

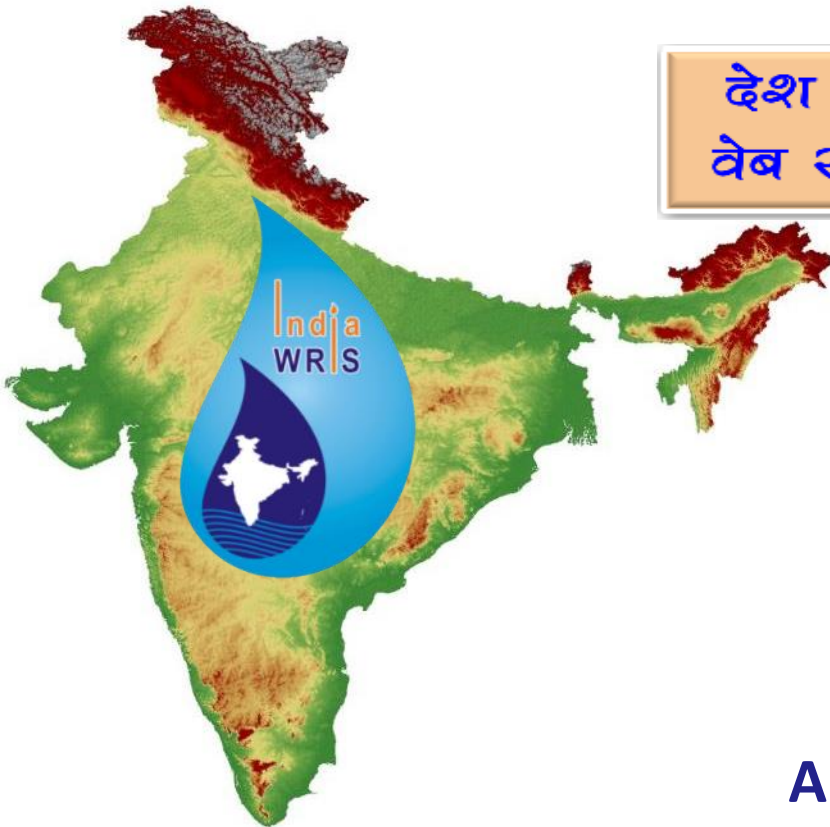


# Project : **India - WRIS** Web GIS

## Workshop - 6<sup>th</sup> April 2015, Kolkatta

Generation of Database and Implementation of  
Web Enabled Water Resources Information System in  
the Country

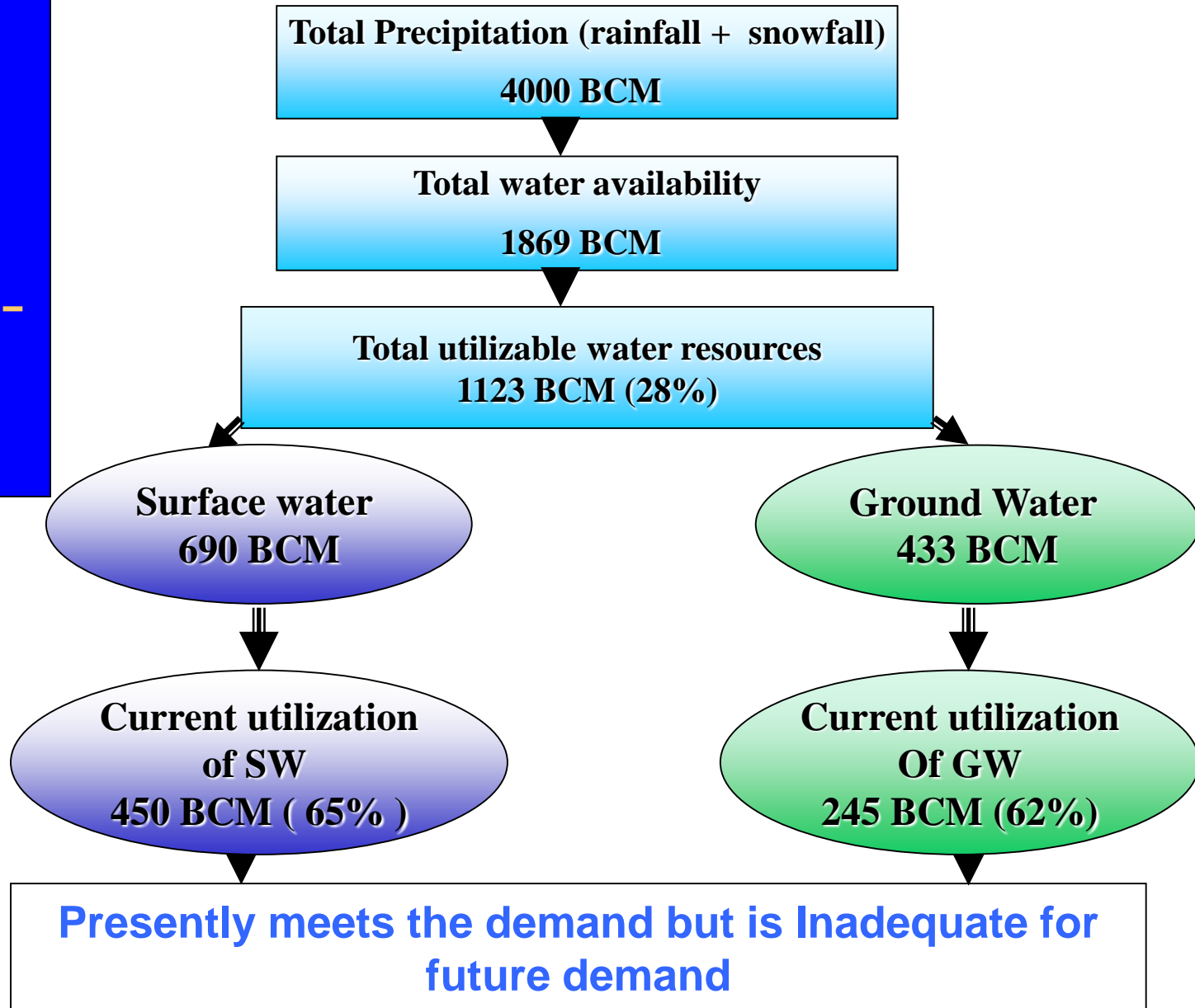
देश में जल संसाधन आँकड़ों का जनन व  
वेब सामर्थ्य सूचना प्रणाली का क्रियान्वयन



