भारतीय सर्वेक्षण विभाग

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(विज्ञान एवं प्रौद्योगिकी विभाग)

SURVEY OF INDIA

(Dept. of Science & Technology)

वार्षिक रिपोर्ट

2014 -15

Annual Report

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(DEPARTMENT OF SCIENCE & TECHNOLOGY)

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ANNUAL REPORT

2014 - 2015

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 y 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 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 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 special efforts put in by Sh. R.K. Meena, DSG(Tech.), Sh. Pankaj Mishra, Technical Secretary, Shri S.K. Mehta, Officer Surveyor and Sh.Vinaik Bist, Survey Assistant to prepare "ANNUAL REPORT 2014-15 " which gives a bird eye view of the achievements of the department during this period. I also appreciate the efforts of Shri Dhoom Singh, Asstt. Director(OL) and his team for translating it..

Dr. Swarna Subba Rao
Surveyor General of India

CONTENTS

1. INTRODUCTION:

Survey ofIndia, 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 cover in surveying and mapping for the entire country to meet the national requirements, including those of defence 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 based on phonetics and participation in the international body set-up by the United Nations for this purpose.

(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 and indigenization of equipment as an aid to import substitution. This includes development of instruments/ materials indigenously to increase self- reliance and reduce the drain on the foreign exchange reserves.

(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.

(a) Member of Executive Board of the Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP) under the auspice of the United Nations Regional Cartographic Congress (UNRCC).

(b) Chairman of Standing Committee on Cartography and Mapping under NNRMS Programme, constituted by the Planning Commission.

(c) Member of Management of Geological Survey of India.

(d) Member of Governing Body of Wadia Institute of Himalayan Geology.

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(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 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) 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 analog 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. Theresponsibility 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 BOUNDARIES:

(i) Conference / Meeting

(1) India – Myanmar Boundary

Sh. Ravinder Kumar, Superintending Surveyor, attended the National Level Meeting between India-Myanmar from 17.11.2014 to 18.11.2014 in Yangon, Myanmar

Sh. U.S. Prasad, Superintending Surveyor, International Boundary Directorate (SGO) attended Inter – ministerial meeting for preparation of meeting of the head of Survey Departments of India and Myanmar at MEA, New Delhi on 04.03.2015.

(2) India – Bangladesh Boundary

No activity has been taken place during this period.

(3) India – Pakistan Boundary

Sh. Pradeep Singh, D.S.S, Punjab, Haryana & Chandigarh GDC attended the joint Staff Officers/ Engineers / Surveyors meeting to discuss / review the progress of joint Relocation Work along Indo- Pak boundary at JCP Attari on 10.09.2014.

Sh. Neeraj Kumar, Superintending Surveyor, Rajasthan GDC attended quarterly meeting at BP No. 814/M (Pak side) on 16.06.2014.

(4) India – Nepal Boundary

meeting of India-Nepal Boundary Working Group (BWG) was held in Kathmandu (Nepal) from 17.09.2014 to 19.09.2014. Indian delegation was led byDr. Swarna Subha Rao, Surveyor General of India while the Nepal delegation was led by and Sh. Nagendra Jha, Director General of Survey Department of the Government of Nepal.

Dr. Swarna Subha Rao, Surveyor General of India with the Nepalese delegation

Sh. Chandra Pal, Director, International Boundary Directorate, SGO attended meeting of India-Nepal Survey Official Committee held at Dehradun from 30.12.2014 to 31.12.2014.

(5) India – Bhutan Boundary

Sh. Chandra Pal, Director, International Boundary Directorate, SGO attended secretary level meeting of India – Bhutan on border management & security in New Delhi on 20.06.2014.

(ii) Boundary Survey

Survey of India has the responsibility for demarcation of the External boundaries of the Republic of India, their depiction on maps published in the country and also advise on the demarcation of inter-state boundaries.

Field programme for joint inspection of boundary pillars/boundary demarcation survey between Indo-Pak, Indo-Bhutan, Indo-Myanmar and Indo-bangladesh have been finalized.

7. TECHNICAL ACTIVITIES IN SOI :

7.1 STATUS OF TOPOGRAPHICAL SURVEYS AND MAPPING:

The details of topographical surveys and mapping on various scale have been as under :-

(1) CONTROL SURVEY

Sl. No.	Activity	Area (sq km) Distance (lin km)
1	Topo Triangulation	Nil
2	Traverse	92.8 lin km
3	Levelling	3931.4 lin km
4	Aerial Triangulation	Nil

(2) VERIFICATION SURVEY

Scale	Total No. of Sheets	Sheets already verified		Total Sheets verified up to Date
		Up March 2014	During 2014-15	
1:50,000	5060	4909	14	4923
1:25,000	19,393	781	17	798

(3) BOUNDARY VERIFICATION OF EXTRA-DEPARTMENTAL PUBLICATIONS

Scrutiny & Verification of Private / State Govt. / Central Govt. Publications by Boundary Verification Wing was done as per the following details:-

Sl.No.	Name of Job	No of Maps
1.	Scrutiny	2284
2.	Certification	2500
3.	Boundary Description/ Verification	46

7.2 AERIAL PHOTOGRAPHY:

Aerial photography completed and vetted by SOI during the year in the various parts of the country has been as under

Sl.No.	Scale	Area covered (Sq.km)
1.	1:8,000	7025
2.	1:10,000	5149
3.	1:15,000	32,022
4.	1:20,000	2600
5.	1:40,000	6040
	Total	**52,836 Sq Km**

7.3 DIGITAL CARTOGRAPHY:

The activities of National Geo-spatial Data Centre, Dehra Dun, GIS & Remote Sensing Directorate, Hyderabad, GIS Technology Centre, Surveyor General's Office (SGO), Dehra Dun and Digitization Cells under various Geo-Spatial Data Centre during the year are enumerated below :-

Digitization and Creation of Digital Cartographic Data Base (DCDB)

(1) Departmental

Digitization and creation of Cartographic Data Base on 1:250,000 scale have been completed and updation of these sheets is in progress.

