

ISSUE 3 | JANUARY-MARCH 2022

e-Newsletter

National Water Informatics Centre

FOCUS TOPIC: " ADVANCEMENTS IN

DATA COLLECTION TECHNIQUES"

" The existing telemetry architecture and algorithms in WIMS have been tweaked & fine-tuned allowing more efficient data reading, decoding and processing of more than 10,000 stations. "



UPDATES ON

INDIA-WRIS & WIMS

"Forest/Tree Cover data made available in India-WRIS & WIMS platform now incorporates an upgraded Telemetry Network."



WORLD WATER DAY, 2022

22nd MARCH 2022

Groundwater, making the invisible visible

Ground water is a hidden resource that remains the most unpredictable and intriguing element of the hydrologic cycle. It has made substantial contributions to India's economic growth and has served as a key accelerator for the country's socio-economic development. However, overexploitation of ground water has resulted in the depletion of underground aquifers.

On the occasion of World Water Day, international community committed themselves to conserve, protect and replenish Groundwater reserves & work towards "Making the Invisible Visible".

From the Director's Desk



We are delighted to release the third issue of our quarterly e-Newsletter, which brings to you the latest updates and accomplishments from the National Water Informatics Centre in the preceding quarter. This newsletter also covers the framework of NWIC's extensive data network and shares in detail the different data parameters, their data source agencies, data type, mode and frequency of data sharing on India-WRIS.

Further, several notable developments have taken place in the last quarter pertaining the Integrated Water and Crop Information and Management System (IWCIMS) project with multiple high-level review meetings organised under the chairmanship of Secretary, DoWR, RD & GR, to understand the satellite data requirements for the IWCIMS, the status of existing IT projects & infrastructure with different organisations/wings of the department and other related Ministries/ Departments and the plausibility of integrating existing IT projects with IWCIMS. SWIC (State-WRIS) implementation has also begun with two states namely Rajasthan and Gujarat. Necessary Virtual Machine (VM) set up has been created for the two states.

This newsletter, like previous editions, includes a technical column titled "Advancements in Data Collection Techniques," which attempts to give an insight to the readers about the process of gradual enhancement of the WIMS system from manual data collection using a sophisticated telemetry network, and its significance in water data network expansion of the country.

I hope you will find our e-Newsletter interesting and enjoy reading it. Kindly submit your views and suggestions using the feedback link given on the last page. Your feedback is valuable to us!

Warm Regards,

A handwritten signature in black ink, appearing to read 'Sunil Kumar Garg'.

Sunil Kumar Garg

NWIC is delighted to share the third issue of its quarterly e-newsletter with a focus topic on "Advancements in Data Collection Techniques". The issue gives an overview of the organization's current activities, developments, accomplishments and a technical column underlining the significance of advancement in data collection mechanisms from manual to telemetry. The newsletter also includes a 'Social Media Corner' and a 'Reach & Engagement' statistics page that highlights the most recent posts from our social media pages and statistics of user engagement on India-WRIS platform respectively.

Contents

1. About NWIC	2
• Data Network	4
2. Updates on India-WRIS & WIMS	8
• India-WRIS	9
• WIMS	11
3. Highlights of this Quarter	12
• Meetings & Training Sessions	13
• Other Activities	15
4. Technical Column: Advancements in Data Collection Techniques	16
5. Social Media Corner	20
6. India-WRIS: Reach & Engagement	21



NWIC

ABOUT

**NATIONAL WATER
INFORMATICS
CENTRE**

NATIONAL WATER INFORMATICS CENTRE

Integrating Knowledge & Technology



Recognizing the importance of quality research and authentic data, the Government of India established the National Water Informatics Centre (NWIC) to act as a central body for maintaining a single-source comprehensive database of water resources data to facilitate informed decision-making for management and sustainable development of water resources in the country. Its goal is to collect data from different central and state agencies working in Surface Water and Ground Water domain & allied themes, convert it into a standardised format for disseminating the information to the public through the India-WRIS platform.

The collected data is represented interactively in the form of maps, tables, bar graphs and pie charts on the India-WRIS platform for enhancing the users' interest.

NWIC regularly receives data generated by organisations like Central Ground Water Board, Central Water Commission, National Remote Sensing Centre, Survey of India, National Water Development Agency, Indian Meteorological Department, Inland Waterways Authority of India and other agencies, which are updated on the India-WRIS platform on a continuous basis.

DATA NETWORK OF NWIC

NWIC collects data mainly on surface water, ground water and multiple allied themes from different central & state agencies and government departments which is then broadly segmented into simplified themes like Surface Water, Ground Water, Land Resources, Hydro-Meteorological and Allied Themes and disseminated through India-WRIS platform.

Further, based on the time interval & frequency of data updation, the data is classified in three groups namely; 'Dynamic', 'Semi-Dynamic' & 'Static'.

Dynamic Data Group

The Dynamic data group represents real-time data on surface water parameters i.e. reservoirs storage, river level and discharge, surface water quality; ground water parameters i.e. ground water level and ground water quality and hydro-meteorological parameters including rainfall, evapo-transpiration, and soil moisture. NWIC collects real-time data through three modes of data transfer which include Application Programming Interface (API), File Transfer Protocol (FTP) and Water Information Management System (WIMS). WIMS is NWIC's data collection platform that allows data source agencies to directly send data to NWIC using manual data entry methods and telemetry technologies. The National Remote Sensing Centre provides data on soil moisture, rainfall, and evapo-transpiration through FTP mode, whereas the Central Pollution Control Board provides water quality data through API on a monthly basis. Further, Central Water Commission data on reservoirs is acquired by NWIC through scraping of reservoir data from Central Water Commission's Reservoir Storage -

Monitoring System (RSMS) website and Central Ground Water Board's data is acquired through mail & USB Flash drives. Data on parameters like Surface Water level and Ground Water level are received through telemetry mode in WIMS, then decoded on the WIMS platform, and disseminated through India-WRIS platform. Surface Water & Ground Water quality data from Central Pollution Control Board is acquired by WIMS through the API mode and then disseminated through India-WRIS platform. Some of the agencies that are onboard on WIMS include Narmada Control Authority, Central Pollution Control Board, Bhakra Beas Management Board- Chandigarh, Central Water Commission, Damodar Valley Corporation, DWRID- Govt. of West Bengal, Irrigation & Water Resources Department- Haryana, and many state water resources departments, etc.