**A Joint Project of CWC and NRSC/ISRO**

# Water Resources Scenario - INDIA

- 2.45% of World's Land Area
- 4% of World's Renewable Water Resources
- 17% of World's Population
- Water Availability – 1545 cum/person/year
- Scarcity - 1000

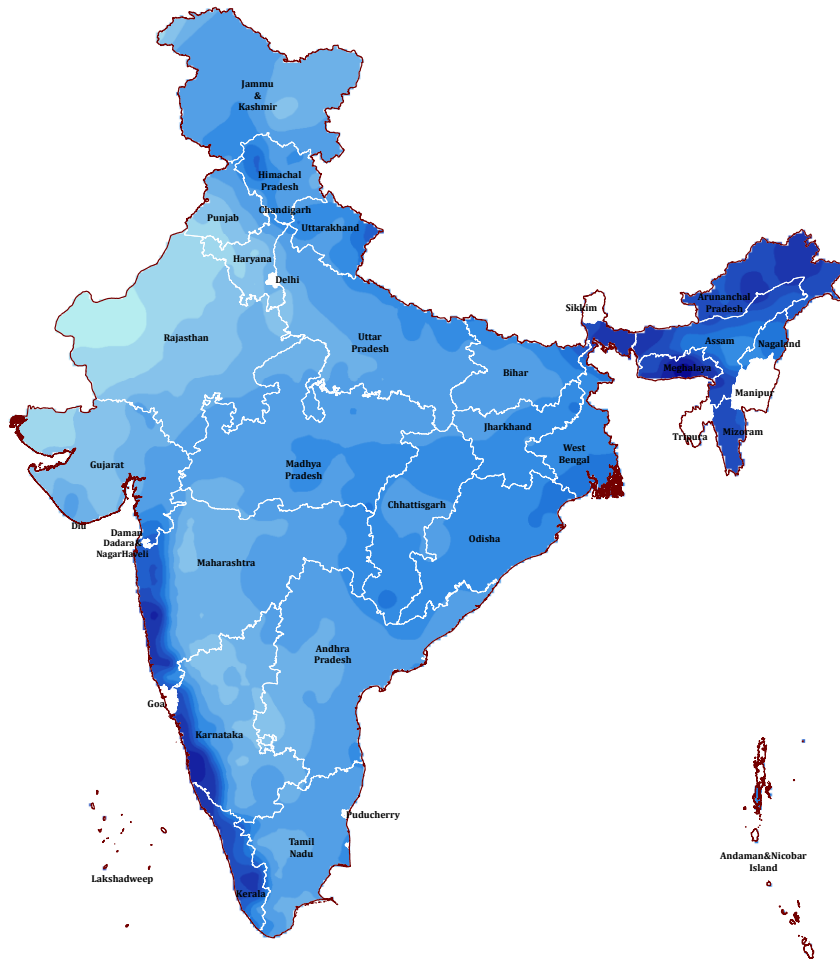


# Spatial Variation of Rainfall in INDIA

75% During Monsoon

No of rainy Days – 5 to 150

Most rains in 15 days in 100 hrs



## Rainfall in mm

**Average**

**1,170**

**Max.**

**11,000**

Mawsynram  
Meghalaya

**Min.**

**100**

Western  
Rajasthan

# Major Achievements in water Sector

Total Large Dams- 5193 (4846+347)  
Total Storage – 304.3 BCM (253.38+50.95)

**Net Sown Area – 142 M ha**



- Ultimate Irrigation Potential – 140 M ha
- Irrigation Potential Developed – 112.3 M ha (80%)

**Highest Area Under Irrigation in the World – 62 M ha**

**Food Grain Production – 257 Million Tonne**

Total Identified HE Potential – 1,48,701 MW

Total Installed Capacity – 36,013 MW



# National Water Policy (2002 & 2012)

- Water resources development and management will have to be planned for a hydrological unit.
- A standardized national information system should be established with network of data bank and databases, integrating and strengthening the existing central and state agencies and improving the quality of data and p
- All hydrological data, other than those classified on national security should be in public domain
- Water related data, like rainfall, snowfall, geo-morphological, climatic, geological, surface water, ground water, water quality, ecological, water extraction and use, irrigated area should be integrated with well defined procedures and formats to ensure online updation and transfer of data to facilitate development of database for informed decision making in the management of water resources.

## National Water Mission For Climate Change

- Comprehensive water data base in public domain and assessment of the impact of climate change on water resources

# Provision in Inter-State River Water Dispute Act - 1956

## Maintenance of Data Bank and Information

1) The Central Government shall maintain a data bank and information system at the national level for each river basin which shall include data regarding water resources, land, agriculture, and matters relating thereto, as the Central Government may prescribe from time to time. The State Government shall supply the data to the Central Government or to an agency appointed by the Central Government for the purpose, as and when required.