Digitization and creation of Cartographic Data Base of OSM/DSM sheets on 1:50,000 scales have been completed as under :

PROGRESS OF OSM SHEETS						
Total Sheets	DTDB Completed	DCDB Completed	Printing (sheets)			
			English version		Hindi version	
			Submitted for printing	Printed off	Submitted for printing	Printed off
5060	4792	4616	4470	1602	410	16

PROGRESS OF DSM SHEETS				
Total Sheets	DTDB completed	DCDB completed	Printing (sheets)	
			Submitted for printing	Printed off
5060	4841	4820	3589	265

PROGRESS OF DIZITISATION OF TOPOGRAPHICAL SHEETS		
Sl.No.	Scale	No of sheets
1.	1:25,000	9348

(2) EXTRA-DEPARTMENTAL

Conversion of .dgn files into .shp files was done for the organizations/departments.

(ii) Himachal Pradesh Forest Departmental Project
(ii) Central Bureau of Narcotics
(iii) Land Record &Settlement Dept. Gwalior.
(iv) Rail Vikas Nigam Ltd Project, New Delhi
(v) Air Port Authority of India, New Delhi
(vi) Inland Waterways Authority of India, Noida

7.4 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 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.

7.5 PROGRESS OF IMPORTANT PROJECTS:

(1) NUIS Project:

Survey of India 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), of Ministry of Urban Development. The following GDCSs have been involved in this project. Andhra Pradesh, Chhattisgarh, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Tripura, Manipur & Mizoram, Rajasthan and West Bengal & Sikkim GDC.

(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 100 towns have been completed. Final deliverables of 89 towns have been sent to State Nodal Agency.

(ii) 1:2,000 Scale Surveys

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 144 towns has been completed.

(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 metre 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.

SOI contributed for the mammoth task for determining highest tide level for 100 year return period as a part of Integrated Coastal Zone Management (ICZM) project. Control work (GPS observation & Levelling) Aerial photography and 32 days tidal observations for densification of tidal observations alongwith their analysis has been carried out and completed. Consolidated report has been submitted to The Project Director, ICZM Project and National Project Director, SICOM, New Delhi. The following GDCSs have been involved in this project. Andhra Pradesh, Gujarat, Daman & Diu, Karnataka, Kerala & Lakshadweep, Maharashtra & Goa, Tamil Nadu & Pondicherry and West Bengal & Sikkim GDC.

(3) Redefinition of Indian Vertical Datum:-

A project of National importance on 'Redefinition of Indian Vertical Datum' Phase has been completed and the work of Phase i.e. densification of level net is to be taken up. The planning for densification has been completed. As the work of densification will be taken up by different GDCs in their area of responsibility. The old existing data has been supplied to various GCDs as per their area of responsibility to commence the densification work. 49 lin.km.(Fore) and 353 lin.km.(Back) High precision leveling has been completed during the month under report. Computation of Standard Error, Probable errors etc. for each levelling line its adjustment and computation of Geo-potential Numbers for the entire level net observed under the project on 'Redefinition of Indian Vertical Datum'.

(4) Modernisation and Expansion of Indian Tide Gauge Network Ocean and Island for Disaster Management

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."Modernisation and Expansion of Tide Gauge Network along Indian coast & Island" for Tsunami Warning System and Disaster management is continued. Modernisation of 30 Ports is completed out of 36 proposed under star Network. Real Time GPS and Tidal data transmission through VSAT from various ports to National Tidal Data Centre(NTDC) DehraDun as well as at several remote locations along Indian Coastline and Island is continued. Tidal data received from the remote locations is being analysed in real time at National Tidal Data Centre, Dehradun. This data is also being shared with National Tsunami Warning Centre, INCOIS, Hyderabad.

(5) GCP Library

The project envisages setting of precise & consistent GCP Library in a Geocentric Coordinate system for the entire country. The Project will be completed in three phases, In the phase, 294 order control points (GCP stations) at spacing of 250 to 300 km. apart, covering the entire country has already been completed.

In phase- II, Densification of first order network at a spacing of 25 to 30 km apart for 2230 GCP stations has also been completed so far. Processing of GPS data collected as a part of GCP Library phase-II is in progress.

(6) Coal Mine Project

To generate updated Topographical Maps of Major Indian Coal fields 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 GDCSs have been involved in this project Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra & Goa, Meghalaya & Arunachal Pradesh, Orissa, and West Bengal & Sikkim GDC.

Updated Topographical Maps of 10 Major Indian Coal fields of phase are in the final stage and some of the maps have already been supplied to the indenter. Aerial photography of 17 Indian Coal fields has been completed and field work for secondary control is under progress.

(7) Map the Neighborhood in Uttrakhand (MANU) Project

To prepare DEM (Digital Elevation Model) and Map on 1:10K scale for disaster affected area of Uttrakhand for macro and micro level planning and post disaster scientific application by other agencies involved in MANU project. Under the project

Under the project Survey of India has taken up the Mapping of Disaster affected area of **"Char Dham and Pindar Valley area"** covering around 8000 sq.km. in Uttrakhand by using modern techniques of Air –Born LiDAR and Aerial Photogrammetric survey.

(8) Special Survey for Indian Air Force

Survey of India prepares and supply the different type of maps as per requirements of Indian Air Force.

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

(i) IAF (OGM) -20 Sheets, IAF- (PGM) – 31 Sheets, IAF-OLM(New Edition)-01 Sheet & Land Approach Chart (LAC) 8 Parts.

(ii) Verification of 17 Landing charts on 1:50K Scale including Obstruction Survey for 30 NM from ARP for IAF

(iii) Supply of AMSL Height, Co-ordinate and Distance of Project 3 sites.

GPS Observation at Ahmadabad Airport for providing Control point.

7.6 SPECIAL SURVEY PROJECTS:

The following projects survey were continued / carried out during the year 2014 – 2015 :-

SPECIAL SURVEY PROJECTS WITHIN INDIA		
Sl. No.	**Name of State**	**Name of Special Survey**
1.	Andhra Pradesh	INDIRASAGAR POLAVARAM PROJECT
2.	-do-	BHARAT ELECTRONICS LIMITED,MACHILIPATANAM
3.	Delhi	Special Aeronautical Survey for IAF, Gwaliar Station
4.	-do-	Qutb Minar
5.	Manipur	Loktak Down Stream HE Project
6.	Orissa	Hirakund Dam Project
7.	Punjab	Indo – Pak boundary work
8.	-do-	Haryana UP Boundary Survey
9.	-do-	Ganguwal Chandigarh Levelling Project
10.	Rajsasthan	Rajasthan Police Stations Project
11.	Uttar Pradesh	Rihand Dam Project
12.	Uttarakhand	Desire HE Project
13.	-do-	Lakhwar Vyasi HE Project
14.	-do-	Vishnugad Pipalkoti HE Prooject
15.	West Bengal	BANDU (Puruliya) Pumped Storage Project
SPECIAL SURVEY PROJECTS OUTSIDE INDIA		
	Bhutan	Punatsangehhu HE Project

Tunnel Alignment at Punatsang Chhu Hydro Electric Project in Bhutan.