Semi-Dynamic Data Group

The Semi-Dynamic data group includes data collected at larger interval of about 2-3 years on completion of periodic studies/ assessments carried out by different organisations in water sector and allied themes. Semi-Dynamic data is mostly acquired as GIS & Raster data sets collected either through physical mode or extracted from publications of many central organisations working on water and allied themes. The Snow-Glacial lakes data is taken from CWC Publication and the data on Land Use-Land Cover, Land Degradation, Wasteland Study, Forest/Tree Cover, are received in the form of Raster Data sets from organisations like National Remote Sensing Centre (NRSC), Forest Survey of India through physical mode (CD, Mail, USB Flash drive, etc).

Static Data Group

The Static Data group represents results of some non-repetitive projects/ researches commissioned by government at different levels and data that remain unchanged over long periods such as Aquifer, Litholog, Soil Type, Agro-Climatic/Ecological Regions etc. The data on Wetlands, Water Logging/ Soil Salinity, Soil Type, Land Degradation and Flood Inundation, Drought Affected Areas, etc.

are acquired from Space Applications Centre (SAC) Ahmedabad, NRSC, RMSI and other organizations in the forms of GIS & Raster Datasets, Publication reports and Excel files in physical mode.

The Table 1 below lists the parameters, their data source agencies, data type, mode and frequency of data sharing on India-WRIS:

Table 1: List of parameters in India-WRIS, their Data Source Agencies, mode and frequency of data sharing

Theme	Parameters	Source Agencies	Mode of Data Sharing	Data Type	Frequency of Data Sharing
Surface Water	Reservoir (Storage)	APWRIMS	API	Dynamic	Daily
		CWC	Website scraping (http://old.cwc.gov.in/rsms/index.asp)	Dynamic	Daily
		Gujarat SW	API	Dynamic	Daily
	Reservoir Sediment	CWC	Publication	Static	As per data availability
	Surface Water Bodies	Current Satellite Data (Google Earth)	Satellite Data	Semi-Dynamic	As per data availability
	River Level	CWC, National Institute of Hydrology, Roorkee, Bhakra Beas Management Board, Chandigarh, DWRID - West Bengal, Damodar Valley Corporation (DVC) and State Water Resource Dept. (Andhra Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Mizoram, Maharashtra, Nagaland, Odisha, Punjab Irrigation, Rajasthan, Tamil Nadu, Telangana, Uttarakhand, West Bengal, Assam, Meghalaya, Jharkhand, Haryana, Arunachal Pradesh)	WIMS – Data Entry Form & Bulk Data Migration	Dynamic	Daily

Theme	Parameters	Source Agencies	Mode of Data Sharing	Data Type	Frequency of Data Sharing
Surface Water	River Discharge	Bhakra Beas Management Board, Chandigarh, CWC, DWRID - West Bengal, Damodar Valley Corporation (DVC), National Institute of Hydrology, Roorkee and State Water Resource Dept. (Andhra Pradesh, Chhattisgarh, Bihar, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, , Odisha, Punjab Irrigation, Rajasthan, Tamil Nadu, Telangana, Uttarakhand, West Bengal)	WIMS – Data Entry Form & Bulk Data Migration	Dynamic	Daily
	Snow Glacial Lake (Water Spread Area)	CWC	Publication	Semi-Dynamic	Yearly
	Surface Water Quality	CPCB,CWC, Water Resource Dept. of Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Telangana and Uttarakhand	API, WIMS – Data Entry Form, Bulk Data Migration	Dynamic	Monthly
	Wetlands	SAC, Ahmedabad	Physical Mode (CD)	Static	As per data availability
Ground Water	Aquifer Material	CGWB	Mail & Physical Mode (USB Flash drive)	Static	As per data availability
	Exploration Details/Litholog	CGWB	Mail & Physical Mode (USB Flash drive)	Static	As per data availability
	Ground Water Level	CGWB, DWRID-WB and State Water Resource Dept. (Andra Pradesh, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Puducherry, Punjab, Rajasthan, Tamil Nadu, Telangana)	WIMS – Data Entry Form & Bulk Data Migration	Dynamic	4 times a year (Manual) and 4 times Daily (Telemetric)
	Ground Water Prospects Study	NRSC, CGWB	Publication	Static	As per data availability
	Artificial Recharge Structure	CGWB, State GW Ministry of Rural Development	ARS Data Entry Platform of India-WRIS	Semi-Dynamic	As per data availability
	Ground Water Quality		CGWB	Physical Mode (USB Flash drive)	Dynamic
CPCB			WIMS – API Mode	Dynamic	Fortnightly
Hydro-meteorological Parameters	Rainfall	APWRIMS	API	Dynamic	Daily/Hourly
		IMD	FTP	Dynamic	Daily/Hourly
		CWC	WIMS – Data Entry Form & Telemetry	Dynamic	Daily
		NRSC	FTP	Dynamic	Daily/Hourly

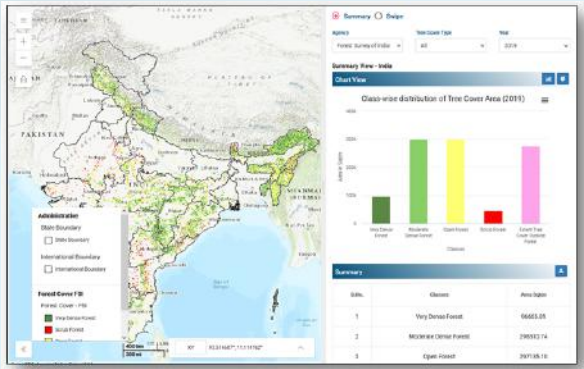
Theme	Parameters	Source Agencies	Mode of Data Sharing	Data Type	Frequency of Data Sharing
Hydro-meteorological Parameters	Evapo-transpiration	NRSC	FTP	Dynamic	Daily/Hourly
	Soil Moisture	NRSC	FTP	Dynamic	Daily/Hourly
	Agro-Climatic/Ecological Regions	ICAR	Publication	Static	As per data availability
Land Resources	Forest/Tree Cover	NRSC	Physical Mode (CD)	Semi-Dynamic	Yearly
		Forest Survey of India (FSI)	Physical Mode (USB Flash drive)	Semi-Dynamic	Every 2 years
	Land Degradation	NRSC	Physical Mode (CD)	Static	As per data availability
	Land Use - Land Cover	NRSC	Physical Mode (CD)	Semi-Dynamic	Yearly
	Soil Type	NBSS & LUP	Physical Mode (CD)	Static	As per data availability
	Water Logging/ Soil Salinity	CWC	Physical Mode (CD)	Static	As per data availability
	Wasteland Study	NRSC	Physical Mode (CD)	Semi-Dynamic	As per data availability
Allied Themes	Inland Navigation Waterways	Inland Waterways Authority of India (IWAI)	Publication (https://iwai.nic.in/)	Static	Every Five Years
	Storm Surge Study	RMSI	Physical Mode (USB Flash drive)	Static	As per data availability
	Socio-Economic Census	Census of India	Publication	Static	As per data availability
	Flood Inundation	NRSC	Physical Mode (CD)	Static	As per data availability
	Drought Affected Areas	Department of Land Resources, MoRD, Ministry of Tribal Affairs	Website Scraping (https://dolr.gov.in/hi)	Static	As per data availability
	Reported Extreme Temperature and Rainfall	IMD	Physical Mode (CD)	Static	As per data availability
	Earthquake Events	IMD	Physical Mode (CD)	Static	As per data availability
National Earthquake Information Centre (NEIC)-USGS		Website Scraping (https://earthexplorer.usgs.gov/)	Static	As per data availability	
Projects	Water Resources Projects	CWC	Mail & Physical Mode (USB Flash drive)	Semi-Dynamic	As per data availability
	Inter-Basin Transfer Links	NWDA	Mail	Semi-Dynamic	As per data availability
	Minor Irrigation Census	Minor Irrigation Wing (Stat.)	Website Scraping (http://micensus.gov.in/)	Semi-Dynamic	Every Five Years
Utilities	Probable Maximum Precipitation	CWC	Physical Mode (CD)	Static	As per data availability