2) The Central Government shall have powers to verify the data supplied by the State Government, and appoint any person or persons for the purpose and take such measures as it may consider necessary. The person or persons so appointed shall have the powers to summon such records and information from the concerned State Government as are considered necessary to discharge their functions under this section.

**CWC has been notified to maintain database**

# India-WRIS - Background

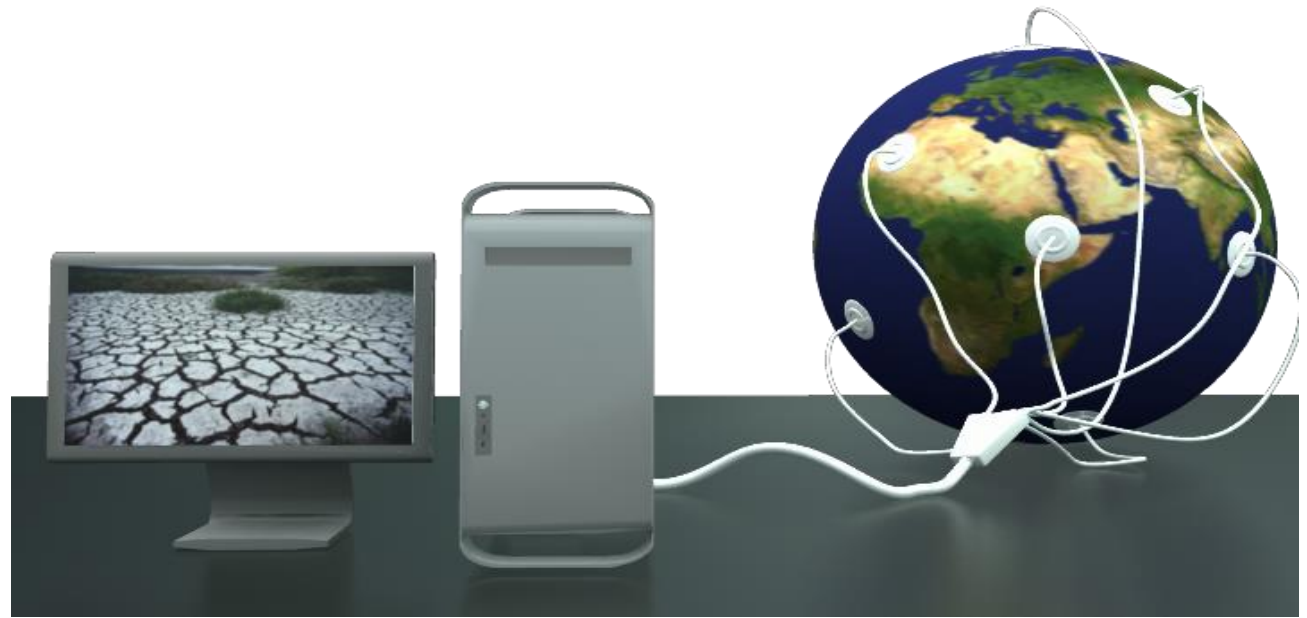
In the year 2006

**Secretary, Water Resources (Dr Harinarayan)** stressed the need to generate total

information on all aspects of water resources at national level at one place in an integrated fashion for use across Ministry of Water Resources (MoWR) offices and also for other stake holders.

- After several round of discussions between CWC & NRSC for two years the proposal was finalised in 2008
  - MOU signed in December 2008
- January 2009 – December 2012 (extended upto December 2015)

# Objectives



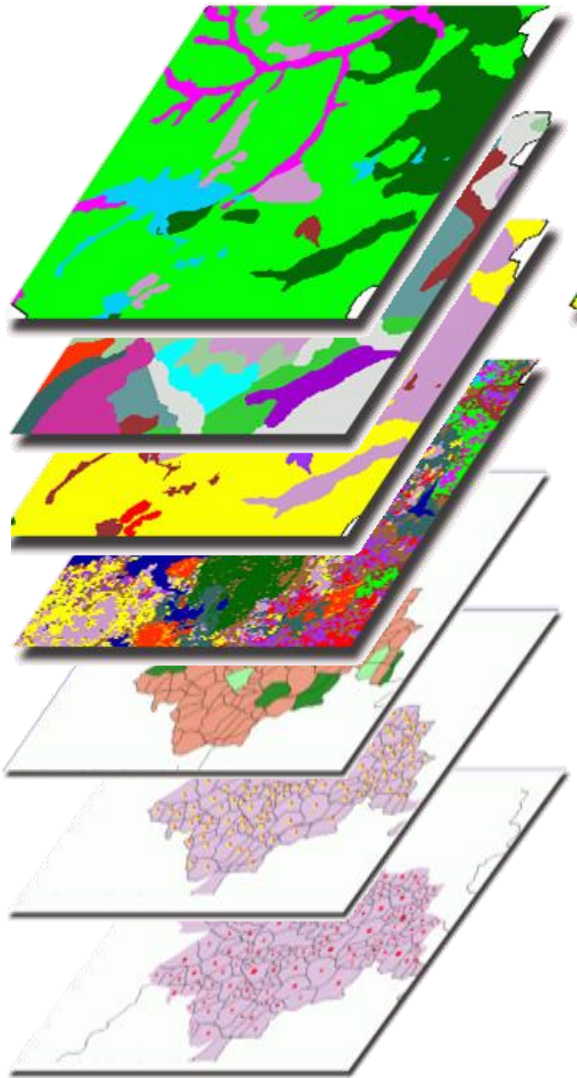
- To collect available data from varied sources, generate new database, organize in standardized GIS format and provide scalable web-enabled information system.
- To provide easier and faster access for sharing of nationally consistent water resources data through a centralized database server.
- To provide tools to create value added maps by way of multi-layer stacking so as to provide integrated view to the water resources.
- To provide foundation for advanced modeling and future Spatial Decision Support Systems (SDSS) & automated data collection system.

