 2017 at Dehradun. Indain delegation was led by Sh. R.K. Meena, Director, UK & West UP GDC on the other hand Nepalee delegation was led by Sh. Suresh Man Shrestha, Deputy Director General of Topographical Survey Division, Survey Department of Govt. of Nepal.

(e) India – Bhutan Boundary :

- Joint Technical Level Meeting was held during 5th to 6th October, 2017 at Phuentsholing, Bhutan. Indian delegation was led by Sh. Nirmalendu Kumar, Director, Meghalalaya and Arunachal Pradesh GDC, Shillong. Bhutan delegation was led by Mr. Choeki Khorlo, Director General International Boundaries, Survey of Bhutan, Royal Govt. of Bhutan.
- 12th Secretary Level Meeting between India and Bhutan was held during 13th to 14th November, 2017 in Thumpu (Bhutan). Sh. Nirmalendu Kumar, Director, Meghalalaya and Arunachal Pradesh GDC, Shillong was a part of the Indian delegation in this meeting.

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)	Preparation of OSM (sheets)
353	334

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.

1:250K scale

Updation by using 1:50K Components (sheets)	DTDB (sheets)	DTDB (sheets)
13	13	13

1:50K scale

Pre-field Updation (sheets)	Revision Survey (sheets)
15	16

1:25K scale

Pre- field Updation (sheets)	Revision Survey (sheets)	Post field Updation (sheets)
97	39	39

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) Printed off	OSM Regional Language (sheets)
23	

7.4 State / Guide maps :

State Maps	Guide Maps	Other Maps
Andhra Pradesh 2nd Edn.	Tirumala Tirupati Bhavnagar	Political map of India 7th Edn. Eng. and 5th Edn. Hindi.
Karnataka (Hindi & Kannad)	Chandigarh Ambala	Railway map of India 26th Edn. Eng. and 25th Edn. Hindi.

7.5 Geodetic and Geophysical:

(i) 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.

- GPS Observation for GCP Library - Work completed
- Precision Levelling for Project Surveys - 326.68 Lin km
- EDM Distance for projects - 3.378 lin. Km.
- Angular observation for projects - 159 Stations
- No. of bases for project surveys - 8 bases
- GPS observation for projects - 85 Stations
- Gravity observation - 1225 Stations

(ii) Gravity:

59 stations at Chandigarh and its surrounding areas for Geoid Model 1166 stations were observed on 10 kmx10 km mesh for National Hydrology Project (NHP) in UP, Bihar and Jharkhand.

(iii)Geomagnetic:

Magnetic Observatory, Sabhawala – Automated recording by Askania and DEM variometer for the variation of three geomagnetic elements i.e. Horizontal Force (HF), Vertical Force (VF) and Declination (D) has been done 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. Depatment also

(iv) 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.

Work on modernization & expansion of Tide Gauge Network along the Indian Coast & Islands is continued. Installation, maintenance of Tide gauges and Data acquisition from various Tidal observatories located along the sea coast of India and few offshore island viz. Port Blair, Nancowry, Cambell Bay, Aerial Bay, Haldia, Garden reach and Mumbai, Marmagao, Cochin, New Mangalore, Karwar, Kandla, Vadinar, Okha, Chennai, Nagpattinam, Cuddalore, Kavaratti & Minicoy.

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:

(i) 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.

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

Control Work

GPS Observation	Levelling	QA/QC	Aerial Photography	32 Days Tidal Observation
completed	completed	completed	completed	completed

Work up to Feature Extraction has been completed for Zones ie. (1,2,3&4) work of the remaining Zones 5, 6 & 7 are at different stages.

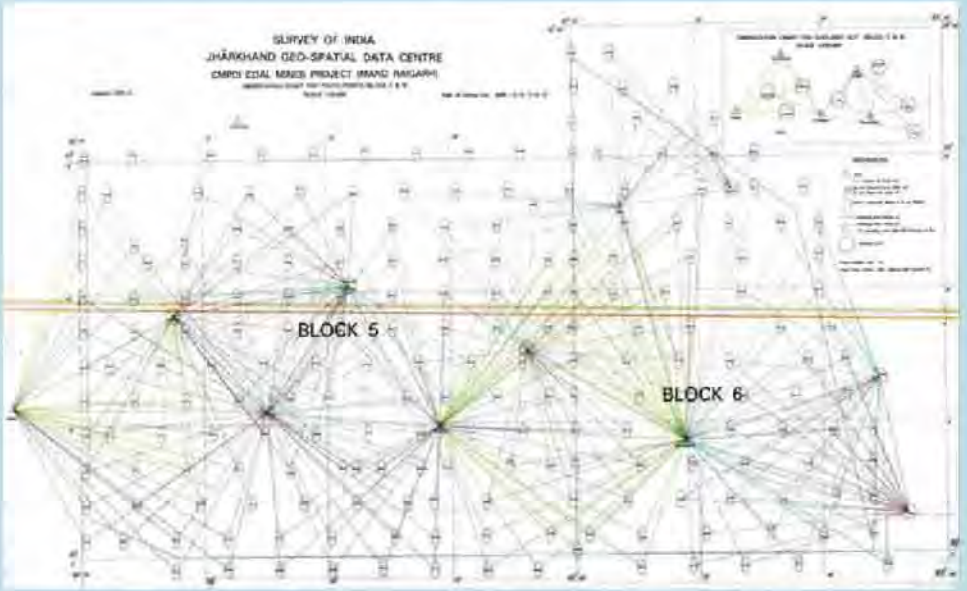
(ii) Coal Mine Project:

To generate updated Topographical Maps of Major Indian Coal fields (27 coal fields / 5246 sheets) on 1:5000 scale with contour interval 2 meters in plain and 3-5 meters in case of hilly terrain in GIS Digital format based on Digital Photogrammetric Techniques using high resolution aerial photographs and adequate ground verification.

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

All activities covering various work stages are being carried out continuously by the 7 GDCs of Survey of India

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



Chhattisgarh, Orissa, Madhya Pradesh, Jharkhand, Maharashtra & Goa, West Bengal and Meghalaya & Arunachal Pradesh GDCs and some part of work i.e. 2D & 3D Feature Extraction are distributed to other GDC so that project work can be completed quickly.

Present status of the work is as under:

Primary Control:

12 hours GPS observation (points)	DT levelling (Lin.Km)
Completed	Completed

Block Control point:

2 Hours GPS observation (points)	ST levelling (Lin.Km)
Completed	Completed

Detail Survey:

2D Feature Extraction (Sheets)	3D Feature Extraction (Sheets)	Ground Verification (Sheets)	Post Field Updation (Sheets)
3832	3356	1840	1013

(iii) Map the Neighbourhood in Uttarakhand (MANU) Project:

SoI has to prepare DEM (Digital Elevation Model) and map on 1:10K scale for disaster affected area of Uttarakhand covering 8000 sq.km for macro and micro level planning and post disaster scientific application by other agencies involved in MANU project.

Data Acquisition work in part of the area by using Modern Techniques of Air- Borne LiDAR and digital Aerial Photography of Disaster affected Areas of "Char Dham and Pindar Valley" has been already completed and the following work for carried out the Quality Control & further processing to generate deliverables has been completed.