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.	1:50,000 (Final &Reprint)	128
2.	IAF(PGM,OGM,OLM,LAC etc.)	33
3.	State, Guide,Geographical, Railways &Tourists Maps etc	16
4.	Miscellaneous Maps/ Indices / Charts etc.	100

STATUS OF PRINTING OF OTHER PRODUCTS		
Sl.No.	**Name of PUBLICATION**	**STATUS**
1.	Hugli River Tide Table,2015	PUBLISHED
2.	Indian Tide Table,2015	PUBLISHED
3.	Annual Magnetic Bulletin 2012	COMPLETED
4.	Annual Magnetic Bulletin 2013	UNDER PROGRESS
5.	Magnetic Declination Chart epoch 2015.0	UNDER PROGRESS

9. 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.

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

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

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

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

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

As a sequel to above programs, the following activities were initiated / completed **:-**

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

(2) 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).

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

(4) Two teams comprising of four officers from Survey of India under the Indian Scientific Expedition to Antarctica visited to Antarctica. Field work is under progress.

11. CONFERENCES / SEMINARS / MEETINGS:

(1) Maj Gen. Maj Gen. Anil Kumar, Addl. S.G, SGO, attended meeting to discuss the concept proposal for providing Science – decision support system for Defence Sector in designing and construction of Border Roads at MoD, New Delhi on 04.04.2014.

(2) Sh. M.C. Gaur, Superintending Surveyor, SGO, held discussion with Addl. Government counsel Supreme Court regarding Andhra Pradesh - Karnataka boundary issue on 17.04.2014.

(3) Sh Pankaj Mishra, Director (Current duty) attended meeting on 28.04.2014 in the office of Joint Secretary, DST at New Delhi to finalise the detail of exhibition to be set up at Geneva.

(4) Smt. Bindu Manghat, Deputy Director (Current duty), DSA & DGDC attended the meeting on Monitoring committee for Basin Wise Reassessment of Hydroelectric Potential in the country held at Seewa Bhawan, New Delhi on April 20104.

(5) Sh Pankaj Mishra, Director (Current duty) participated in the “Board Meeting” at GIS &RS, Hyderabad from to May,2014 to analyse the current status of SOI node for NSDI regarding its HW/SW application and recommend future requirement and improvement in current system.

(6) Maj Gen. Anil Kumar, Addl. S.G & Sh. D.N. Pathak, Superintending Surveyor, SGO, attended Finance Commission meeting at New Delhi on 23.05.2014.

(7) Maj Gen. Anil Kumar, Addl. S.G, SGO, attended meeting of MANU Project at Jamia Millia Islamia University, New Delhi on 23.06.2014

(8) Smt. Bindu Manghat, Deputy Director (Current duty), DSA & DGDC attended the meeting on Proven Technology for Mapping of River Ganga for Remediation, organized by NMCG held at Amaltas Hall, New Delhi on June, 2014.

(9) Sh Pankaj Mishra, Director (Current duty) attended the committee Meeting of Survey of India OSM maps on 1:50,000 scale as a W.M.S. on India Geo Portal from to June, 2014 at NSDI New Delhi.

(10) Smt. Jaspal Kaur Pradyot, Director, Admn. & Finance and Sh. M.C. Gaur, Superintending Surveyor,SGO, attended National Conference on Land Survey & Mapping at hotel Eros(Hilton), New Delhi from 09.07.2014 to 10.07.2014

(11) Sh Pankaj Mishra, Director (Current duty) & sh. A.K. Singh, superintending surveyor visited New Delhi from to July,2014 to participate in National Conference on "**Land Survey and Mapping**".

(12) Sh. Sreedhar Sahu, Superintending Surveyor and Sh. V.K.Naidu, Officer Surveyor, GIS &RS attended two days workshop on WMS/WFS from 16.07.2014 to 18.07.2014 at Indian Institute of Science Bengaluru.

(13) Dr. S.K. Singh, Director, Trupura Manipur and Mizoram GDC attended the joint meeting on 22.07.2014 at Silchar with the officials of Govt. of Mizoram & Govt. of Tripura regarding determination of interstate boundary line in Phuldengsei area of Tripura – Mizoram border.

(14) Sh. U.S.Prasad, Superintending Surveyor, International Boundary Directorate, SGO attended meeting regarding demarcation of Inter State Boundary between Jharkhand & West Bengal in MHA, New Delhi on 13.08.2014.

(15) Maj Gen. Anil Kumar, Addl. S.G, SGO, attended meeting of the Project Sanctioning and Monitoring Committee under the NLRMP at Nirman Bhawan, New Delhi on 08.09.2014.

(16) Smt. Bindu Manghat, Deputy Director (Current duty), DSA & DGDC attended a workshop on **"Leadership and Career Development for Women Scientists and Technologist"** organized by National Institute of Advanced Studies on 11.09.2014 at Bangalore.

(17) Sh. S.V. Singh, Director, GIS&RS attended meeting of NSDI Nodal Officers on 17.09.2014 at NSDI, New Delhi.

(18) Dr. Swarna Subba Rao, Surveyor General of India, Sh. Chandra Pal, Director and Sh.U.S Prasad, Superintending Surveyor, IBD participated in meeting of Indo-Nepal boundary meeting (BWG) in Kathmandu, Nepal from 17.09.2014 to 19.09.2014.

(19) Smt. Bindu Manghat, Superintending Surveyor, SGO attended a meeting/ discussion related to "Namami Gange" project at the convention centre , The Ashoka Hotel, Chanakyapuri, New Delhi on 08.10.2014

(20) Meeting with Smt. K. Nirmala, IAS, Project Director, APMDP and Dr. P.K. Mohanty, IAS, Executive Chairman, NIUM on 29.10.2014 regarding Capacity Building Programme of Technical Staff of Town and Country Planning (DT&CP) of Andhra Pradesh and Telangana.