# Datasets (Spatial and non-Spatial) Required for Planning Water Resources Project

## Water Resources Projects are Complex in Nature & Multidisciplinary

- General Planning – Administrative information, Terrain Data
- Structure Design (Dam & canal, Power House) – Geology, Soil, Material, Seismic
- Water & Irrigation Planning – Meteorological data, Hydrology data (River flow, Sediment, Water Quality)
- Reservoir Planning – Demographic data, Contour data, Different kind of land data including Forest, Ecological data, Economic data
- Canal and Command - Land data, Demographic data, Ground water, Agriculture data, Soil data, Economic data

# SCOPE OF PROJECT



- ❖ Based on the requirements and data availability, the project scope has 5 major groups of datasets having 30 spatial layers with more than 95 sub layers of 5-100 years data and Basin-Wise report generation.
- ❖ All the new database creation under India-WRIS is proposed at 1:50,000 scale.
  - ❖ The project envisages WGS-84 datum and LCC projection for entire country mosaic data.

# India-WRIS - Database 1

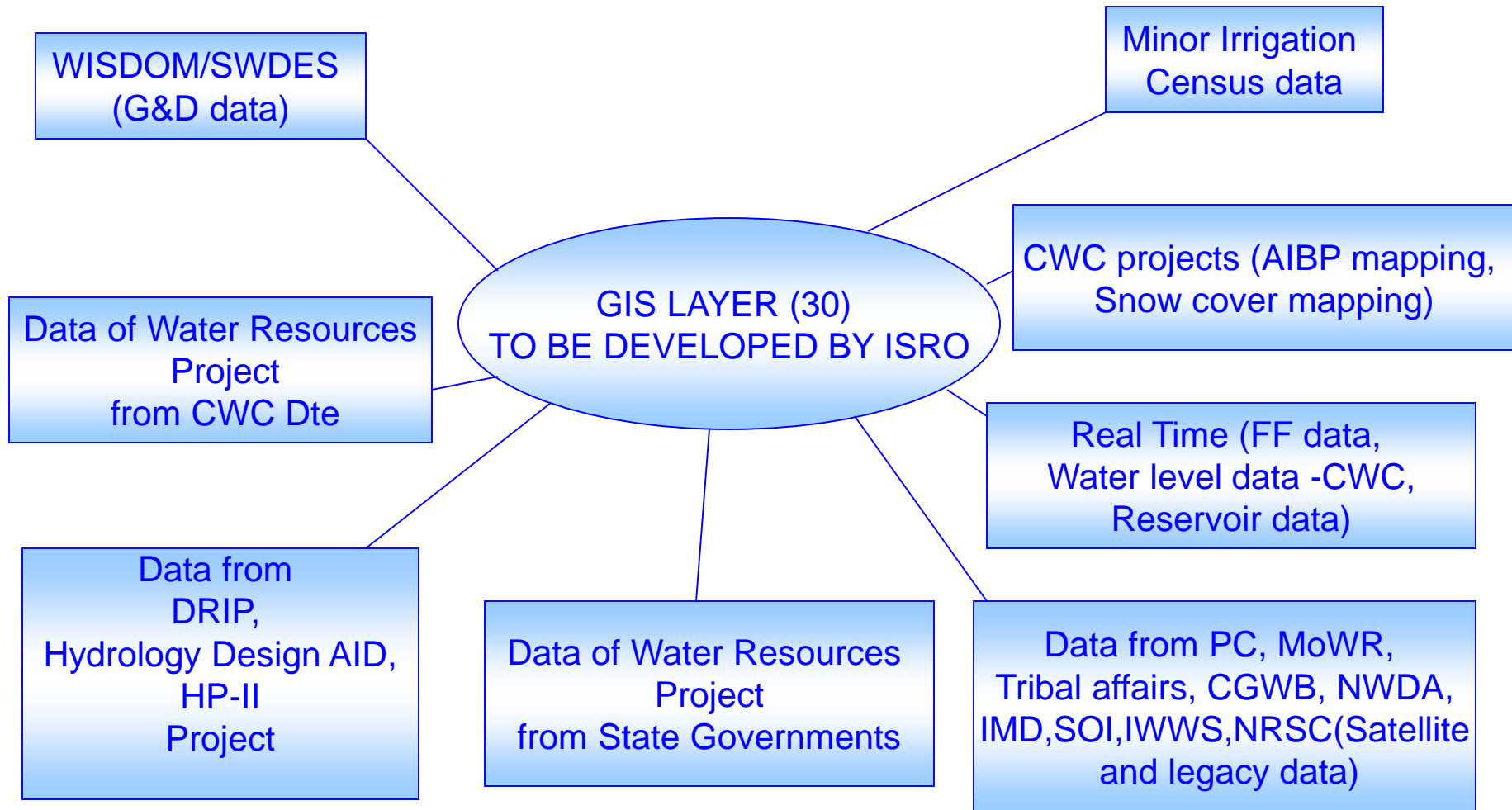
<b>S. No.</b>	<b>Major groups of database</b>	<b>Spatial Layers and details</b>
<b>1.</b>	<b>Watershed atlas</b>	<b>1.1 Basin maps – Basin, sub-basin, catchment, Watershed</b>
		<b>1.2 River network</b>
		<b>1.3 Digital Elevation Map</b>
<b>2.</b>	<b>Administrative layers</b>	<b>2.1 International, State, District, Tehsil</b>
		<b>2.2 Village boundaries</b>
		<b>2.3 Town / Villages location and extent</b>
		<b>2.4 Infrastructure layers</b>
		<b>2.5 Major Tourist Stations sanctuaries, Waterfalls &amp; other issues</b>
<b>3.</b>	<b>Water resources projects</b>	<b>3.1 Location of Major &amp; Medium</b>
		<b>3.2 Location of Hydroelectric projects</b>
		<b>3.3 Location of Multipurpose projects</b>
		<b>3.4 Major and medium Irrigation project command boundaries</b>
		<b>3.5 Water logging and salt affected areas in major, medium projects</b>