UPDATES ON INDIA-WRIS & WIMS

INDIA-WRIS

FOREST/TREE COVER



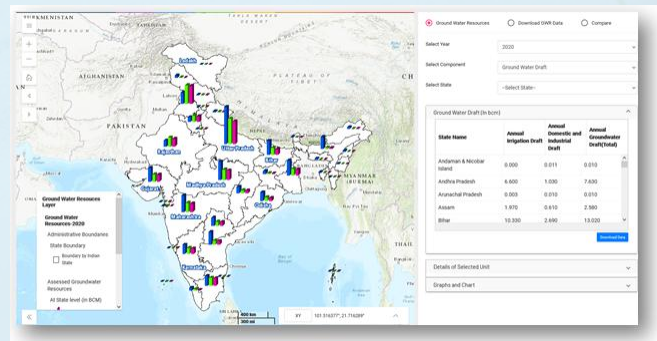
Dashboard depicting classification of Forest/Tree Cover from FSI for the year 2019

This new module aims to highlight India's diversified forest and tree cover by aggregating the data from two organisations to create a more comprehensive view of the country's forest resources. This module provides Forest data from the Forest Survey of India (FSI) for the year 2019, as well as "Tree Cover" data from NRSC for the years 2005-06 to 2017-18. In addition, the "Compare" tool allows users to compare & visualise changes in the Forest/Tree cover over time.

GROUNDWATER RESOURCES ESTIMATION

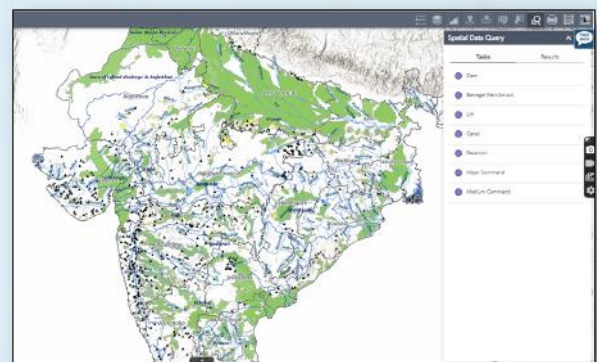
The module displays information on ground water resources taken from CGWB Ground Water Resource Estimation Study Report 2020. The module shows data up to block/mandal/taluka level. The data on groundwater resource estimation is available for a total of 7274 assessment units and provides detailed data on dynamic ground

water resources in terms of Annual Replenishable Ground Water Resources, Net Ground Water Availability, Irrigation Draft, Domestic & Industrial Draft and Stage of Development. The user can also visualise the categorisation of the assessment units as 'Over Exploited', 'Critical', 'Semi- Critical' and 'Safe' depending on the Stage of Ground Water Development and the long-term water level trend.



Dashboard depicting information of Ground Water Resources

WATER RESOURCES PROJECTS



Dashboard showing spatial data query tool of Water Resources Projects module

Water resources projects module serves as a spatial inventory of the country's water resource structures/ Projects. The module has been updated to include data for 7929

water-resource structures like Dams, Barrages, Weirs, Anicuts, Lift stations, Powerhouses & 2161 Water Resource Projects including Major and Medium Irrigation Projects, Extension Renovation and Modernization (ERM) projects, and Hydro-Electric projects. The "Spatial data query" tool allows users to make their own set of queries and acquire information about the particular data and the print tool can be used to create a map of an irrigation project that shows the location of its associated dam, reservoir, irrigation command, and other features.

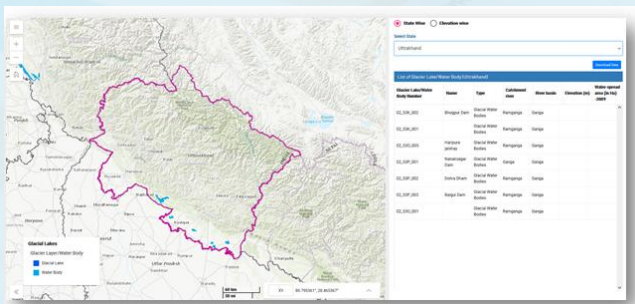
and waterbodies (>50 hectares) from 2011 to 2021 for the months from June to October and the change in the WSA with respect to base year 2009 are also displayed in the module.

ARTIFICIAL RECHARGE STRUCTURE (ARS) DATA-ENTRY PLATFORM

Parameter	Value
State	Punjab
District	Ludhiana
Block	Ludhiana
Type of Structure	Check Dam
Subtype of Structure	Check Dam
Latitude Longitude	32.707, 76.368
Status	Submitted
Attachments (0)	Image Not Available

Data-entry form to enter primary data parameters of ARS

SNOW-GLACIAL LAKE



Dashboard depicting information on snow cover extent, glacial lakes & water bodies of Uttarakhand.

The Snow-Glacial lake module allows users to visualise and analyse satellite data (Advanced Wide Field Sensor-AWFS) derived information on snow cover extent, glacial lakes, and water bodies in the Himalayan regions of the Indus, Ganga, and Brahmaputra River basins. The module has been updated with the data for 2021 (June-October). In accordance with a collaborative study by CWC and NRSC, the water-spread areas (WSA) of glacial lakes

The ARS data-entry platform, which was recently designed to populate data relating to the country's artificial recharge structures, has been upgraded to allow the approved CGWB users to enter data directly into the module using the login credentials developed and shared with the users. The field-level user can fill up the primary and secondary parameters of the ARS, which is then evaluated by the administrator for approval. Following approval, the information would be made available to the general public via ARS viewer module in the India WRIS portal.