(21) Sh. D.Sahoo, Superintending Surveyor, TMMz GDC attended meeting of regional committee for Scientific Assessment for flood prone area in Mizoram on 15.10.2014 at Aizawl

(22) Maj Gen. Anil Kumar, Addl. S.G, SGO, attended meeting regarding 'Google Mapathan' issue in CBI, New Delhi on 17.10.2014.

(23) Sh. D.N. Pathak, Superintending Surveyor, SGO, attended MANU Project meeting at New Delhi on 20.10.2014.

(24) Sh Pankaj Mishra, Director (Current duty),Punjab Haryana & Chandigarh GDC attended the workshop "Mapping Policy and Road Ahead" on 20.11.2014 at Royal Plaza, New Delhi.

(25) Maj Gen. Anil Kumar, Addl. S.G, SGO, attended workshop on Geospatial Technology for National Mapping at New Delhi on 27.11.2014.

(26) Indian National Cartographic Association organised XXXIV INCA International Congress from 16.12.2014 to 18.12.2014 at Hyderabad on the theme **"Cartography – Exploring New Dimensions".** Dr. Swarna Subba Rao, Surveyor General of India, alongwith senior officers from SOI participated in the INCA International Congress.

(27) Dr. Swarna Subba Rao, Surveyor General of India, attended International Conference on Professional Engineers Challenges in Disaster Management 2014 at Visakhapatnam from 18.12.2014 to 19.12.2014

(28) Dr. Swarna Subba Rao, Surveyor General of India, attended meeting in MEA, New Delhi regarding demarcation of India – Myanmar boundary on 12.01.2015.

(29) Sh. D.N. Pathak, Superintending Surveyor, SGO attended meeting at National Mission to Clean Ganga at New Delhi on 21.01.2015.

(30) Dr. Swarna Subba Rao, Surveyor General of India, attended meeting with Additional Solicitor General of Tamil Nadu at Chennai on 23.01.2015.

(31) Sh. T. Sanjeev Kumar, Director & Sh. Mahesh R. Superintending Surveyor attended Regional Committee meeting for Scientific Assessment of flood prone area in UT of Lakhshadweep at Kavaratti on 29.01.2015.

(32) Dr. Swarna Subba Rao, Surveyor General of India, attended meeting of 'National Committee on Strengthening Maritime and Coastal Security' in cabinet secretariat, New Delhi on 02.02.2015.

(33) Sh. D.N. Pathak, Superintending Surveyor, SGO attended meeting at Chief Engineer Gandak (Gorakhpur) regarding Lidar Survey of Rapti River Basin from 05.02.2015 to 06.02.2015.

(34) Sh. R.K. Meena, Director, Gujarat, Daman, Diu GDC attended "**India-Geospatial Form 2015"** at International Convention Centre, Hyderabad from February,2014 a paper titled **"Large Scale Topographical Data Base for Sustainable Planning and Design of Coal Mining"** India Geospatial Form 2015 at Hyderabad International Convention Centre from 10.02.2015 to 12.02.2015.

(35) Maj. Gen. Anil Kumar, Addl. S.G, SGO, held discussion with Deputy Secretary, SMP, DST, New Delhi on 23.02.2015

(36) Director, J & K GDC attended the meeting with National Crisis Management Committee at New Delhi on & March,2015.

(37) **XXXIV INCA International congress** was being organized by Indian National Cartographic Association and hosted by National Remote Sensing Centre (NRSC), ISRO and Central Arid Zone Research Institute at Jodhpur during 16.12.2014 18.12.2014. A paper titled "**Large scale Mapping for Ranchi town for Disaster Management Planning**" was submitted and presented in conference by Maj Gen B.D. Sharma Addl SG & Sh. B. Tripathy, Superintending Surveyor, Jharkhand GDC. Geospatial products, maps, Charts, Globes and models etc. were displayed at the conference.

(38) **"India Geospatial Forum 2015"** the Annual International Conference and Exhibition on Geospatial Information Technology & Application was being organized in Hyderabad during 10.02.2015 to 12.02.2015 with the theme "Conversing Geospatial Trade and Practices". Maj Gen Anil Kumar, Addl. Surveyor General & Smt. Jaspal Kaur Pradyot, Director, Adm.& Finance, SGO, alongwith senior officers from SOI attended the conference.

12. TECHNICAL PAPERS:

(1) Sh. U. N. Mishra, Director, G&RB presented a paper titled **"Importance of Geomagnetic Survey in Survey of India"** , Dr. M. Stalin, Director, Chattisgarh GDC presented a Technical paper **"Accuracy Analysis of Urban Growth Model of Hyderabad city by Remote Sensing & GIS"** and a paper titled **"Large scale Mapping of Ranchi Town for Disaster Management Planning"** presented by Maj Gen B.D. Sharma, Addl Surveyor General in **INCA International Congress, 2013** organized by National Cartographic Association at Hyderabad.

(2) Dr. M. Stalin, Director, Chattisgarh GDC submitted the paper **"Site Suitability Analysis for Solid Waste Management using GIS and Remote Sensing Techniques"**

(3) Dr. M. Stalin, Director, Chattisgarh GDC submitted the paper **"Prediction of Urban Growth using Spatial Modelling Remote Sensing and GIS"** in the journal International Journal of Innovative and Applied Studies.

13. FOREIGN VISITS / STUDY TOURS / DEPUTATION:

(1) SOI team led by Dr. Swarna Subba Rao, Surveyor General of India and Maj Gen M Mohan, Adddl SG , Southern Zone, visited Geneva, Switzerland from 05.05.2014 to 09.05.2014 to participate in the **"Geospatial World Form- 2014"** which was organised by Geospatial Media and Communication Private Ltd, Noida and invited Survey of India and other allied organisation engaged in Geospatial Technology arena to participate and put up a stall in the 'Indian Pavilion'.

Dr. Swarna Subba Rao, Surveyor General of India in Geneva Switzerland for Geospatial World Form 2014

(2) Maj Gen. Anil Kumar, Addl. S.G, SGO and Sh. S.K. Sinha, Director , Tamil Nadu and A&N GDC participated in **2014 G- 20 Australia Summit (G-20 Globe Foundation)** and also had a meeting with Queensland Government at Brisbane, Australia from 15.11.2014 to 17.11.2014.

(3) A Survey team comprising of one Officer Surveyor, One Survey Assistant and 7 supporting staff visited Bhutan during 10.12.2014 to provide Horizontal and Verical control for Punatsang Chhu HE Project.