# India-WRIS - Database 2

		<b>3.6 Soil samples for major, medium irrigation projects</b>
		<b>3.7 Canal network</b>
<b>4.</b>	<b>Thematic layers</b>	<b>4.1 Surface water bodies</b>
		<b>4.2 Ground water observation wells data analysis</b>
		<b>4.3 Litholog data with aquifer parameters</b>
		<b>4.4 Land use / land cover</b>
		<b>4.5 Land degradation</b>
		<b>4.6 Wasteland maps</b>
		<b>4.7 Snow cover area</b>
		<b>4.8 Flood inundation maps</b>
		<b>4.9 Drought Prone Area Maps</b>
		<b>4.10 Inland navigation waterways</b>
		<b>4.11 Inter-basin transfer Links (As per NWDA Proposal)</b>
<b>5.</b>	<b>Environmental data</b>	<b>5.1 Hydro-meteorological sites of CWC</b>
		<b>5.2 Meteorological station (IMD, CWC)</b>
		<b>5.3 Climate related layers</b>
		<b>5.4 Pollution Monitoring Stations</b>
<b>6.</b>	<b>Report</b>	<b>Basin-wise report generation</b>

# SOURCES OF VARIOUS DATABASE



# PRESENT STATUS

- **Total 4 version uploaded**
- **Present version has 95 GIS layer with 700 attribute and 5 to 100 year time series data**
- **CWC H.O. un-classified data uploaded which can be freely downloaded**
- **CGWB 15 years data in the form of graphs uploaded**
- **CWC telemetry network connected and real time information available**
- **River Basin Atlas of India**
- **Basin reports & Watershed Atlas uploaded**

# Milestones - India-WRIS



**MOU Signing – Dec. 3, 2008**



**Website Launch- Dec. 10, 2009**



**Version 1.0 Launch- Dec 7, 2010**



**India-WRIS Atlas Release – Nov 1, 2012**

Version  
4.0  
Launched  
  
In March  
2014  
  
Further  
updates  
done in  
December  
2014



**Version 2.0 Launch – March 22, 2012**



**Version 3.0 Launch Dec. 4, 2012**



# Front GUI of Information system

About WRIS Accessibility Tools Metadata WRIS Wiki Help Search

## India-WRIS WebGIS

Water Resources Information System of India

Publications Gallery Mobile FAQ Feedback Sign In / Register English

### WRIS Info Discovery

### WRIS Explorer

Geo-Visualization  
Sub-Info System  
Temporal Analyst  
New Watershed Info System

### WRIS Connect

Live Telemetry Data  
Data Download  
New Reservoir Module  
New Automatic Map Generation  
New Advanced Report Generation

### Share Success Story

### WR Planning & Management

Create Your WRIS  
2D-3D Linked View  
Collaborative Planning

### Input Data Builder

Spatial Data  
Non-Spatial Data  
Metadata

## India-WRIS

A- A A+

The project "Generation of Database and Implementation of Web Enabled Water Resources Information System in the Country" short named as India-WRIS WebGIS is a joint venture of the Central Water Commission (CWC), Ministry of Water Resources, Govt. of India and Indian Space Research Organization (ISRO), Department of Space, Govt. of India, as per the Memorandum of Understanding (MOU) signed on December 3, 2008 between the two departments for a period of four years - January 2009 to December 2012.

India-WRIS WebGIS aims as a 'Single Window' solution for comprehensive, authoritative and consistent data & information of India's water resources along with allied natural resources in a standardized national GIS framework (WGS-84 datum and LCC projection) tools to search, access, visualize, understand and analyze the data for assessment, monitoring, planning, development and finally Integrated Water Resources Management (IWRM).

The data collection, generation and presentation into the portal are continuous activities. The current version India-WRIS WebGIS (Version 4.0) has spatial layers and attributes as per data collected till April 2013. Further updating the

### News And Events

New [Basin Reports available for download](#)

New [Watershed Atlas of India](#)

New [Non-Classified HO data available for download](#)

[River Basin Atlas of India has been launched on November 1, 2012.](#)

Visitor Number : 797671 | Disclaimer | Sitemap | Links | Contact Us | Updated On: December 29, 2014

\* Best viewed in resolution 1280x960

# Modules/Sub Modules of the Information System

## WRIS Info Discovery

- Data Catalog

## WRIS Explorer

- 2D Geo-visualization
- Sub Info Systems
- Temporal Analyst
- Watershed info system

## WRIS Connect

- Live Telemetry Data
- Data Download
- Reservoir Module
- Automatic Map Generation
- Advance Report Generation