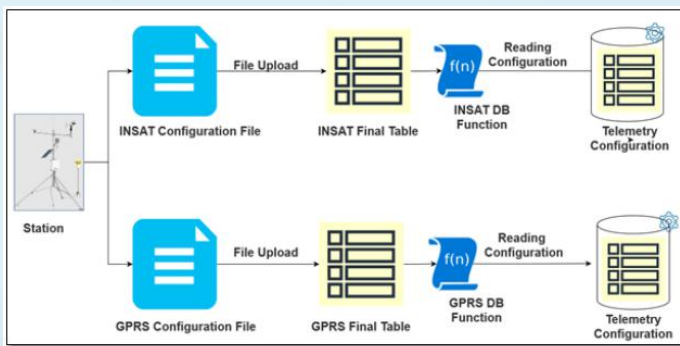
WIMS

IMPROVED TELEMETRY NETWORK OF WIMS

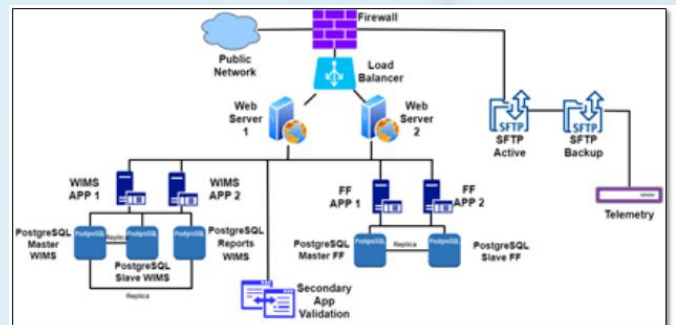
WIMS Telemetry architecture and algorithms have recently been tweaked and fine-tuned to keep pace with the growing number of stations and users across the country. With the increase in data frequency and expansion of the data network, a more robust architecture with enhanced decoding mechanisms to improve data quality and processing speed has been recently built into the system.

TRANSFER OF WIMS ARCHITECTURE TO NEW IZO PRIVATE CLOUD (IPC)

WIMS has been migrated to an enhanced architecture with the introduction of a Load-Balancer in the system. WIMS, which was earlier hosted on four servers, has been upgraded to 20 machines for better resource management and database performance. The database operations have been further bifurcated to allow faster processing, retrieval and dissemination of information. The enhanced resources and machines will enable the system to handle large volumes of data while also improving its maintenance and management.



Data processing mechanism of telemetry network of WIMS



Architecture of WIMS



HIGHLIGHTS OF THIS QUARTER

MEETINGS & TRAINING SESSIONS

INDIA-WRIS

NWIC organized four virtual training programmes for NHP implementing agencies on "India-WRIS GIS Database, India-WRIS Overview, ARS Editor module and Water Quality Modules, in the months of January, February and March 2022. The trainings included a mix of presentations and live demonstration sessions from the GIS experts of NWIC who elaborated on the portal's existing modules, data types, data sources, and frequency of data. The trainings were attended by representatives from various central and state departments.

WIMS

In the first quarter of 2022, eight virtual training sessions for states and stakeholders were held on multiple specialised topics and modules, including Station Management, Data Entry & Import Tool, Data Validation & View, Flow Measurement, Data View Management, MIS Dashboard and Email & SMS services for sending Flood and Disaster Mitigation Alerts to Central & State Disaster Management Authorities. The attendees were given live demos on utilising the modules for searching and altering existing stations, as well as adding and changing contacts based on agency and division. The sessions were attended by participants from various central and state departments



Training on Water Quality Modules & India-WRIS GIS Database



Trainings on MIS Dashboard and Data Entry Modules of WIMS

MEETINGS & TRAINING SESSIONS

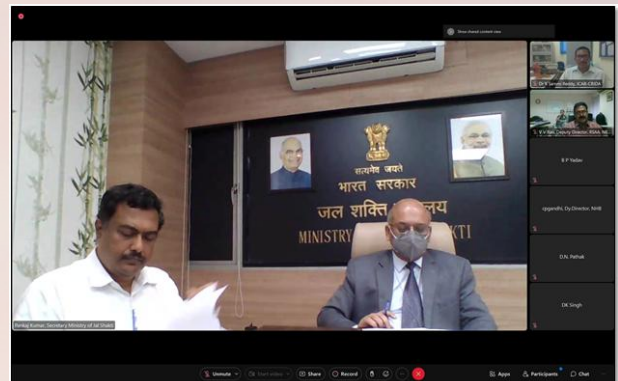
INTEGRATED WATER & CROP INFORMATION AND MANAGEMENT SYSTEM (IWCIMS)

As a part of feasibility study for the implementation of IWCIMS, a series of meetings have been organised during the quarter. This includes several high-level IWCIMS Advisory Committee meetings, review meetings under the chairmanship of Secretary, DoWR, RD & GR and meetings with stakeholders like Central Water Commission, Central Ground Water Board & National Water Mission and other organisations within MoJS on existing IT projects, satellite data requirements, and possibility of integrating the existing IT platforms with IWCIMS to avoid

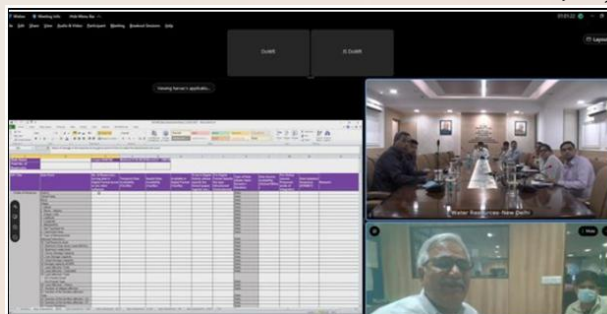
any duplicity. Further, a Project/Organisation Detail Document was circulated among 36 organisations/wings within the Jal Shakti ministry and 17 departments/organisations under other ministries like Ministry of Rural Development, Ministry of Environment, Forest and Climate Change, Ministry of Earth Sciences, etc to gather the availability of data from different departments on different aspects of water management and seek comprehensive information needed for successful implementation of IWCIMS project.



Meeting held to finalise POC study with Haryana & Rajasthan states on 9 February 2022.