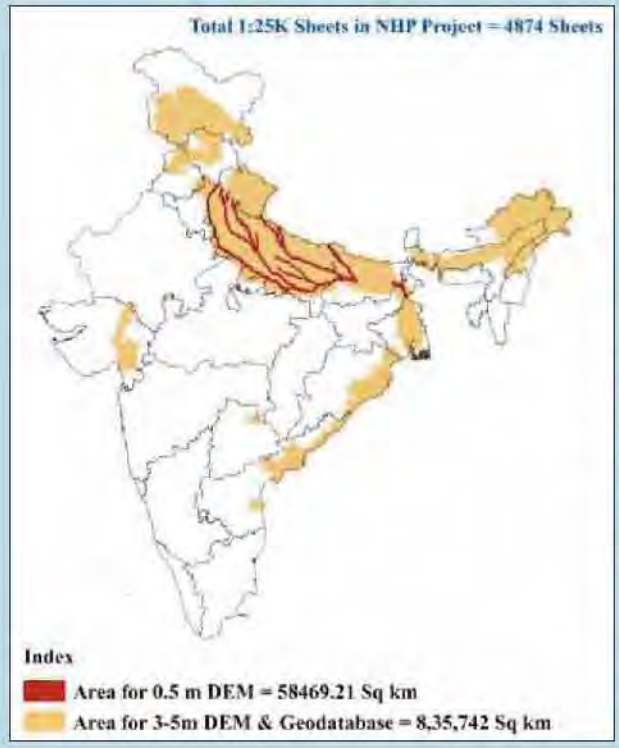
- Work completed and Raw data has been accepted.
- Final acceptance test for DEM is under progress.
- Final acceptance test for Map feature is under progress.

(iv) National Hydrology Project (NHP):

Survey of India (SoI) has been identified as one of the Central Implementation Agency in the scheme of National Hydrology Project to generate, prepare and provide various types of Geo-spatial datasets i.e. for mapping/ preparing the Digital Elevation Model (DEM) of 0.5m, 5m & 10 m for River Basin areas (plain), up to 5 km on both the sides of river and GIS ready data of SOI Topo sheets on 1: 25 K scale.

The project involves the following tasks.

- DEM of vertical accuracy of 3-5m & 0.5m for flood modeling
- Digital Geo-Database of 1:25K scale
- Creation of Geoidal Model of 10 cm. accuracy
- Establishment of CORS network



(v) Special Survey for Indian Air Force:

Survey of India also prepared IAF-OGM, IAF-PGM, IAF-JGM, Landing Approach Chart (LAC), IAF-LNC etc. and Carried out obstruction Survey Work for Indian Air Force.

Survey of India has completed the following maps and Data for IAF during the Year :

IAF-OGM (sheets)	IAF-PGM (sheets)	IAF-JGM (sheets)	IAF–LNC (parts)	Landing Approach Charts (Charts)
16	32	1	8	2

Verification of Landing charts on 1:50k Scale for 50 Airfields including Obstruction Survey for 30 NM from ARP for Indian Air Force.

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	Burgampad Irrigation Project
	-do-	Preparation of Adm. boundary data base of Telangana State
2	Himachal Pradesh	Dharamshala HE Project
	-do-	Pran Shah HE Project
	-do-	Luhri HE Project stage-I &II
	-do-	Sunni Dam Project
3.	Karnataka	DRDO Chitradurga Campus Survey Project
	-do-	Prasar Bharti Doordarshan Kendra, Bengaluru
4.	Punjab Haryana & Chandigarh	Haryana UP Boundary Demarcation Survey
5.	West Bengal & Sikkim	India-Bhutan Flood Management Project
6.	G&RB	Kholongchhu HE Project (Bhutan)
	-do-	Projects for BEL, SBC, HAL, LEOS, ISRO

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.	OSM (New Edn, Hindi, Reprint)	120
2	DSM Maps	352
3.	IAF (PGM, OGM, OLM, LAC, LNC, Flip Charts etc.)	40
4.	State, Guide, Geographical, Railways & Tourists Maps etc	4

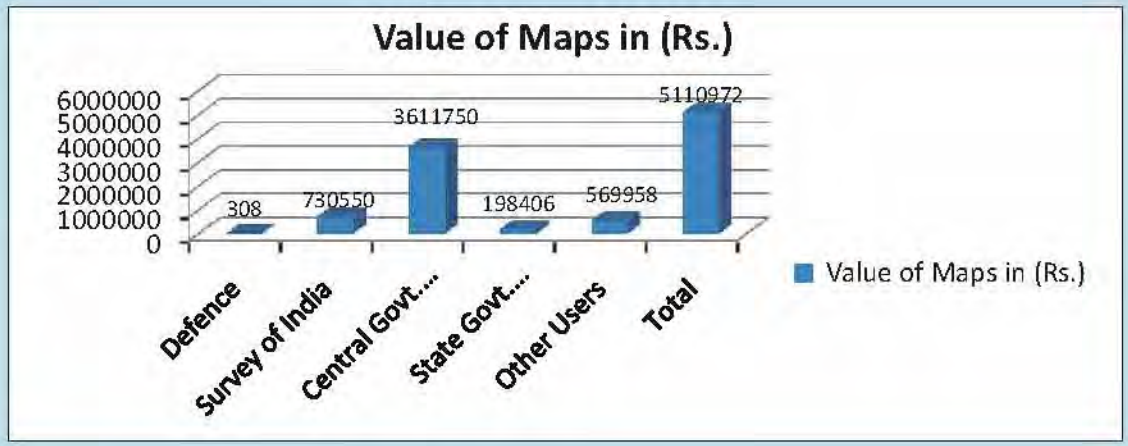
Survey of India Printing Section (Eastern Printing Group, Kolkata)

Name of Publication	Status
Hugli River Tide Table, 2018	Published
Indian Tide Table, 2018	Published
Annual Magnetic Bulletin 2016 of Sabhawala observatory	Under Progress
Magnetic Declination Chart epoch 2020.0	Under Progress

7.9 SALE OF MAPS AND DIGITAL DATA:

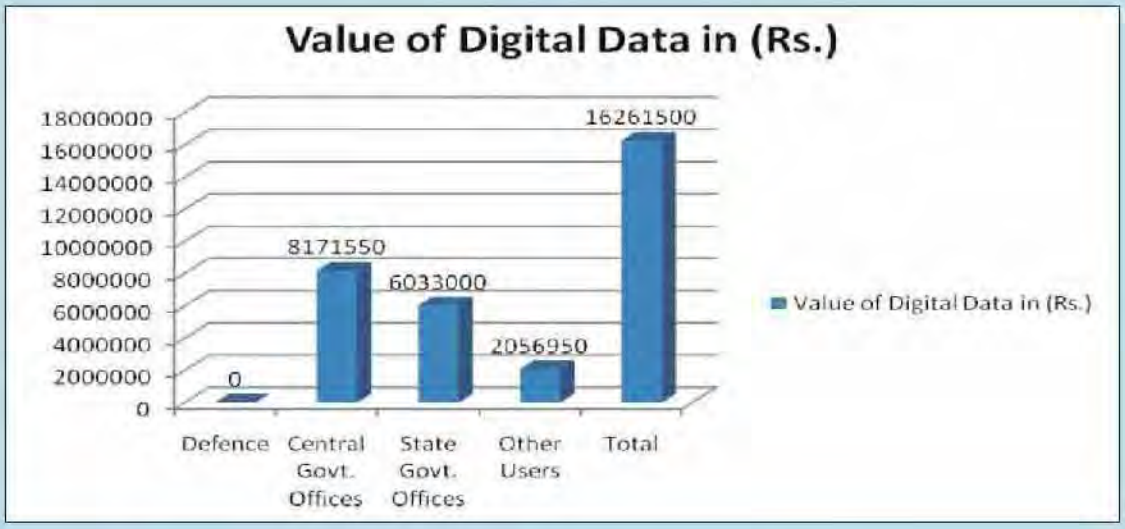
Description of value of Maps (Rupees)