(4) Maj Gen R.C.Padhi, Addl. Surveyor General visited Thailand to attend meeting of the Joint committee of the chief Nodal Officers from 08.02.2015 to 12.02.2015.

(5) Sh. Ravinder Kumar, Superintending Surveyor, SGO participated in the National Level Meeting between India and Myanmar from to November, 2014 at Yangon (Myanmar).

14. VISIT TO SOI OFFICES:

Professor, Aashutosh Sharma, Secretary to the Govt. of India, during a visit to Surveyor General's Office, Dehradun

(1) Northern Printing Group, Dehra Dun

(i) 39 students of Uttrakhand University of Horticulture & Forestry, Tehri Garhwal.

(ii) 15 students of Department of Civil Engineering, College of Engineering, Trivandrum.

(iii) B. Tech. students of GB Pant university of Agriculture & Technology, Pantnagar.

(iv) 40 course participants of IIRS Kalidas Road, Dehradun.

(v) 65 students of Rawal Institute of Technology & Engineering, Faridabad.

(vi) 30 cadets of the Adm. Officer, RIM, Dehradun.

(vii) Students of Malout Institute of Management and Information Technology, Malout (Punjab).

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

(i) Ninety students with their five teachers of St. Kabeer Academy, Haridwar Road, Dehradun.

(ii) Thirty cadets and two master trainer of Rashtriya Indian Military College, Dehradun Cantt, Dehradun.

(iii) Eighty two students along with three teacher staff personas of Wehlam's Girls School, 19 Municipal Road, Dehradun.

(iv) A group of twenty four trainees with staff members of J & K Forest Department

(3) National Survey Museum (G &RB)

(i) Commandant, BSF with 80 officers from Institute of Adventure & Advance Training, Madhowala, Doiwala, Dehradun.

(ii) 11 IDES probationers from National Institute of Defence Estates Management (NIDEM), Ministry of Defence, New Delhi.

(iii) 50 cadets with 2 Teachers of Rashtriya Bhartiya Sainya College, Rashtriya Indain Military College, Dehradun.

(iv) 3 Teachers and 32 students from Women Institute of Technology, GB Pant University of Agriculture & Technology, Pantnagar.

(v) Dr. U. Kedareswarudu, Faculty Advisor with 60 students from University of Petroleum & Energy Studies, Bidoli, Dehradun.

(vi) Mr. Richard Harry Scot, Chartered Structural Engineer from U.K.

(vii) Sh. Arun Kumar Singh, Department of Geography with 44 students of Mahila Maha Vidhyalaya, Benaras Hindu University, Varanasi.

(viii) Sh. Inderjit Singh, JS DST, New Delhi, visited National Survey Museum.

(ix) Sixteen Naval Officers including ten foreign officers visited Survey Museum with view to gain knowledge on the latest trends and practices in networking.

(x) Dr. M.K. Srivastava, with 48 students and three staff members from Deptt. of Geophysics, Banaras Hindu University, Varanasi.

15. CULTURAL AND EDUCATIONAL ACTIVITIES:

Hindi Pakhwada was celebrated at various offices in Survey of India located at different cities from 14.09.2014 to 30.09.2014. 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.

Maj Gen Anil Kumar, Addl. S.G. SGO inaugurating Hindi Puraskar Vitran Samahroh at SGO Dehradun.

(i) NATIONAL SCIENCE DAY

National Science Day was celebrated on 28-02-2015 at various offices of Survey of India located at different places of the country. The Theme on this National Science Day was **"Science For National Building".** 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 inInstruments used in past & present by the department.

(ii) SWACHCH BHARAT ABHIYAN

A pledged was taken solemnly on 02.10.2014 in the Department to keep our surroundings neat and clean under the **"Swachch Bharat Abhiyan"** all over the country. All the staff of the department participated in the work to clean the survey complex and its surroundings.

16. 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 2014-2015 remained as under :-

(1) Correspondence

During the year 2014-2015 intensive measures were taken for transacting the official work of the union in Hindi by the various offices of the department. 4594 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	78.6%
1.2	With 'C' Region	76.4%
2.	Correspondence in Hindi by the offices located in Region 'B'	
2.1	With 'A' and 'B' Region	89.8%
2.2	With 'C' Region	91.3%
3.	Correspondence in Hindi by the offices located in Region 'C'	
3.1	With 'A' and 'B' Region	40.3 %

(2) Training

During the period under report 7 officers/employees passed Hindi Prabodh, Praveen and Pragya examination and 12 LDCs' passed Hindi Typing examination, under Hindi Teaching Scheme.

(3) Hindi workshop / Seminar

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, Kerala & Lakshdweep GDC, Thiruvanantpuram and Andhra Pradesh GDC, Hyderabad. 48 officers/Employees received training in these workshops.

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

(4) Incentive Scheme

During the year 2014-2015 incentive schemes for noting and drafting for doing official work in Hindi, Hindi typing and Hindi stenography remained continued.

(5) Inspection

Inspection has been carried out at different sections of Surveyor General's Office, Dehradun regarding use of Hindi durimng this period.

(6) Hindi Day / Fortnight / Function

(i) 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.

(ii) Chal Vaijayanti Running Shield was given to the E-2 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.

(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.	Indian Institute of Surveying & Mapping ,Hyderabad	Pratibimb
5.	Andhra Pradesh GDC, Hyderabad	Kalakal
6.	Kerala & Lakshadweep GDC, Thiruvananthapuram	Sampreshan
7.	Maharashtra & Goa GDC, Pune	Sahyadree
8.	Uttarakhand & West Uttar Pradesh GDC, D.Dun	Prayas
9.	Madhya Pradesh GDC, Jabalpur	Dharohar
10.	Southern Printing Group, Hyderabad	Prerna
11.	GIS&RS, Hyderabad	Pushpanjali
12.	Gujarat, Daman &Diu GDC, Gandhinagar	Navyug

(8) Meetings

(i) During the year 2014-15 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.