Status review meeting for IWCIMS Project under the chairmanship of Shri Pankaj Kumar, Secretary, DoWR, RD & GR, MoJS (23 March, 2022)



Internal status review meeting for IWCIMS Project with Haryana Space Application Centre held on 16 March 2022

OTHER ACTIVITIES

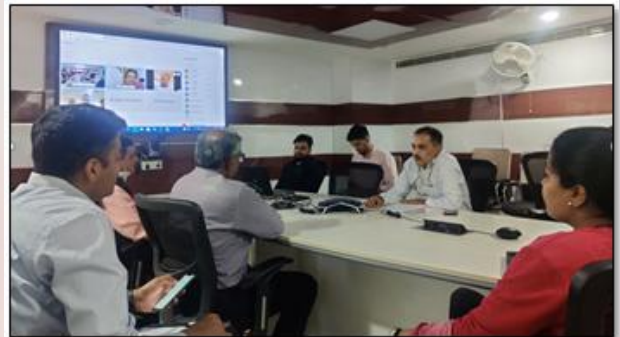
CELEBRATION OF SWACHHTA PAKHWADA

Employees of NWIC participated in the 'Swachhta Pakhwada' campaign from March 16 to March 31, 2022. As a part of the campaign, an interactive essay writing competition on the topic of 'Swachhta' was organised for all NWIC employees on March 16, 2022 and cleanliness drives were undertaken in the office as a gesture to promote "Swachhta" and hygiene on 22nd March & 25th March 2022.



Employees undertaking a cleanliness drive to clean the office premises & nearby public parks

CELEBRATION OF INTERNATIONAL WOMEN'S DAY



Webinar organised on the occasion of International Women's Day

On the occasion of International Women's Day 2022, NWIC organised a webinar in which Smt. Sunita H Khurana, Former Director, Institute of Secretariat Training and Management, gave an inspiring talk on Women's Empowerment and its significance in today's world. She also highlighted various measures taken by government to remove gender disparity and discrimination against women. In the webinar, Smt. Khurana enlightened the audience as to how sociocultural factors define the roles of both genders in the society leading to gender discrimination.

CELEBRATION OF WORLD WATER DAY

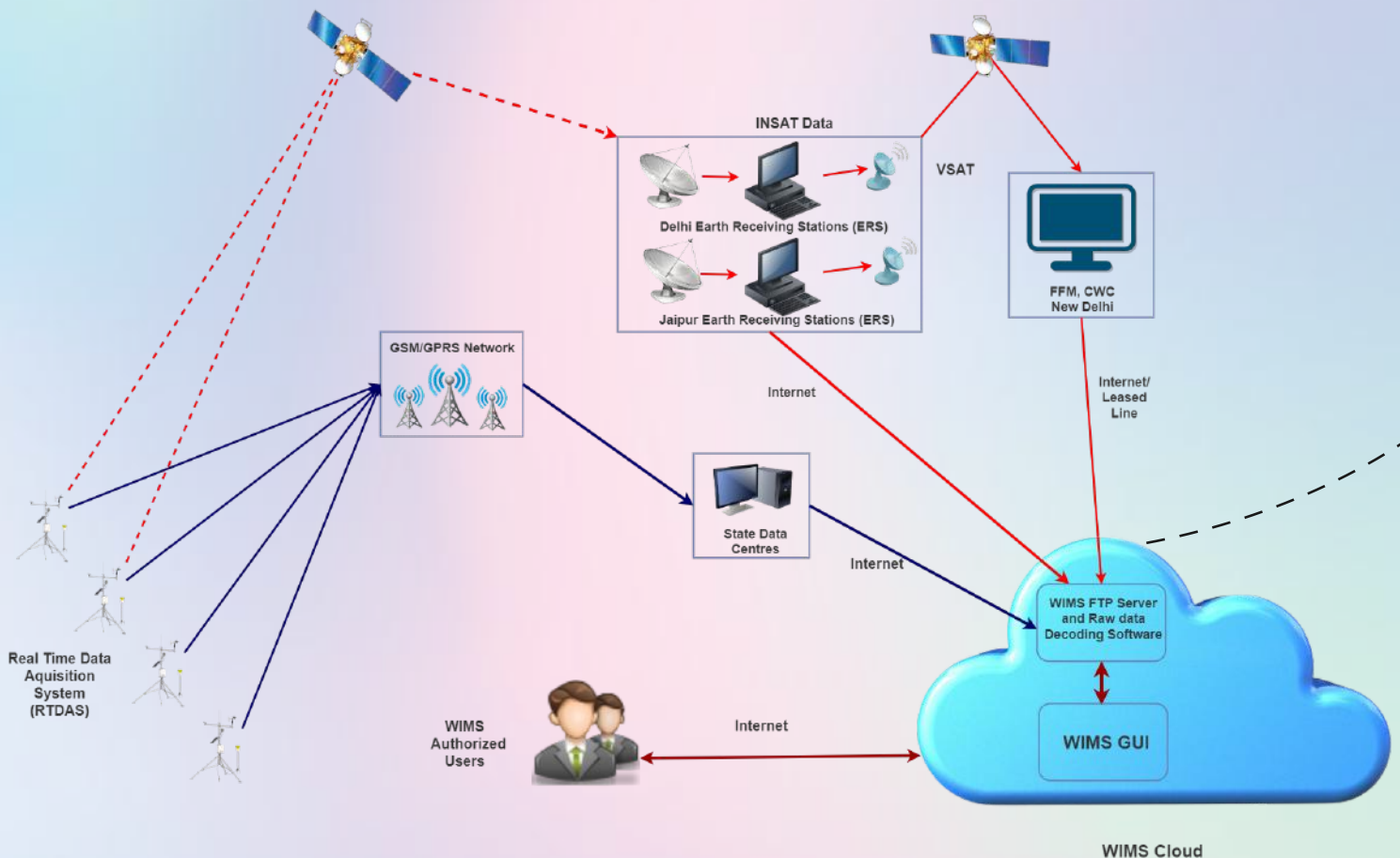
On the occasion of World Water Day, NWIC employees took a pledge to conserve water and not waste even a drop of it. The pledge further elaborated that all must encourage family, friends and neighbours to use water judiciously and save it for the future generations. The session was followed by a discussion about the importance of conserving water resources, in the background of rising water demand due to increase in population, urbanisation, facts and data on water availability were shared.