Sl.No.	Name of Organisation	Value of Maps in (Rs.)
1.	Defence	308.0
2	Survey of India	730550.0
3.	Central Govt. Offices	3611750.0
4.	State Govt. Offices	198406.0
5.	Other Users	569958.0
	Total	**5110972.0**



Description of value of Digital Data (Rupees)

Sl.No.	Name of Organisation	Value of Digital Data in (Rs.)
1.	Defence	0
2	Central Govt. Offices	8171550.0
3.	State Govt. Offices	6033000.0
4.	Other Users	2056950.0
	Total	**16261500.0**



8. COLLABORATIVE SCIENTIFIC ACTIVITIES:

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

(i) Annual Magnetic Bulletin data of Sabhawala Magnetic Observatory for the year 2016 has been supplied to IIG, Mumbai and also supplied to World Data Centre whenever it required.

(ii) 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.

(iii) Precision Levelling was carried out regarding collaborative Project with IIRS on Land Subsidence in Northern India (Chandigarh – Mohali) 1st & 2nd Epoch.

(iv) R&D project on "Mapping, Modeling & Impact Assessment on Land Subsidence in Northern India" jointly with IIRS, Dehradun

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:

(i) **37th Indian Scientific Expedition to Antarctica:**

Two members team departed for Expedition (Mitri, Schirmacher Oasis) and completed 0.84 Sq.km. Detail Survey on scale 1:10,000 with 5 meters C.I. for pre selected area in Schirmacher Oasis, Antarctica total 24 control points were observed for detail survey work. GNSS observation campaign for the continuous duration of 2 weeks has been completed for Inter Continental Plate movement studies of Antarctica Plate with respect to Indian Plate.

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

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

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

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

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

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

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

(ix) 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).

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

10. CONFERENCES / SEMINARS / MEETINGS:

(i) Shri D.N. Pathak, Director, DSA & DGDC attended a meeting of Monitoring Committee for Basin Wise Reassessment of Hydroelectric Potential in the Country –reg. on 25th April 2017 at Sewa Bhawan, R.K. Puram, New Delhi

(ii) Dr. Swarna Subba Rao, Surveyor General of India attended advisory Committee Meeting – Kolleru Lake Project at Andhra University, Vishakhapatnam from 26th to 27th May, 2017.

(iii) Dr. S. K. Singh, Director, G&RB attended first meeting of the **"Expert Committee for the Development of National Programme on Geodesy"** at DST, New Delhi on 18th July, 2017.

(iv) Dr. S. K. Singh, Director, G&RB attended 15th meeting of the **"Expert Committee for the Development Advisory Committee"**(CPDAC) in central Water Commission, New Delhi on 17th August. 2017.

(v) Lt. Col. K.A. Grewal, Superintending Surveyor and Maj Siddarth Shekhawat, Superintending Surveyor, visited Jodhpur to attend 2days workshop on **"Sarasvati Palaeo Channels"**at ISRO, Jodhpur from 29th to 30th August,2017.

(vi) Dr. S. K. Singh, Director, G&RB, held discussions on **"Sixth Plenary Meeting of the Regional Committee of United Nation Global Geospatial Information Management for Asia and the Pacific (UN- GGIM-P)"** at DST, New Delhi on 9th October,2017.

(vii) Lt. Col Arindam Gupta, DSS, attended meeting to discuss on the Pilot Project" Generation of Large scale Meso level 1:10,000 scale user friendly LHZ Maps and Landslide inventory for Rishikesh - Rudraprayag Route corridor (Uttarakhand)" and use of unmanned aerial vehicle (UAV) in mapping and other Geo-Technical investigation.

(viii) **37th INCA International Congress (INCA)** was being organized by Indian National Cartographic Association and hosted by National Hydrographic Office, Dehradun at Dehradun with the Theme **"Geo- informatics for Carto- diversity and its Management"** during 1st to 3rd Nov, 2017. Maj Gen Girish Kumar, Surveyor General of India, alongwith senior officers of the department participated in the conference/ seminar. An exhibition of Geospatial products, maps, charts, globes, model etc was organized during the conference at the venue.

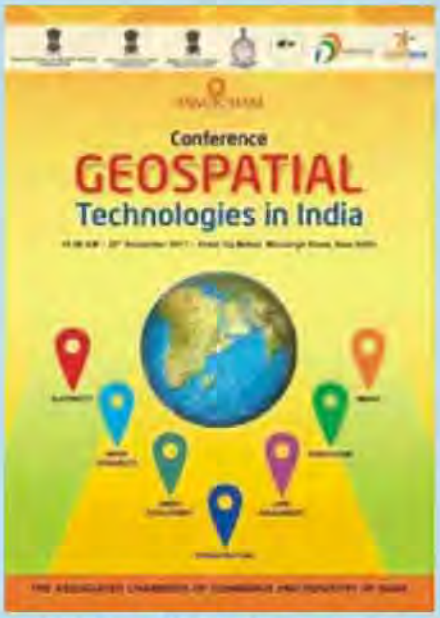
Maj Gen Girish Kumar, VSM, Surveyor General of India, at INCA International Congress, Dehradun

(ix) Maj Gen Girish Kumar, Surveyor General of India, attended meeting with secretary ULB Govt. of Haryana on 10.12.2018 at Chandigarh.

(x) Wo-Men Geospatial Coterie (WGC) as an associate of Survey and Mapping Association (SAMA) has organized "SURVEY INDIA 2017", 4th international conference an Exhibition on survey and mapping in Holiday Inn New Delhi from 20th to 21st December,2017. Survey of India participated in the conference and showcased its products and services.

Surveyor General of India addressing the participants at Survey of India 2017 conference

(xi) A conference on "Geospatial Technologies in India" was organized by The Associated Chambers of Commerce and Industry of India (ASSOCHAM) on 20th December, 2017 at New Delhi. Maj Gen Girish Kumar, Surveyor General of India, addressed the inaugural session of the conference.



Maj Gen Girish Kumar, Surveyor General of India at conference on "Geospatial Technologies in India"

(xii) Maj Gen Girish Kumar, Surveyor General of India, held discussion with the representatives of Govt. of Karnataka and Andhra Pradesh regarding boundary dispute settlement in Hyderabad on 7th January,2018.

(xiii) Geospastial World Forum (GWF), a leading global Geospatial event Co- hosted by Survey of India with Geospatial Media & Communication was organized at International Convention Centre, Hyderabad from 17th to 19th January, 2018 Highlights of the forum was a two - day conference under the aegis of the World Forum on Geospatial for sustainable Development Goals (SDGs). Maj Gen, Girish Kumar, Surveyor General of India participated in the conference along with senior officers of SoI.

Maj Gen Girish Kumar, SGI welcoming all dignitaries.

(xiv) Maj Gen Girish Kumar, Surveyor General of India, attended meeting with Financial Commissioner Revenue and Principal Secretary Urban Local Bodies, Govt. of Haryana at Chandigarh on 8th February,2018.