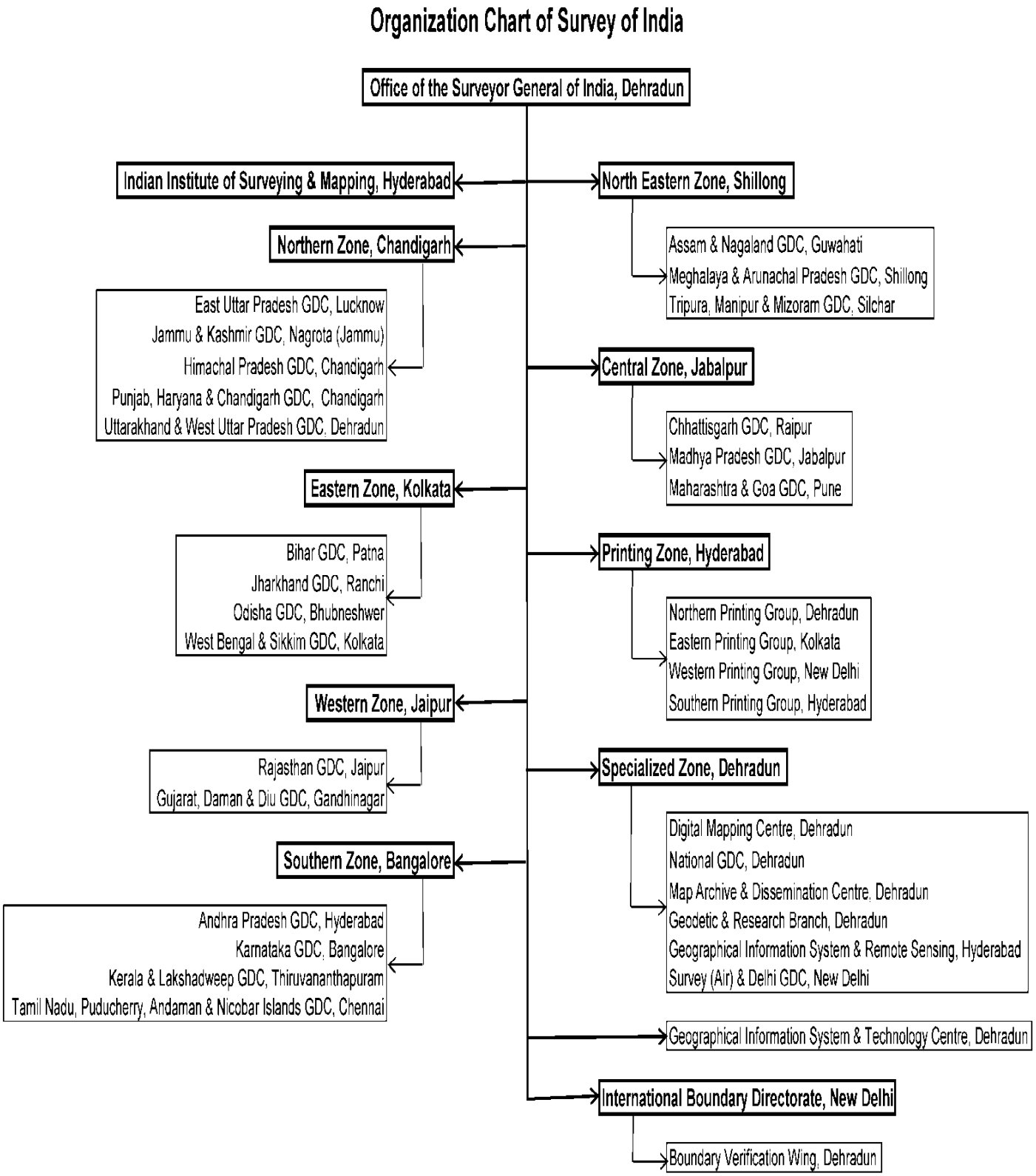
(ii) Half yearly meetings of the Town Official Language Implementation Committee, Dehra Dun were also organised under the chairmanship of Surveyor General of India during the period.

(iii) Review meeting was organized with chairman, Town Official Language implementation Committee, Dehradun and head of offices of some central Govt. offices with Secretary, Rajbhasha Vibhag, Govt. of India at Surveyor General's Office, Dehradun

(iv) Dr. Swarn Subba Rao, Surveyor General of India, chairman, TOLIC, Dehradun received third prize for best implementation official language policy under the series of Indra Gandhi Rajbhasha puraskar under category of 75 and above members committee of TOLIC by the presidenet of India Sh. Pranab Mukharji. Sh.Dhoom Singh, Assistant Director (O.L) and member secretary TOLIC was also awarded letter of citation for best implementation official language by the president of India Sh. Pranab Mukharji.

17. ORGANOGRAM:

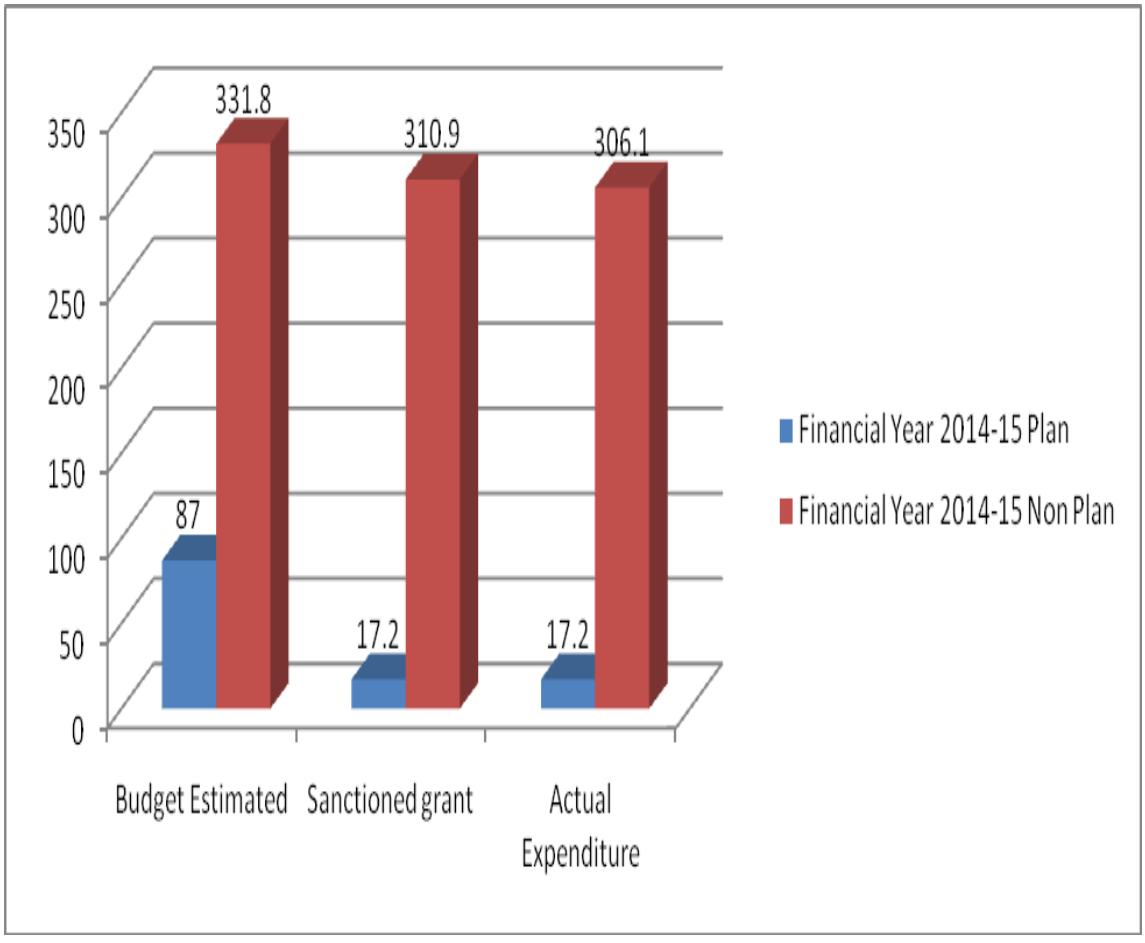
As per SGO's letter No. W-340 / 709-GDC (Coll 7) dated 15-05-2009 organization of Survey of India is as given below :-