Employees taking a pledge to conserve water on World Water Day

TECHNICAL COLUMN:

ADVANCEMENTS IN DATA COLLECTION TECHNIQUES



Advancements in Data Collection Techniques

Data collection is the primary and most important stage involved in the efficient management of water resources in the country. Accurate ground-level data collection, validation, and evaluation are crucial in water sector for making informed decisions concerning water resources management. Water data has traditionally been collected by national organisations like the Central Water Commission and the Central Ground Water Board for research purposes, generating reports, and assisting policy changes in the water sector at the national level. While data has been historically collected through manual data entry mechanisms, the industry is

stations of data-generating agencies and organisations. The WIMS platform, which was once entirely manual, has been steadily upgraded to collect data through telemetric technologies. Even as manual data entry operations have their own advantages, the advancement to telemetry technologies has made the system function faster with manual procedures being upgraded to automated programs and validation procedures, thus reducing human errors, time consumption and human intervention. While manual reporting still forms an essential component of the WIMS, the platform has been consistently tweaked with enhanced technological framework for acquiring

"Telemetry is an automated communication process for collecting data measurements at remote or inaccessible points and automatically transmitting them to monitoring equipment. It is derived from the Greek words 'tele' meaning remote and 'metron', meaning measure. Traditionally, this was done via radio, but modern telemetry systems use SMS to receive and deliver telemetry data, taking advantage of the low-cost GSM/GPRS networks. This data can be stored and analyzed and processed using GIS software."

gradually moving towards creating more technologically advanced data networks for a faster data collection, validation and dissemination. In the year 2000, the Central Water Commission installed its first telemetric instruments for measuring river water levels, followed by others like the Central Ground Water Board and the Uttar Pradesh Ground Water Department and more. The data collected both manually and telemetrically by individual organisations were directly transferred to the India-WRIS platform for dissemination to the public. The WIMS allows manual data-entry and telemetry methodologies for data collection. WIMS was conceptualized as a standardized and advanced mechanism for collecting data from

real-time data using a sophisticated telemetry network that employs both satellite and terrestrial-based relay technologies.

The WIMS that first underwent enhancements in 2020 with the introduction of Telemetry technology, has been consistently enhanced to keep pace with the growing number of stations and users across the country. The data frequency has also risen as the network has expanded, with all stations transmitting data on a daily basis.

WIMS currently receives data from 79,457 manual & 10,938 telemetric stations in the country. To avoid any data loss, inaccuracy and delayed data decoding, a more robust architecture with enhanced decoding mechanisms to improve data quality and processing speed has been recently

incorporated into the system. As a result, the existing telemetry architecture and algorithms in WIMS have been fine-tuned to allow more efficient data reading, decoding and processing of more than 10,000 stations.

Data Collection Mechanisms of WIMS:

The following are the two data collection mechanisms of the WIMS platform:

1. Manual Data Entry

The WIMS platform includes different data-entry forms that can be accessed by the users/source agencies to insert data manually using unique login credentials. The forms are designed on the basis of the different themes and data parameters like Flood data-entry form, water-level data-entry forms for ground water and surface water and water quality data entry form.

The screenshot displays the WIMS User Interface. At the top, it says 'Water Information Management System' with an 'ADMIN' login option. Below this is a 'Station Selection' table with columns for Code #, Name, Type, and Category. The table lists two stations: 'MPO77L2110' (Type: Surface Water, Category: Hydrological) and 'M2N4P0W3046' (Type: Surface Water, Category: Hydrological). Below the table, there is a 'Parameter Target Selection' section with a dropdown menu for 'PARAMETER - Water Level by Staff Gauge (SI) (A25)', 'Start Date' (13/04/2022), and 'End Date' (13/04/2022). A table below shows data for 'Date', 'Time', and 'Value' for the dates 13-04-2022.

Date	Time	Value
13-04-2022	13:00:00	
13-04-2022	13:00:00	
13-04-2022	14:00:00	

WIMS User Interface

2. Telemetry Network

Apart from the regular manual data entry procedure of WIMS, the system uses ISRO's INSAT & VSAT satellite network, (maintained by the India Meteorological Department), to capture raw data from various stations around the country.

The GPRS technology on the other hand, is one of the terrestrial networks used to collect data by the WIMS platform.

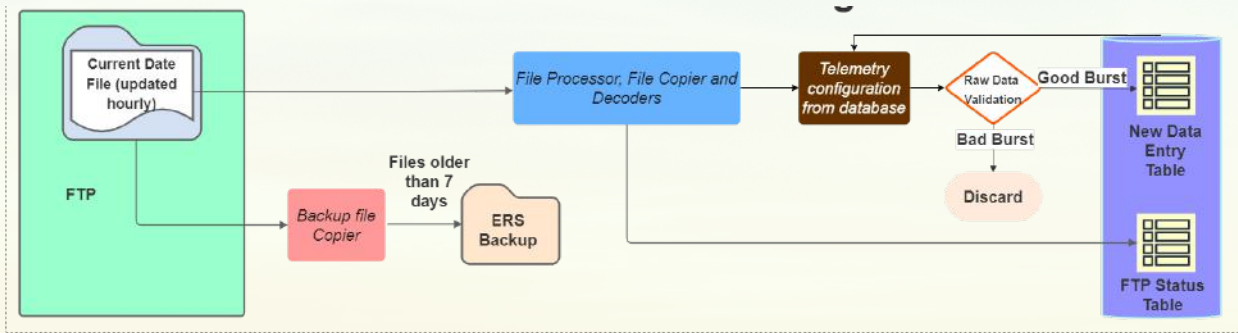
2.1 INSAT Data Network

In the case of INSAT network, data from remote stations are acquired by the Central Water Commission's earth receiving stations in Jaipur and Delhi, and then transferred to the WIMS FTP web server via a leased line, where the raw data is captured and decoded. The entire data from all monitoring stations is captured into a single file daily, resulting in two files from the two earth receiving stations every day. The in-built program is structured in such a way that when the decoder software runs, it reads the data from the two files for that day and analyses the veracity of data every 5 minutes for updating the information in the FTP status accordingly.

As the system's decoder only processes files from the current date, a backdate decoder was recently designed to monitor the older files received in the previous 7 days.

2.2 The GPRS Technology

Data acquired using GPRS technology requires each station to send a distinct file every hour, implying that more than 5000 stations send approximately 1,20,000 files every day. The existing GPRS decoder is robust and processes all received information in the last seven days. The decoding process, on the other hand, remains the same as the one in satellite-based technology. The decoder analyzes the FTP status based on the quality of the date.