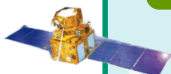
## Share Success Story

## Water Resources Planning

- Create Your WRIS
- 2D-3D Linked View
- Collaborative Planning

## Input Data Builder

- **WRIS Info Discovery & Data Catalog** module provides the details about the layers and data availability along with metadata information based on area of interest
- **WRIS-Explorer** module has Interactive system for Geo-visualization, exploring various sub-info systems and analyzing the temporal data & Watershed info system as well as watershed report based on basin and administrative unit
- **WRIS Connect** contains module: *Data Download module, CWC Live telemetry data, CWC monitored Reservoir data, Map and Report generation as per area selection*
- **Share Success Story** module to share/view various water related success stories over the globe
- **Water Resources Planning** It allow user to create your maps, 2D to 3D visualization with Google earth and sharing information among users in participatory mode like text file, maps, videos etc
- **Input Data Builder** module allows privileged users to add or update the spatial, non-spatial data and metadata information



# Main Information System – 12 Sub System – 35, Layers - 95 and Attributes - > 700



## 1. Base Data Info Systems

- |                   |                   |
|-------------------|-------------------|
| 1. Administrative | 3. Infrastructure |
| 2. Region         | 4. Terrain        |



## 2. Surface Water Info Systems

- |                            |                              |
|----------------------------|------------------------------|
| 5. Water Resource Division | 9. Surface Water Body        |
| 6. Basin                   | 10. Water Resources Projects |
| 7. Watershed               | 11. Command Area             |
| 8. River                   | 12. Minor Irrigation         |
|                            | 13. Canal                    |



## 3. Ground Water Info Systems

- 14. Aquifer / Litholog
- 15. Ground Water Level
- 16. Ground Water Potential (RGDWM)



## 4. Hydro - Met Info Systems

- |                    |                         |
|--------------------|-------------------------|
| 17. Meteorological | 19. Hydro - Observation |
| 18. Climate        | 20. Flood Forecasting   |



## 5. Water Quality Info Systems

- 21. Surface Water Quality
- 22. Ground Water Quality



## 6. Snow Cover / Glacier Info Systems

- 23. Snow Cover / Glacier



## 7. Inland Navigation Waterways Info Systems

- 24. Inland Navigation Waterways



## 8. Inter - Basin Transfer Links Info Systems

- 25. Inter - Basin Transfer Links



## 9. Hydro - Met Extremes

- 26. Flood
- 27. Drought
- 28. Extremes Events



## 10. Land Resources Info Systems

- |                           |               |
|---------------------------|---------------|
| 29. Land Use / Land Cover | 31. Wasteland |
| 30. Land Degradation      | 32. Soil      |



## 11. Water Tourism Info Systems

- 33. Water Tourism



## 12. Socio Economic Info Systems










- 34. Rural
- 35. Urban








# Tools and Functionalities

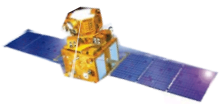


## Navigation Tools

-  **Zoom In:** It zoom into a particular area on map selected by the user.
-  **Zoom Out:** Is zooms-out the map to come out of the detailing..
-  **Pan:** It allows user to Pan around the whole map
-  **Full Extent:** It allows viewing the map at the full extent..
-  **Previous Extent:** It allows going to previous extent when the map extent is changed.
-  **Next Extent:** It allows returning from the previous extent.
-  **Map Overview:** Provides location of current view in context with larger map area.
-  **Go To:** Zoom to an area based on specified latitude and longitude
-  **Select Area Zoom/Rubber Zoom:** Smooth Zooming into a selected area

## Display Tools

-  **Swipe:** It swipe the selected layer in the map to reveal underlying layers.
-  **Spotlight:** It removes overlaid layer from the selected portion for better visualization
-  **Magnifier:** To view the zoom in layer details of selected portion only
-  **Get Feature Info:** On selecting a particular feature it displays summary info
-  **Identify:** Identify the details of all the visible layers including the elevation details of the point



# Tools and Functionalities

## Personalization Tools



**Print:** To print the current viewing area in landscape or portrait mode.



**Save as Image**



**Bookmark:** Allows book marking a specific location on the map for future reference.



**Pin Mark:** User can pin mark his location of interest and type his comment on same

## Sharing Tools



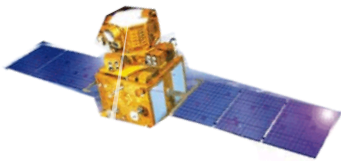
**Share a Link:** Share the current view of map with another user through mail.



**iFrame:** Sharing frame of India-WRIS in other applications.



**Links on twitter/Facebook/Google+**



## Advanced Tools



**Surface Profile:** Generate the surface terrain height graph of selected points on map.



**Network Analysis/Route Tool:** It specifies the defined route of road, rail and river network.



**Geo-Calculator:** Tools to calculate parameters based on location and user input.



**Linked View:** Can View multiple view of different information in a single window.



## Search & Query Tools



**Query Builder:** create user defined queries



**Search by Proximity**



# Geo-Visualization (Surface profile tool)

India-WRIS Version 4.0 | India WRIS Geo-Visualization | india-wris.nrsc.gov.in/GeoVisualization.html?UType=R2VuZXJhA==?UName=

About WRIS | Accessibility | Tools | Metadata | WRIS Wiki | Help | Search

## India-WRIS WebGIS

Water Resources Information System of India

HOME | WRIS Explorer | **GeoVisualization** | SubInfoSystem | Temporal Analyst

### Surface Profile

Start Drawing | Read from File | Save

Distance: 15.40Km  
Height: 351.65m

Elevation in (m)

Distance (Km)

Location: Move mouse on map

start | India WRIS Geo-Visu... | EN | 09:32





# Major Digitization Work

- Source: Merged Product of Cartosat – I & LISS-IV data & SOI, SRTM
- Scale: 1:50K