(xv) Association of Consulting Civil Engineers (India), a group of consulting Civil Engineers organized **"COMPASS-2018"**, Survey and Mapping conference at Nagpur from 9th to 10th February,2018. Sh. N.R. Biswal, Director, Maharastra & Goa GDC led the SoI delegation to the conference. SoI also showcased its products and services by putting a exhibition stall.


Compass 2018 conference at Nagpur.

(xvi) An Inter-ministerial meeting on activities related to the UN Committee on Experts on **Global Geospatial Information Management (UN-GGIM)** was held at the Department of Science & Technology, Technology Bhawan, New Delhi on 19th February,.2018. Major General Girish Kumar, Surveyor General of India represented the department and shared his views in the high level meeting.

(xvii) Confederation of Indian Industry (CII) Uttarakhand State Council organized Annual Day & Conference on Growth Agenda for Uttarakhand with the theme "Retaining Existing Industry ; Developing Hill Economyon 28th February, 2018 at Dehradun. Hon'ble Chief Minister Sh. Trivender Rawat inaugurated the session. Sh. Naveen Tomar, Addl SG & Lt Col Suman Kumar Sarkar, DSG represented the SoI in the conference.

(xviii) Sh. S.K. Sinha, Director, Internation Boundary Directorate, attended the meeting of NSDI Technical Committee for setting up of National Data Registry (NDR) at Bengaluru on 16th March, 2018.

11. TECHNICAL PAPERS:

-Nil-

12. FOREIGN VISITS / STUDY TOURS / DEPUTATION:

(i) Dr. Swarna Subba Rao, Surveyor General of India visited Sydney, Australia as a team leader of the Indian delegation for participation in **"Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific** (UN-GGIM-AP) Executive board meeting and the **10th International Symposium for Digital Earth & Locate 17"** from 3rd to 6th April,2017.

(ii) Sh. Rajiv Kumar Srivastava, Deputy Director, G&RB visited Bhutan to inspect the progress of work of Kholongchhy HE project from 20th to 24th April,2017.

(iii) Sh. Nitin Joshi, Director, G&RB visited Denmark Technical University (DTU) Lyngly (Denmark) to attend **Capacity Building Training under National Hydrology Project** (NHP) Geoid Modelling from 12th to 23rd June,2017.

(iv) Two teams of SoI headed by Sh. Sandeep Srivastava, Director, Assam & Nagaland GDC and Sh. Varun Kumar, Director, MP GDC visited Amsterdam, Netherland university of Twente (ITC) to attend the **Capacity Building Training under National Hydrology Project (NHP)** – Laser Scanning from 5th June to 16th July,2017.




(v) Maj Gen V.P. Shrivastava, Surveyor General of India participated in the **'7th Session of the United Nations Committee of Expert on Global Geospatial Information Managemant (UNGGIM)'** in New York, USA from 31st July to 4th August,2017.

(vi) Maj Gen Girish Kumar, Addl SG and Sh. Pankaj Mishra, Deputy Director, SGO participated in the **'11th United Nations Conference on the Standardization of Geographical Names (UNCSGN) and 30th Session of the UN Group of Experts on Geographical Names(UNGEGN)'** in New York, USA from 7th to 18th August, 2017.

(vii) Sixth Plenary Meeting of the **Regional Committee of United National Global Geospatial Information Management for Asia and the Pacific** (UNGGIM-AP) was held at Kumamoto (Japan) from 16th to 20th October, 2017. Sh. S.K. Singh, Director, G&RB attended and also addressed the meeting as a member of the Indian delegation.

(viii) Sh. Nitin Joshi, Deputy Surveyor General, SGO visited Kathmandu (Nepal) from 11th to 12th December, 2017 to attend "International Workshop on Measurement of Height of Mount Everest and GNS Applications" from 11th to 12th December,2017.

13. VISIT TO SOI OFFICES:

(A) Indian Institute of Surveying & Mapping:

(i) 8 officials from Administrative Staff College of India, Hyderabad.
(ii) 3 officials from Survey & Land Records, Govt. of Kerala.
(iii) 2 officers from National Institute of Hydrology, Goa.
(iv) 37 Mining Engineering students and 1 professor of NIT, Manglor, Karnataka.
(v) 125 students and 15 teachers of Madhya Pradesh Council of Science & Technology, Bhopal.
(vi) 45 students and 5 faculty members of Aligarh University.
(vii) 30 students and 4 staff members of Savitribai Phule Pune Univesity, Pune.

Hon'ble Governor of Uttarakhand 's visit to Survey of India

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

(i) Dr. Jugesh Pegu with 12 students from B. Borooah College, Guwahati, Assam.

(ii) Ms Nandita Singh along with 9 students from Department of Natural Resources, TERI School, of Advance studies, New Delhi

(iii) 5 teachers and 79 students of Welham Girls School, Dehradun.

(iv) Sh. S. Chackalirgam, IAS, Settlement commissioner, Pune.

(v) Prof. G.P. Singh and 43 students from Banaras Hindu University, Varanasi.

(vi) Sh. Mahua Dutta (HoD) with 35 students of Kakdwip South 24 Pargana, Sundarban Mahavidyalaya.

(vii) Dr. K.K. Paul, Hon'ble Governor of Uttarakhand.

(viii) Mr. Sripriya Ranganathan, Joint Secretary, Ministry of External Affairs, New Delhi.

(ix) Mr. Vikram Misri, Ambassador of India in Myanmar.

(x) Mr. Shrestha Suresh Man from Survey Department of Nepal.

(xi) Ms Shreya Lalwani with 100 students from R. A. Podar College of Commerce & Economics, Mumbai.

(xii) Mr. John Wesley Marriott, Mrs. Kanta Kaur Marriot, Mr. Kabir and Karishma Kaur Marriot of Great Britain.

(xiii) Sumitha S with 11 students from Engineering College, Trivandrum, Kerala.

(xiv) Mr. Tijs Evert Holstein along with Ms Maria Sakarias, Netherland.

(xv) Mr. John O Hara citizen of Ireland

Visit of Bombay Engineering Group, Pune to Maharashtra & Goa GDC.

14. CULTURAL AND EDUCATIONAL ACTIVITIES:

(A) 250 Years of Survey of India:

Survey of India celebrated its 250th anniversary this year. Survey of India organized a year long series of events to remember the yomen services rendered to the Nation building and to look forward to a new era of geospatial evolution that would help India achieve economic milestones and sustainable development goals.

In continuation of ongoing programmes, A Commemorative Postage stamp on "Survey of India" was also released by Dr. Harsh Vardhan, Hon'ble Minister of Science & Technology and Earth Sciences in a ceremony at Press Information Bureau Auditorium, New Delhi on 22nd June, 2017 which was hosted by Dr. Swarna Subba Rao, Surveyor General of India in association with Department of Posts.

(B) National Survey Day:

National Survey Day was celebrated on 10th Apri, 2017 in association with FICCI, New Delhi. A new web portal "Nakshe" was launched by Dr. Harsh Vardhan, Hon'rable Minister of Science & Technology, Govt. of India. It is a web application for free download of Open Series Maps (OSM) in pdf format for public use. This web application has been developed based on the idea suggested by. The application has been developed by SoI in association with NIC Uttrakhand State Unit with Aadhar enabled user authentication for providing access to the citizen of India.

Launching of Nakshe Portal at FICCI, New Delhi

(C) International Yoga Day:

3rd International Yoga Day was celebrated in SoI by organizing the Yoga practice / demonstration on1st June, 2017.