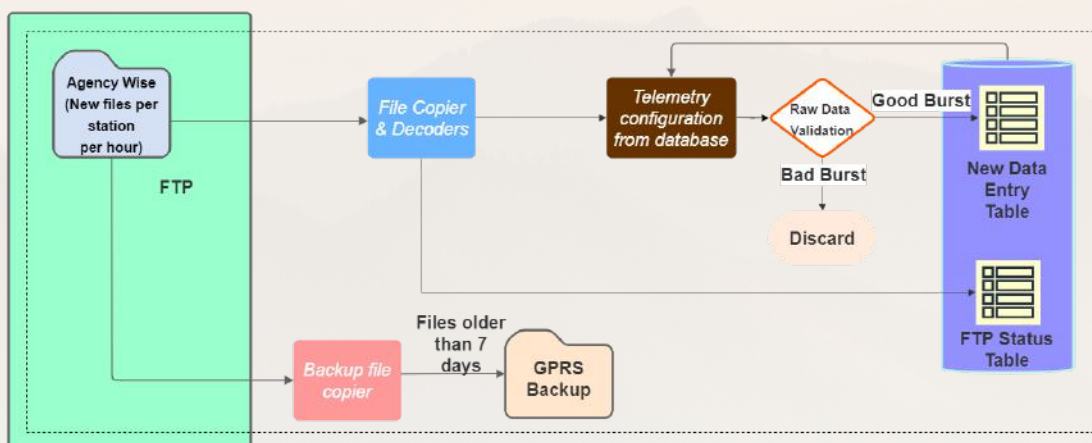


Delhi and Jaipur INSAT Current Date Data Processing

A backdate data decoder has recently been included in this system to discover and repair data discrepancies caused by previous configuration issues.

Additionally, Surface Water & Ground Water Quality data from CPCB is acquired by the WIMS through the API mode and then disseminated through India-WRIS platform. To ensure that the incoming data is of high quality, additional checking and screening methods have been implemented.

In a bid to make the system work faster, the decoding process has been bifurcated and the lengthy time-consuming elements were identified and rectified. Further, several individual procedures were also included in order to fine-tune the algorithm and improve the architecture. As WIMS architecture will evolve in tandem with the country's growing water data network, NWIC will continue to endeavour to improve the quality of water data collection, transmission, and dissemination. The quality of data collection mechanism is a critical factor in evidence-based water management in the country.



Agency Wise Data Processing Workflow

National Water Informatics Centre @NationalWater1 · Feb 16
 Meeting on IT deployment in MoJS for developing IWCIMS has been organized under the chairmanship of Secretary, DoWR RD & GR on 11th February through VC mode. HoDs of various Wings, Organisations & Departments of Ministry of Jal Shakti have attended the meeting.

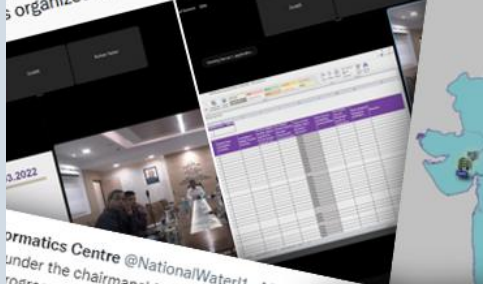
National Water Informatics Centre
 11 February ·
 A meeting on the IWCIMS project on Satellite data requirements & data-assessment templates is organized on 9th Feb 2022. The meeting is attended by representatives of NWIC & WAPCOS was chaired by adviser to honorable Minister of Jal Shakti. #NWIC #indiawris #iwcims #MinistryOfJalshakti #NRSC #WAPCOS

National Water Informatics Centre
 21h ·
 A meeting was held under the chairmanship of Secretary, DoWR, RD & GR for progress and status of feedback received from various organisations/ departments. #MinistryOfJalshakti #NWIC #iwcims #SWIC #CPCB #MinistryOfEnvironment #MinistryOfAgriculture #NRSC #MinistryOfScienceAndTechnology #MinistryOfFisheries #MinistryOfPorts #DepartmentOfSpace #DepartmentOfDepartmentOfRural #DEPARTMENTOFLANDRESOURCES #DEPARTMENTO



National Water Informatics Centre @NationalWater1 · 56s
 Meeting under the chairmanship of Advisor, MoJS for IWCIMS organized on 16 March 2022.

National Water Informatics Centre
 Search at 17:36 ·
 As a part of 'Swachhta Pakhwada', an interactive essay writing competition on the occasion of 'Swachhta' was held for all employees of NWIC on 16th March 2022. #MinistryOfJalshakti #swachhta #awareness #CleanIndia



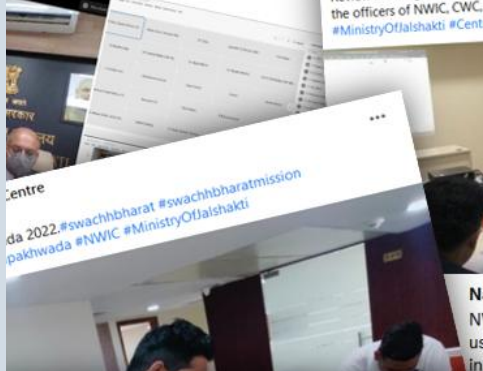
NWIC has been encouraging all states to let us a management of water resource data at the state level. #NWIC in states will have a similar framework as NWIC. A great resource policy will help states design better water support for all the developments related to technical guidance and Software & Hardware technologies including Development & Production Environment Setup (i.e. open/secure) for testing and Maintenance #WaterAccounting



National Water Informatics Centre @NationalWater1 · Mar 23
 Meeting under the chairmanship of Secretary, DoWR, RD & GR for progress and status of feedback received from various organisations/ departments.

National Water Informatics Centre
 3 March at 14:28 ·
 Review meeting on Project Detail Document of IWCIMS is organized in CWC, Sewa Bhawan with the officers of NWIC, CWC, and experts of WAPCOS on 02nd & 3rd March 2022. #MinistryOfJalshakti #CentralWaterCommission #NWIC #WAPCOS #SWIC #iwcims

National Water Informatics Centre @NationalWater1 · Mar 9
 On the occasion of Women's Day 2022, NWIC hosted a webinar in which Smt. Sunita H Khurana, Ex-Director, ISTM, presented an inspiring talk on Women's Empowerment and its Significance in Today's World. #internationalwomensday #womenpower #womenempowerment #womenera #Equality



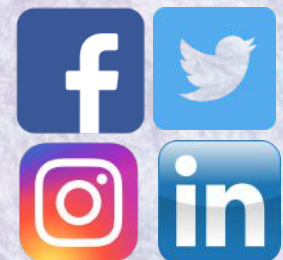
National Water Informatics Centre
 11 February ·
 We have issued its Quarterly e-Newsletter, Covering recent developments in National Water Informatics Centre. This e-Newsletter provides an overview of the ongoing activities and updates on the progress of RIS, State Water Informatics Centre (SWIC) and Integrated Water and Crop Information Management System (IWCIMS). You will find the newsletter engaging and enjoy reading it. <http://www.nwic.gov.in/newsletter/>
 National Water Informatics Centre Ministry of Jal Shakti, Department of Water Resources, RD & GR, NATIONAL HYDROLOGY PROJECT NRSC Central Ground Water Board Central Water Commission Flood forecasting India Meteorological Department NRSC National Water Informatics Centre #iwcims #SWIC #NHP