GDC - Geo-spatial Data Centre

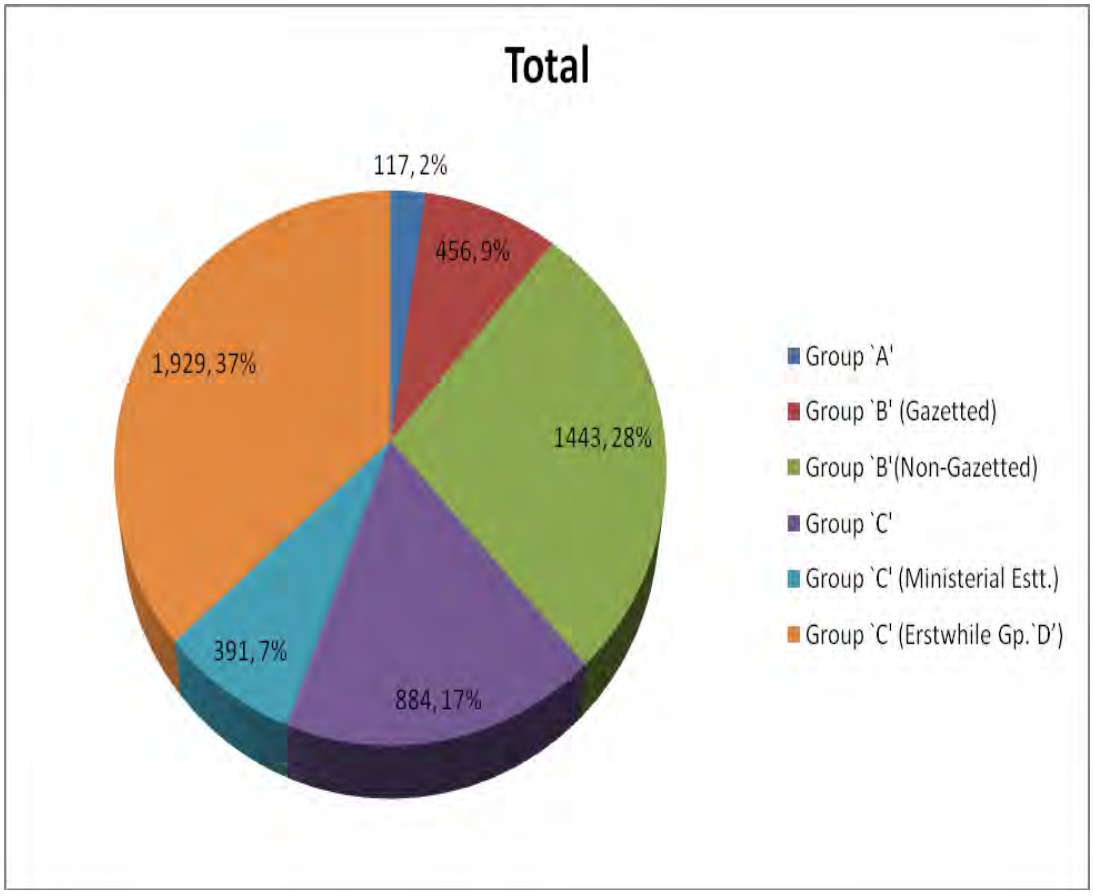
18. EXPENDITURE OCCURRED DURING THE PERIOD:

ACTUAL EXPENDITURE OF SURVEY OF INDIA		
	Financial Year 2014-15	
Expenditure Type (In Crores)		**2014-15**
	Plan	**Non Plan**
Budget Estimate	**87**	**331.8**
Sanctioned Grant	**17.2**	**310.9**
Actual Expenditure	**17.2**	**306.1**



19. MAN POWER RESOURCES:

Service Groups	Posted Strength As On 31-03-2015
Group `A'	117
Group `B' (Gazetted)	456
Group `B' (Non - Gazetted)	1443
Group `C'	884
Group `C' (Ministerial Estt.)	391
Group `C' (Erstwhile Gp.`D')	1,929
Total	**5220**



20. 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.

75 trainees including 6 foreign, 44 extra-departmental & 5 private candidates have been undergoing training in various courses run by Indian Institute of Surveying & Mapping, Hyderabad as per details given in Appendix 'A'.