Officials of Survey of India practicing yoga on International Yoga Day

(D) Independence day:

The 69th Independence day was celebrated in all the offices of Survey of India. Offices were decorated by tricolor flags and balloons which brings the feeling of Nationalism. National flag was hoisted on this occasion. Desh bhakti songs were presented by the children and staff on this occasion.

Sh. R.K. Meena, DSG addressing the audience on Independence day.

(E) Hindi Pakhwada was celebrated at various offices in Survey of India located in different cities from 14.09.2017 to 01.10.2017. 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.

Rajbhasha Hindi function at Surveyor General's Office, Dehradun

(F) Swachhata Abhiyan:

As a part of Swachhata Abhiyan in a mission of cleanliness. Staff of SoI took part in the mission and disposed garbage of their surroundings, cleaned their desks, computers, racks, files etc. Swach Bharat Fortnight celebrated from 15.09.2017 to 02.10.2017 in all the offices of Survey of India.

(G)Republic Day:

69th Republic Day was celebrated in SoI offices in all over India. Surveyor General of India unfurled the National flag in the Survey of India compound. National Anthem, Patriotic songs & poems were sung by the staff and school children present at this moment.

SGI on Republic Day address and with school children

(H) World Environment Day:

World Environment Day is an annual event, celebrated on 5th June, 2017. The event is celebrated so as to make people aware of their environment and keep our surrounding environment green and planting trees that will lessen pollution. This day is celebrated to raise global awareness to take positive environmental action and to protect nature and the planet earth.

Surveyor General of India planting a tree in GBO compound

(I) National science day:

As a part of country wide celebration of National Science Day 2018 on theme **"Science and Technology for a Sustainable Future"** was celebrated on 28th Feb,2018 at various offices of Survey of India located at different places of the country. An open day was organized to display of exhibits and demonstration of various modern instruments on Surveying and Mapping were made to the students and technocrats.

15. USE OF HINDI IN OFFICIAL WORK :

In accordance with the Official Language Rules, 1976, 15 Geo-Spatial Data Centres/Directorate/Printing groups including Headquarter of Survey of India are located in Region 'A' while 6 Geo-Spatial Data Centre in Region 'B' and 20 Geo-Spatial Data Centres/Training Institues/Printing groups are in Region 'C'. The position regarding the use of Hindi in the Department for the year 2017-2018 remained as under :

Correspondence :

During the year 2017-18 intensive measures were taken for transacting the official work of the union in Hindi by the various offices of the department. 3648 documents were issued bilingually under section 3(3) of the Official Languages Act, 1963. Letters received in Hindi were replied to in Hindi. Regionwise 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	81.9
1.2	With 'C' Region	60.2
2.	Correspondence in Hindi by the offices located in Region 'B'	
2.1	With 'A' and 'B' Region	93.7
2.2	With 'C' Region	62.3
3.	Correspondence in Hindi by the offices located in Region 'C'	
3.1	With 'A' and 'B' Region	49.8

Training :

During the period under report 08 officers/employees passed Hindi Prabodh, Praveen and Pragya examination and 10 LDC's passed Hindi Typing examination, under Hindi Teaching Scheme.

Hindi Workshop/seminar/conference :

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, Dehradun, Uttarakhand & West UP GDC, Dehradun, Eastern Printing Group, West Bengal & Sikkim GDC, Kolkata. 70 officers/employees received training in these workshops.

Shri Dhoom Singh, Assistant Director (O.L.), Surveyor General's Office, Dehradun attended the Technical Seminar, Jodhpur on 18.08.2017 and the Regional Rajbhasha Puraskar Conference, Varanasi on 09.02.2018

Incentive Scheme :

During the year 2017-2018 incentive schemes for noting and drafting for doing Official work in Hindi, Hindi typing and Hindi stenography remained continued.

Inspection :

During the year inspection regarding the use of Hindi Shri Dhoom Singh, Assistant Director (O.L), Surveyor General's Office, Dehradun was carried out in offices located at Region 'C' - Southern Zone, Bangluru, Karnataka GDC, Banguluru, Southern Printing Group, Hyderabad, Andhra Pradesh GDC, Hyderabad, GIS & Remote Sensing Directorate, Hyderabad, Maharastra & Goa GDC, Pune from 16-03-2018 to 21-03-2018.

Organise of Hindi Day/Fortnight/Function :

During the year 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 E-1 Section for doing maximum work in Hindi in Surveyor General's Office, Dehradun. On the occasion of Prize distribution Ceremony Hindi quiz competition was also organized besides recitation of poems in Hindi.

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.	National GDC, Dehradun	Abhivyakti
4.	Geodetic and Research Branch, DDun	Jhalak
5.	Northern Printing Group, Dehradun	Mudran-Manjusha
6.	Rajasthan GDC, Jaipur	Naya Prayas
7.	Kerala & Lakshdweep GDC, Tiruvanantpuram	Sampreshan
8.	West Bengal & Sikkim GDC, Kolkata	Sarvekshan Privar
9.	Indian Institute of Surveying and Mapping, Hyderabad	Pratibimb
10.	GIS&RS, Hyderabad	Pushpanjali

Meetings:

During the year 2017-2018 quarterly meetings of the Official Language Implementation Committee were held in almost all the Geo-Spatial Data Centres / Directorate 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.

During the year half yearly meetings of the Town Official Language Implementation Committee (Office-1), Dehradun were held in the chairmanship of Surveyor General of India.

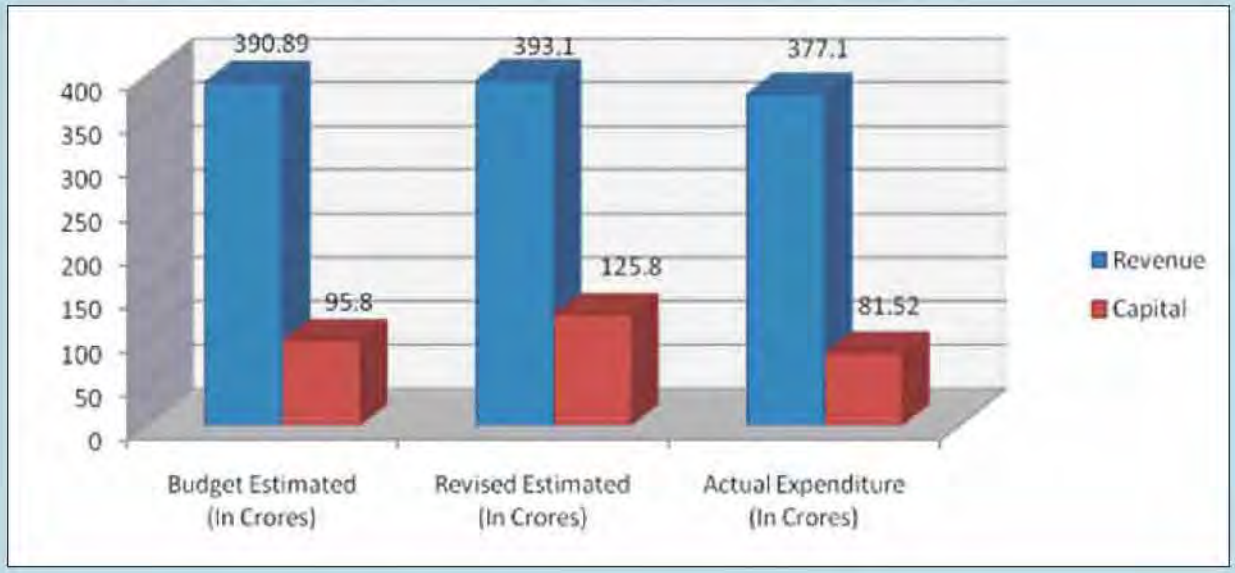
16. ORGANOGRAM OF SURVEY OF INDIA:

17. EXPENDITURE OCCURRED DURING THE PERIOD:

Expenditure of Survey of India

Expenditure Type (In Crores)	Financial Year 2017-18	
	Revenue	Capital
Budget Estimate	390.89	95.80
Revise Estimate	393.10	125.80
Actual Expenditure	377.10	81.52

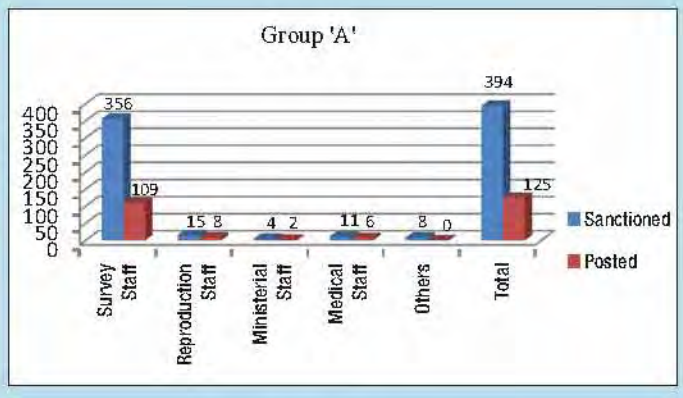
Financial Year 2017-18

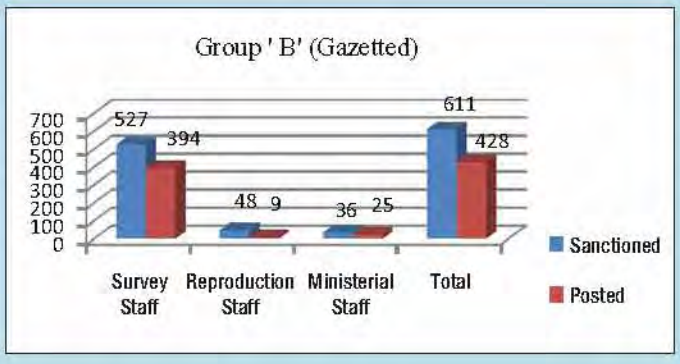


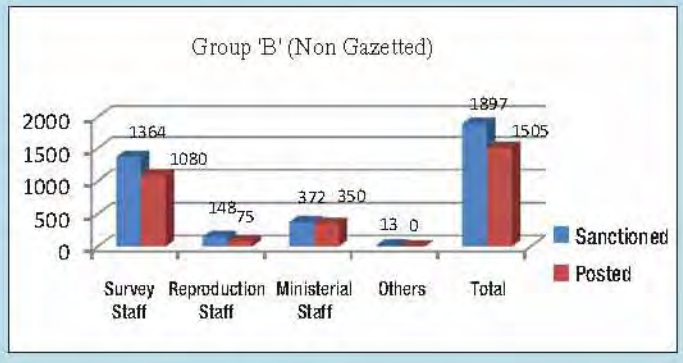
18. MAN POWER RESOURCES:

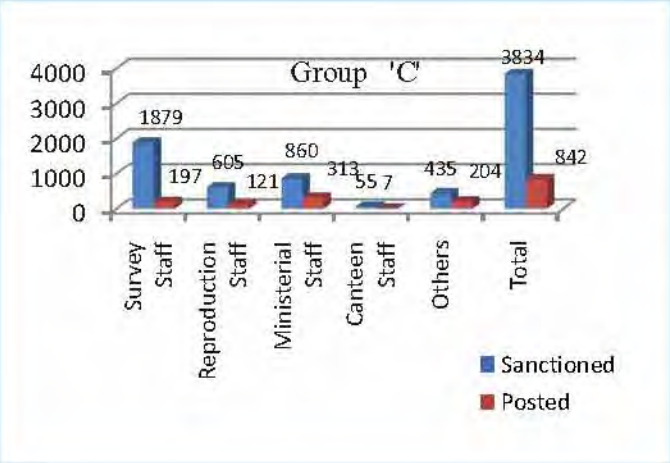
Strength as on 31-03-2018

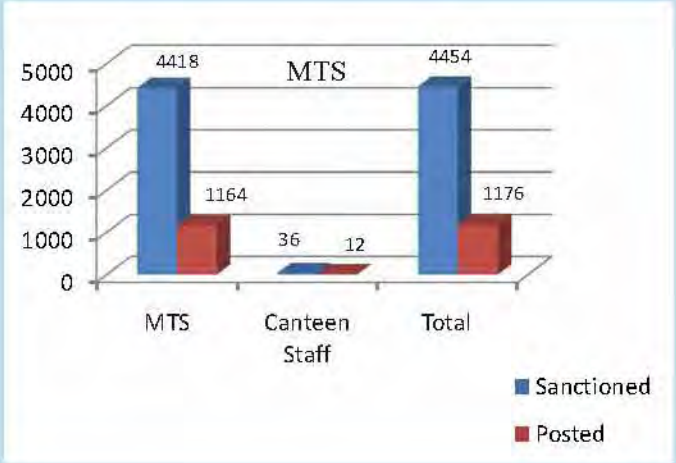
Service Groups	Sanctioned	Posted
Group 'A'	394	125
Group 'B' (Gazetted)	611	428
Group 'B' (Non - Gazetted)	1897	1505
Group 'C'	3834	842
Group 'C' (Erstwhile Gp. 'D')	4454	1176
Total	**11190**	**4076**











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.

Trainees at IISM, Hyderabad

The details of training imparted to departmental officers of various levels and others are given in Appendix 'A', 'B', 'C'.

20 Basic / Scheduled courses were conducted during the year under report. 301 trainees underwent such courses as per details on Appendix 'A'.

Appendix-'A'

REGULAR/ SCHEDULED COURSES

Sl. No.	Course No.	Nomenclature	Deptl. Deptl.	Extra	Foreign	Others	Total
1	125.05	Administrative Management	09	0	0	0	09
2	150.85	Surveying Technician	43	0	0	0	43
3	150.86	Surveying Tecnnician	11	0	0	0	11
4	170.03	Use of Total Station & GPS for beginners	0	0	02	11	13
5	170.04	Use of Total Station & GPS for beginners	0	0	0	03	03
6	315.15	Cadastral Survey & Land Information System	0	03	0	0	03
7	340.50	Digitisation of Cartographic Documents	01	04	0	0	05
8	340.51	Digitisation of Cartographic Documents	0	02	0	0	02
9	400.94(A)#	Surveying Supervisor	102	0	0	0	102
10	400.94(B)#	Surveying Supervisor	03	0	0	0	03
11	400.94(C)#	Surveying Supervisor	05	0	0	0	05
12	400.95#	Surveying Supervisor	04	0	0	0	04
13	440.25#	Digital Cartography & GIS Applications	03	0	0	0	03
14	440.26	Digital Cartography & GIS Application	0	12	0	0	12
15	465.06	GIS Application	01	03	0	0	04
16	480.45	Digital Photogrammetry & Remote Sensing	03	0	0	0	03
17	4858.05	Digital Photogrammetry & Remote Sensing	07	05	0	0	12
18	500.75(A)	Surveying Engineer	21	0	0	0	21
19	500.75(B)	Surveying Engineer	06	0	0	0	06
20	500.76	Surveying Engineer	01	0	0	0	01
21	500.77	Surveying Engineer	04	0	0	0	04
22	690.36	Control and Detail Survey by GPS & Total Station	0	12	0	01	13
23	695.03	Control and Detail Survey by GPS & Total Station, Map Updation using Mobile Mapping	02	0	0	0	02
24	700.25#	Advance Geodesy	04	0	0	0	04
25	700.26	Advance Geodesy	02	0	0	0	02
26	710.32#	Advance Photogrammetry & Remote Sensing	04	0	0	0	04
27	740.10#	Advance course on Digital Cartography & GIS	04	0	0	0	04
28	740.11	Advance course on Digital Cartography & GIS	03	0	0	0	03
		Total	**243**	**41**	**02**	**15**	**301**

Courses continuing from previous year.