National Water Informatics Centre @NationalWater1 · Mar 14
 NWIC has organized a meeting to get feedback on the capabilities and usefulness of the water accounting plus tool for the intended applications in IWCIMS on 11/03/2022. #MinistryOfJalshakti #NWIC #IWCIMS #SWIC



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India-WRIS: Reach & Engagement

Quarter (January-March 2022)

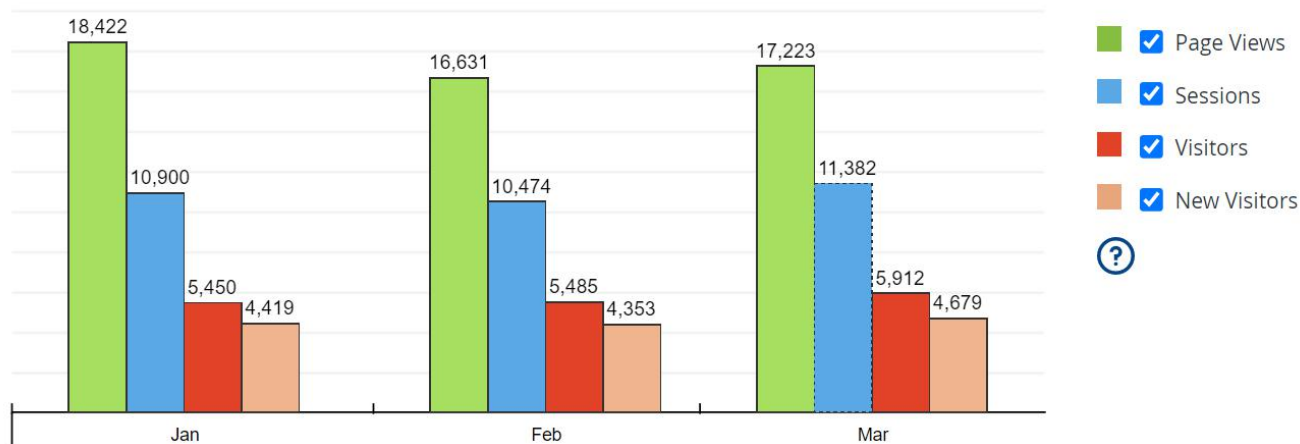


Monthly



Sat 1st Jan — Thu 31st Mar

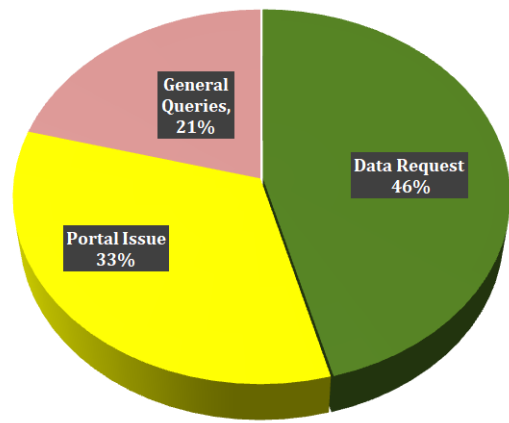
USER ENGAGEMENT ON INDIA-WRIS



REACH & COVERAGE OF INDIA-WRIS (NATIONALLY & GLOBALLY)

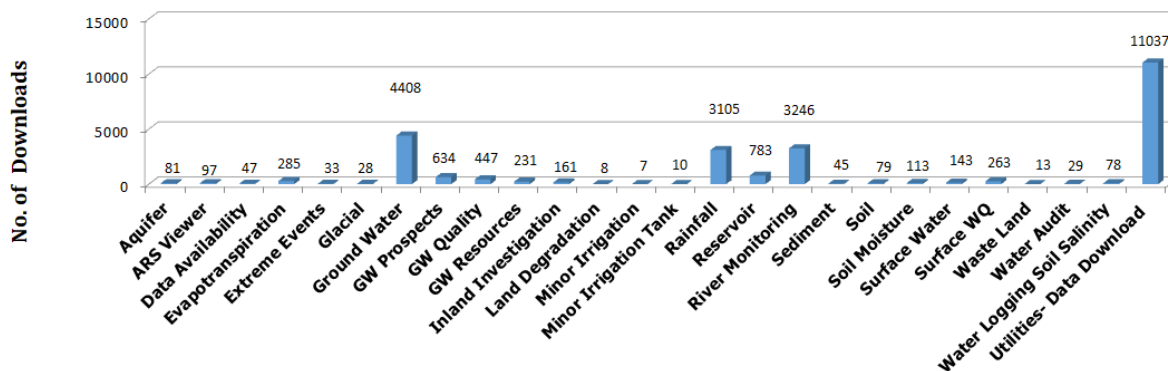


Country	Visitors (Nos. & Percentage)
India	44369 94.98%
United States	701 1.50%
United Kingdom	167 0.36%
Netherlands	106 0.23%
Kenya	98 0.21%
Japan	97 0.21%
Russian Federation	95 0.20%
Iran	84 0.18%
Canada	81 0.17%
Germany	76 0.16%
Ireland	59 0.13%
Poland	57 0.12%
France	57 0.12%
Thailand	53 0.11%



QUERIES RECEIVED ON HELPDESK

Statistics on theme-wise data downloads





"Data is a tool for Enhancing
Insight"

We would love to hear your views on the e-newsletter !

[**SUBMIT YOUR FEEDBACK HERE**](#)

EDITORIAL TEAM

Shri G.S. Panwar (Deputy Secretary), Shri M. S. Rathore (Joint Director),
Ms. Seema Pandey (Joint Director)

Designed & Developed by Services Team, NWIC

Shri Karthic S.R- Deputy Director, Shri Sachin Khurashev- Deputy Director,
Ms. Iti Gupta- Assistant Director, Ms. Catherine Louis- Assistant Director,
Shri Jatin Bhardwaj - Team Lead,
Ms. Akanksha Jagannathan- Content Writer



For further information, please contact us at helpdesk-nwic@gov.in or call us at **011-20863687**

National Water Informatics Centre, 4th Floor, Sewa Bhawan, R.K Puram, New Delhi-110066

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