REGULAR/ SCHEDULED COURSES

SL. NO.	COURSE NO.	NOMENCLATURE	DEPARTMENTAL	EXTRA DEPARTMENTA	FOREIGN	OTHERS	TOTAL
1	315.14.	Cadestral Survey and Land Information System.	0	03	0	0	03
2	400.93	Surveying Supervisor	0	0	06	0	06
3	415.04	Use of Total Station in Cadastral Survey.	0	02	0	0	02
4	440.23	Digital Cartography & GIS Applications	0	02	0	0	02
5	465.04	Mid Career Advance Course on GIS Applications	01	02	0	0	03
6	480.41	Digital Photogrammetry & Remote Sensing	0	01	0	02	03
7	480.42	Digital Photogrammetry & Remote Sensing	0	04	0	01	05
8	495.21	Fundamental of Survey Engineering	08	0	0	0	08
9	496.04	GPS, Total Station, Mobile Mapping, GIS& Digital Photogrammetry.	0	13	0	0	13
10	500.74#	Surveying Engineer	10	0	0	0	10
11	690.30	Control & Detail Survey by GPS & Total Station	0	03	0	02	05
12	690.31	Control & Detail Survey by GPS & Total Station	01	14	0	0	15
		Total	**20**	**44**	**06**	**05**	**75**

Courses continuing from previous year.

SPECIAL COURSES FOR SPECIAL USES							
SL NO.	COURSE NO.	NOMENCLATURE	DEPARTMENTAL	EXTRA DEPARTMENTAL	FOREIGN	OTHERS	TOTAL
1	Spl#	ETS, DGPS,Digitisation & Remote Sensing, Govt. of West Bengal	0	11	0	0	11
2	Spl.	Modern Surveying Techniques for PowerGrid officials.	0	15	0	0	15
3	Spl.	Training in Application of GIS for Landuse planning (Baptla Engineering College)	0	0	0	20	20
4	Spl.	GPS and related Application for NMDC Ltd, offficials	0	07	0	0	07
5	Spl.	Use of GPS & Total Station & HRSI in Cadastral Survey.	0	45	0	0	45
6	Spl.	Training in Modern Surveying Technology for National Institute of Defence Estate Management officers (NIDEM)	0	21	0	0	21
7	Spl.	GPS for officers of SCCL	0	15	0	0	15
8	Spl.	Land Survey Mapping & Land Records maintenance (Govt. of Manipur)	0	15	0	0	15
9	Spl.	One day training on GPS for ESCI,Gachibowli, Hyderabad	0	05	0	0	05
10	Spl.	Training in GIS for DT &CP for Andhra Pradesh and Telangana State staff.	0	32	0	0	32
11	Spl.	One day Training on Digital Mapping,Photogrammetry and other related survey & Mapping for District Judges, Hyderabad.	0	27	0	0	27
12	Spl.	Training in Modern Surveying Technology for National Institute of Defence Estate Management Officers (NIDEM)	0	19	0	0	19
		Total	**0**	**212**	**0**	**20**	**232**
# Courses continuing from previous year.							

SHORT TERM AWARENESS COURSES							
SL NO.	COURSE NO.	NOMENCLATURE	DEPARTMENTAL	EXTRA DEPARTMENTA	FOREIGN	OTHERS	TOTAL
1	0	Datum, Coordinates system & Map projection –concept for Advanced Map user.	0	05	0	0	05
2.	0	Modern Survey Instruments & Technology.	0	03	0	0	03
		Total	**0**	**08**	**0**	**0**	**08**

ACADEMIC COURSES							
SL NO.	COURSE NO.	NOMENCLATURE	DEPARTMENTAL	EXTRA DEPARTMENTAL	FOREIGN	OTHERS	TOTAL
1	Academic	M.Tech (Geomatics)- 2012-14 #	0	0	0	16	16
2	Academic	M.Tech (Geomatics)- 2013-15	0	0	0	16	16
3	Academic	M.Sc (Geo-Spatial Science & Technology) – 2012-14 #	07	0	0	01	08
4	Academic	M.Sc (Geo-Spatial Science & Technology) – 2013-15	07	0	0	01	08
		Total	**14**	**0**	**0**	**34**	**48**
# Courses continuing from previous year.							

21. 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 01-01-2015 AND NUMBER OF APPOINTMENTS MADE DURING THE PRECEDING CALENDAR YEAR- 2014

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

Groups	Representation of SCs/STs/OBCs (As on 01-01-2015)				Number of appointments made during the calendar year 2014									
					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
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Group A	138	12	7	4	0	0	0	0	0	0	0	0	0	0
Group B	471	72	51	21	0	0	0	0	45	14	10	0	0	0
Group C (Excluding Sweepers)	4734	967	241	151	0	4	0	0	42	3	2	0	0	0
Group C (Sweepers)	83	83	0	0	0	0	0	0	0	0	0	0	0	0
Total	**5426**	**1134**	**299**	**176**	**0**	**4**	**0**	**0**	**87**	**17**	**12**	**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 FIRST JANUARY, 2015 AND NUMBER OF APPOINTMENTS MADE IN THE SERVICE IN VARIOUS GRADE IN THE PRECEDING CALENDAR YEAR – 2014

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

Pay Band & Grade Pay	Representation of SCs/STs/OBCs (As on 01- 01- 2014)				Number of appointments made during the calendar year 2013									
					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	31	2	1	1	0	0	0	0	0	0	0	0	0	0
PB-3 ₹ 6600	37	1	1	2	0	0	0	0	0	0	0	0	0	0
PB-3 ₹ 7600	24	3	1	1	0	0	0	0	0	0	0	0	0	0
PB-4 ₹ 8700	18	3	4	0	0	0	0	0	0	0	0	0	0	0
PB-4 ₹ 8900	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PB-4 ₹ 10000	27	3	0	0	0	0	0	0	0	0	0	0	0	0
HAG & above	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**138**	**12**	**7**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

PWD REPORT - I

ANNUAL STATEMENT SHOWING THE REPRESENTATION OF THEPERSONS WITH DISABILITY IN SERVICES (As on 01-01-2015)

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	138	0	0	0	0
Group B	471	2	0	0	2
Group C/ Group D	4734	30	0	0	30
Group D (Safai Karamchari)	83	0	0	0	0
Total	**5426**	**32**	**0**	**0**	**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 01.01.2015)

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

GROUP	DIRECT RECRUITMENT							PROMOTION						
	No. of vacancies reserved			No. of Appointments Made				No. of vacancies reserved			No. of Appointments Made			
	VH	HH	OH	Total	VH	HH	OH	VH	HH	OH	Total	VH	HH	OH
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
GROUP A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GROUP B	0	0	2	0	0	0	0	0	0	0	0	0	0	0
GROUP C	0	0	30	0	0	0	0	0	0	0	0	0	0	0
GROUP C (Safai Karamchari)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	32	0	0	0	0	0	0	0	0	0	0	0

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

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