10 special courses were conducted during the year under report. 92 trainees underwent such courses as per details on Appendix 'B'.

Appendix-'B'

SPECIAL COURSES FOR SPECIFIC USERS

Sl. No.	Course No.	Nomenclature	Deptl. Deptl	Extra	Foreign	Others	Total
1	Special Course	Training on "Application of GIS for Land use planning" for the students of Bapatla Engineering College, Bapatal, AP	0	0	0	08	08
2	Special Course	Special Course on Surveying by Drones/ UAV	0	06	0	0	06
3	Special Course	Utilisation of Topo Sheets	0	03	0	0	03
4	Special Course	Datum & Map Projection	0	06	0	0	06
5	Special Course	Training on "Surveying" for the students of IIT, Hyderabad	0	0	0	24	24
6	Special Course	Basics on Arc GIS & Generation of DEM	03	0	0	0	03
7	Special Course	One day training for IAS trainees officers	0	07	0	0	07
8	Special Course	IInd phase training on Bentley Map Enterprises Software	20	0	0	0	20
9	Special Course	One day training for District Judges	0	07	0	0	07
10	Special Course	Modern Survey Instruments & Techniques for officials from Dept. of Puducherry Land & Records	0	10	0	0	10
		Total	**23**	**37**	**0**	**32**	**92**

2 special courses were conducted during the year under report.13trainees underwent such courses as per details on Appendix 'C'.

Appendix-'C'

SHORT TERM COURSES

Sl. No.	Course No.	Nomenclature	Deptl. Deptl	Extra	Foreign	Others	Total
1	795.09	Digital Photogrammetry & Remote Sensing	02	02	0	0	04
2	800.13	Datum, Coordinates system & Map Projection- concept for Advanced Map user	0	09	0	0	09
		Total	**02**	**11**	**0**	**0**	**13**

20. REPRESENTATION OF SCs/STs & OBCs:

SC/ST/OBC REPORT - I

Annual statement showing the representation of SC's, ST's and OBC's as on 01-01-2018 and number of appointments made during the preceding Calendar year- 2017

Ministry/Department: **Ministry of Science & Technology**

Attached/Subordinate office : **Survey of India, Dehradun**

Groups	Representation of SCs/STs/OBCs (As on 01-01-2018)				Number of appointments made during the calendar year 2017											
					By Direct Recruitment				By Promotion				By Deputation/Absorption			
	Total no of Empls	SCs	STs	OBCs	Total	SCs	STs	OBCs	Total	SCs	STs	OBCs	Total	SCs	STs	OBCs
1	2	3	4	5	6	7	8	9	10	11	12	0	13	14	15	16
Group A	128	11	10	10	0	0	0	0	0	0	0	0	0	0	0	0
Group B	420	62	40	17	0	0	0	0	0	0	0	0	0	0	0	0
Group C (Excluding Sweepers)	3616	816	276	262	0	0	0	0	659	20	7	632	0	0	0	0
Group C (Sweepers)	63	54	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Total	**4227**	**943**	**327**	**291**	**0**	**0**	**0**	**0**	**659**	**20**	**7**	**632**	**0**	**0**	**0**	**0**

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 01-01-2018 and number of appointments made in the service in various grade in the preceding calendar year – 2017

Ministry/Department : **Ministry of Science & Technology**

Attached/Subordinate office : **Survey of India, Dehradun**

Pay Band & Grade Pay	Representation of SCs/STs/OBCs (As on 01-01-2018)				Number of appointments made during the calendar year 2017										
					By Direct Recruitment				By Promotion			By Other Mehod			
	Total no of Empls	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	
Level 10 56,100-1,77,500	34	4	3	8	0	0	0	0	0	0	0	0	0	0	
Level 11 67,700-2,08,700	31	3	2	0	0	0	0	0	0	0	0	0	0	0	
Level 12 78,800-2,09,200	9	0	1	0	0	0	0	0	0	0	0	0	0	0	
Level 13 1,18,500-2,14,100	44	2	2	4	0	0	0	0	0	0	0	0	0	0	
Level 14 1,44,200-2,18,200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Level 15 1,82,200-2,24,100	10	2	2	0	0	0	0	0	0	0	0	0	0	0	
Total	**128**	**11**	**10**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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

PWD REPORT - I

Annual statement showing the representation of thepersons with disability in services (As on 01-01-2018)

Ministry/Department : **Ministry of Science & Technology**

Attached/Subordinate office : **Survey of India, Dehradun**

GROUP	Number of Employees				
	Total	In Identified Posts	VH	HH	OH
1	2	3	4	5	6
Group A	128	0	0	0	0
Group B	420	3	0	0	3
Group C/ Group D	3616	31	0	0	31
Group D (Safai Karamchari)	63	0	0	0	0
Total	**4227**	**34**	**0**	**0**	**34**

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

Annual statement showing the representation of the erosion with disabilities in services as on 01.01.2018