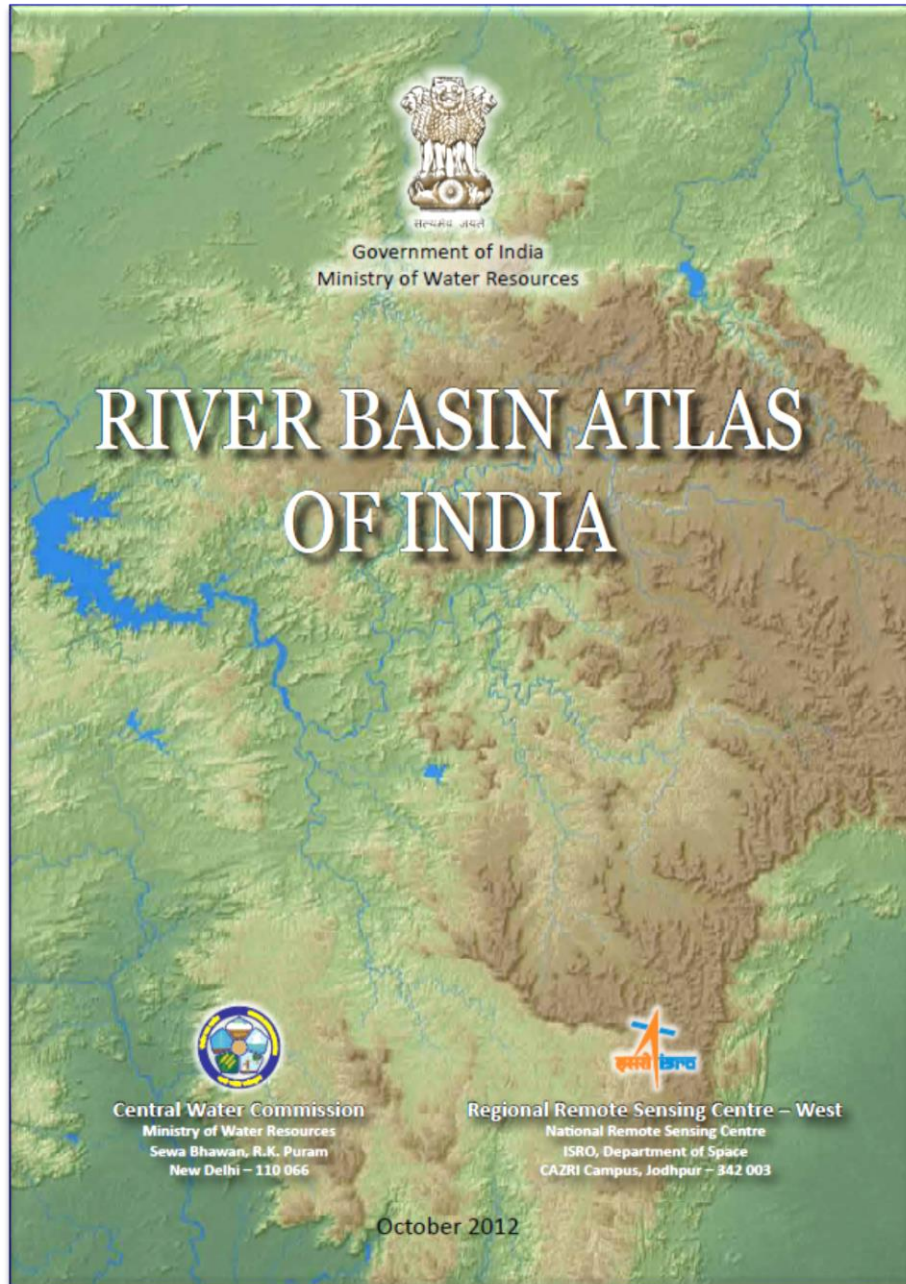
- Basin/Sub-Basin/Watershed – 27/101/4566
- River – 36 lakh km
- Water bodies (upto 0.5 ha) – 8 lakh
- Road Network (Upto village) – 27.0 lakh km
- Settlement Location & Extent – 9 lakh/8.9 lakh ( 77,798 sq km)
- Canal network – 3.20 lakh km

# Watershed Delineation in India

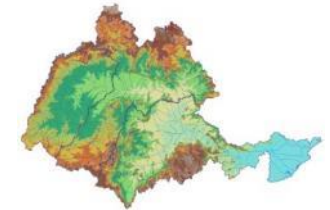
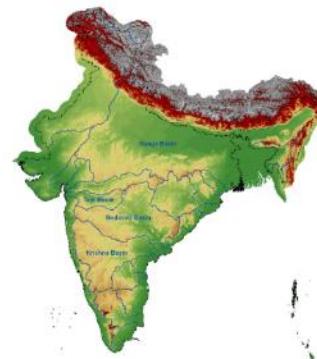
- All India Soils and Landuse Survey (AISLUS) atlas at 1:1 M scale (35 Basins)
- CGWB basin map 1: 250,000 (34 Basins)
- CWC basin map – 20 Basins
- NCIWRD – 25 Basins



# NEW Digital Watershed atlas



Sl. No.	Hydrological Levels	Digits	Range
1	Region	1	A-F
2	Basin	02	1 – 25
3	Sub Basin	03	XYZ
4	Watersheds	02	1 – 99
5	Sub Watersheds	03	L 1 - 99 M 1 - 99 U 1 - 99
6	Micro Watersheds	02	1 - 99