Ministry/Department : **Ministry of Science & Technology**

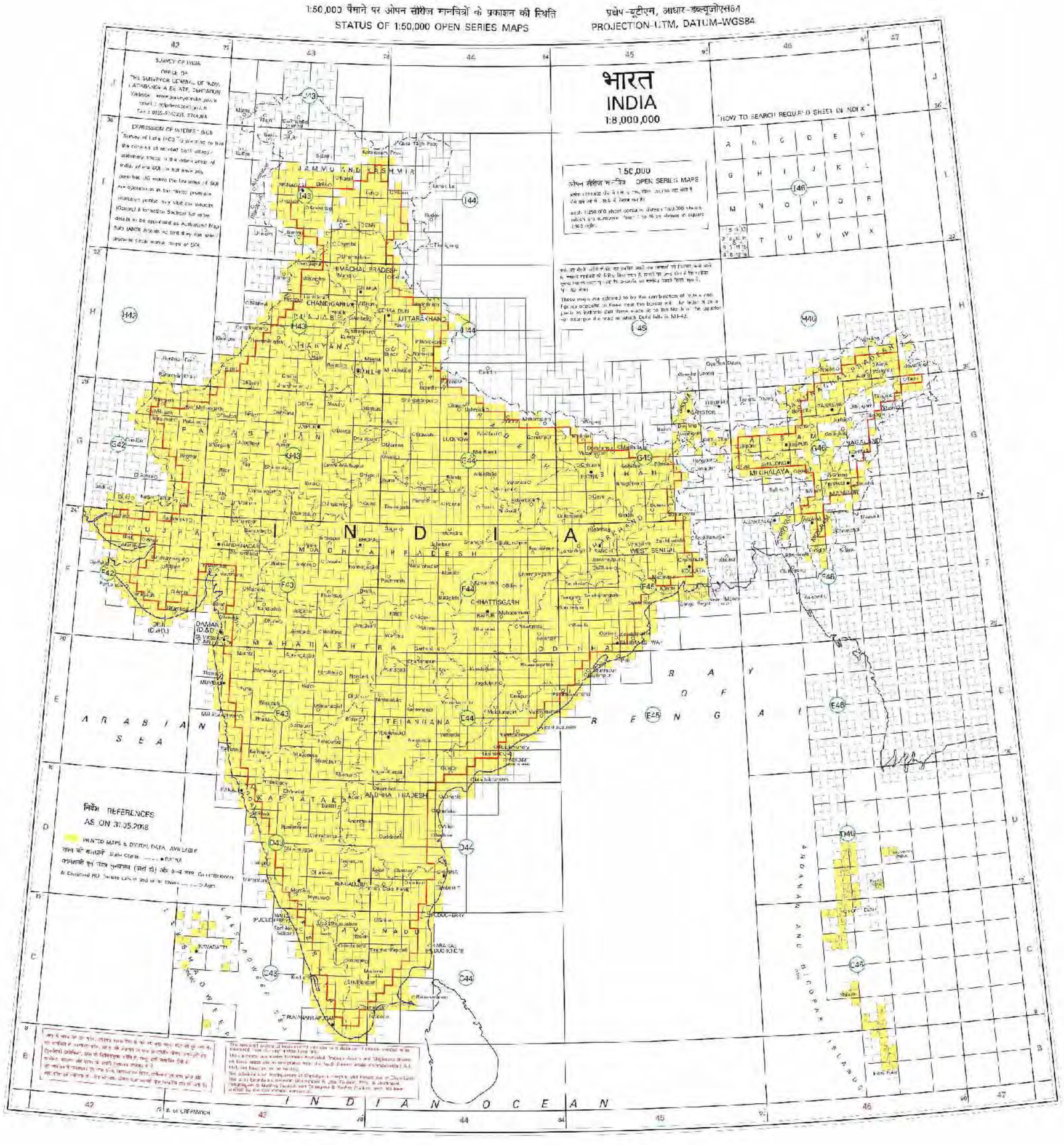
Attached/Subordinate office : **Survey of India, Dehradun**

Groups	Representation of of VH/HH/OH (As on 01-01-2018)				Number of appointments made during the calendar year 2017											
					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**
GROUP A	128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP B	420	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP C	3616	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP C (Safai Karamchari)	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**4227**	**0**	**34**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

भारतीय सर्वेक्षण विभाग के कार्यालयों की अवस्थिति

1:50,000 पैमाने पर ओपन सीरीज मानचित्रों के प्रकाशन की स्थिति
STATUS OF 1:50,000 OPEN SERIES MAPS

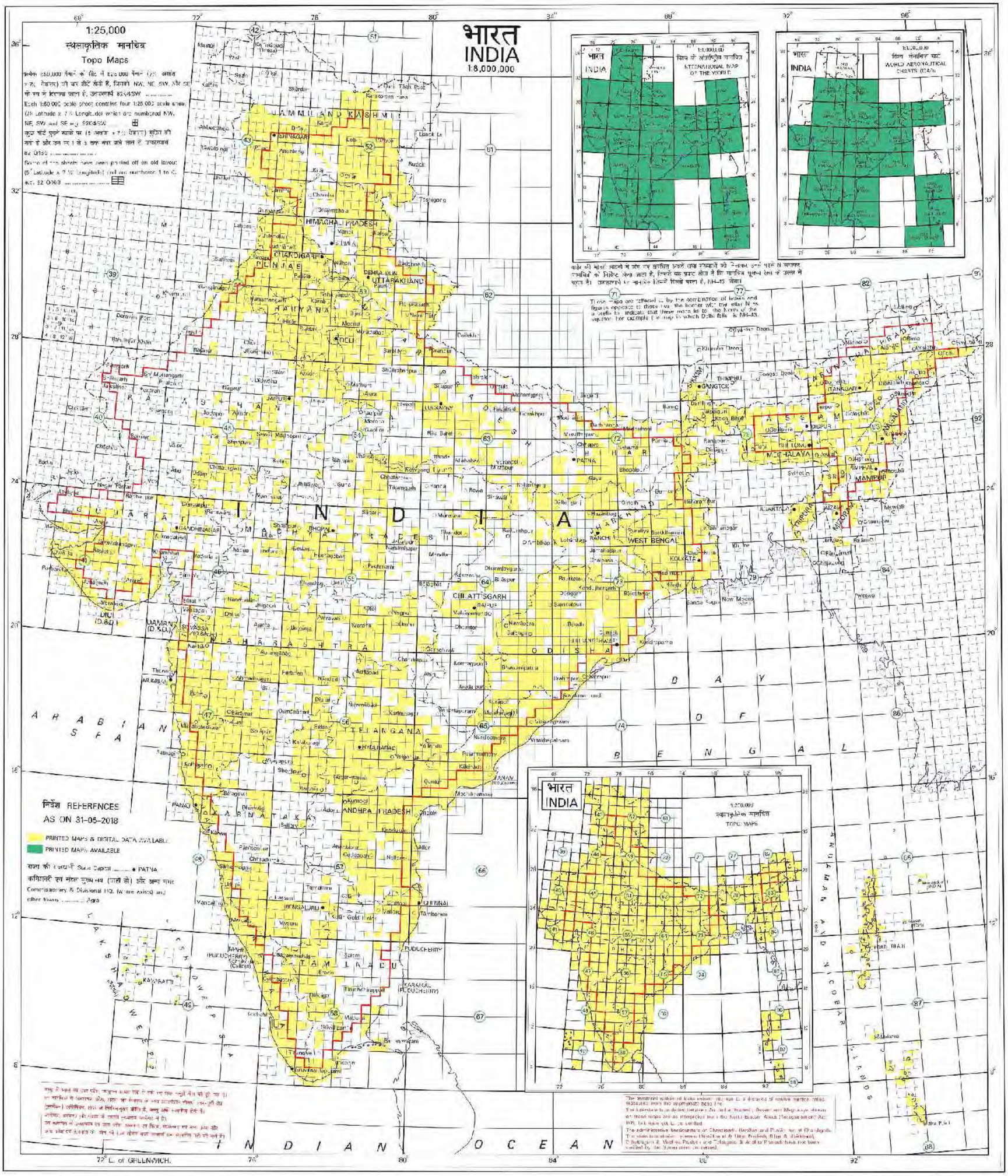
प्रक्षेप-यूटीएम, आधार-डब्ल्यूजीएस84
PROJECTION-UTM, DATUM-WGS84



1:25,000, 1:250,000 पैमानो पर स्थलाकृतिक मानचित्रों (प्रक्षेप - पोलिकोनिक, आधार - एवरेस्ट स्फीरायड) और 1:1 मिलियन पैमाने पर विश्व के अन्तर्राष्ट्रीय मानचित्र तथा विश्व वैमानिक चार्ट (अन्तर्राष्ट्रीय सिविल विमानन संगठन) के प्रकाशन की स्थिति

STATUS OF 1:25,000, 1:250,000 TOPO MAPS

(PROJECTION – POLYCONIC, DATUM – EVEREST) AND 1:1 M, IMW & WAC (ICAO) CHARTS



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SURVEY OF INDIA

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