Mahanadi Basin

**C 08 xyz 99 L99 99**



# Water Resources Region

India-WRIS Version 4.0 | India-WRIS Water Resource: | India-WRIS Watershed Sub | Main Page -

india-wris.nrsc.gov.in/WRRApp.html?UType=R2VuZXJhbA==?UName=

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## India-WRIS WebGIS

Water Resources Information System of India

HOME » WRIS Explorer » GeoVisualization | SubInfoSystem » Water Resources Divisions | Temporal Analyst

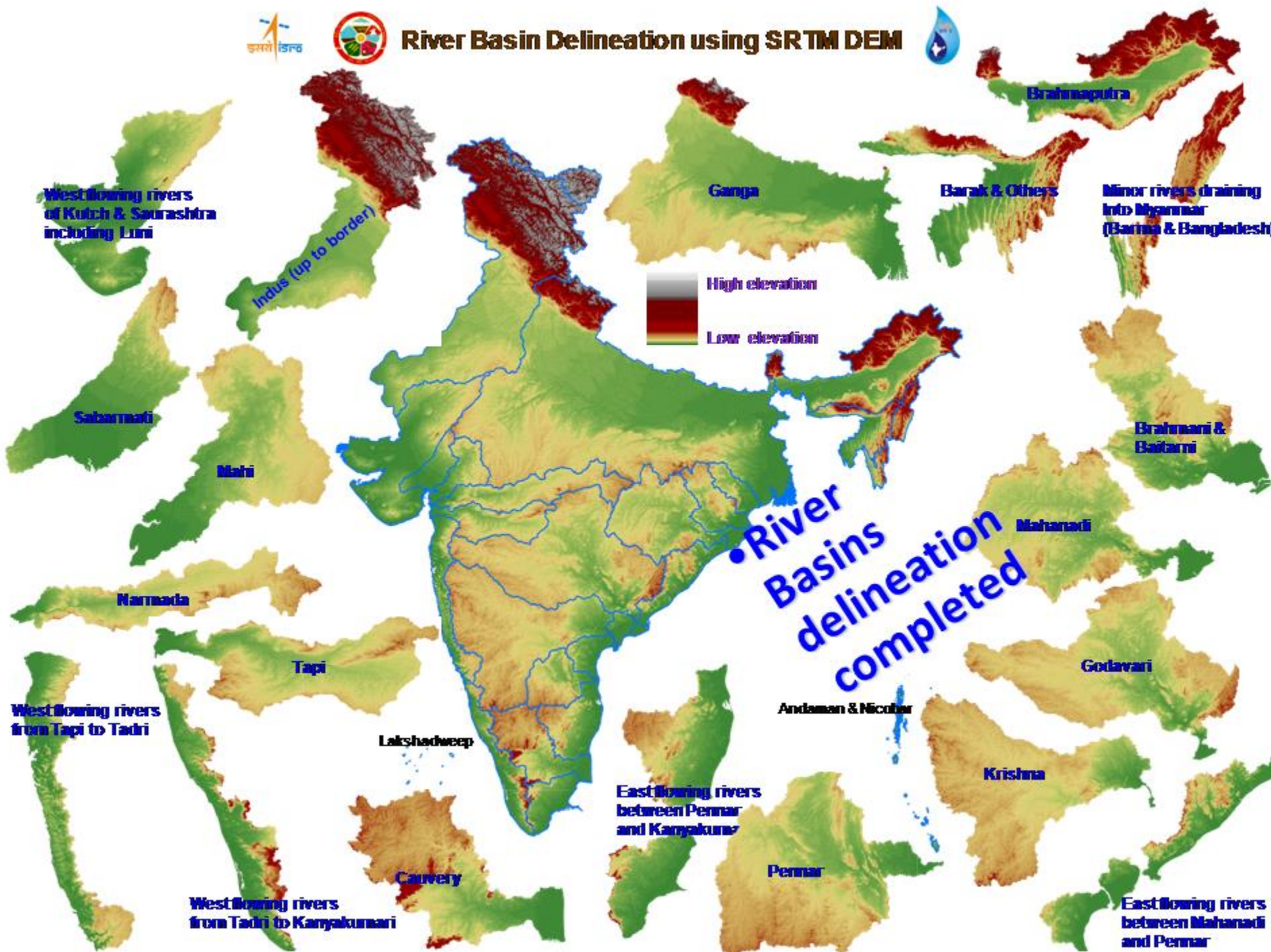
India-WRIS Data Set

- DEM
- WRD
- River
- Surface Waterbody

Summary		
No. of Water Resource Division(WRD): 3		
No. of Water Resource Region(WRR): 6		
Water Resource Division	Water Resource Region	
India-WRIS Water Resource Regions		
ID	Region Name	Total Area(Sq.Km)
A	Indus Drainage	552,085.40
B	Rivers Draining into Arabian Sea	521,693.74
E	Minor River Draining into other Basin/Country	59,469.03
D	Brahmaputra Drainage	540,640.46
C	Rivers Draining into Bay of Bengal	2,085,210.77
F	Island Drainage	7,752.18



# River Basin Delineation using SRTM DEM



West flowing rivers of Kutch & Saurashtra including Luni

Indus (up to border)

Sabarmati

Mahi

Narmada

Tapi

West flowing rivers from Tapi to Tadi

Lakshadweep

Cauvery

West flowing rivers from Tadi to Kanyakumari

Ganga

Barak & Others

Minor rivers draining into Myanmar (Barua & Bangladesh)

Brahmaputra

High elevation  
Low elevation

• River Basins delineation completed

Brahmani & Baitarni

Mahanadi

Godavari

Andaman & Nicobar

East flowing rivers between Pennar and Kanyakumari

Pennar

Krishna

East flowing rivers between Mahanadi and Pennar



# River Network

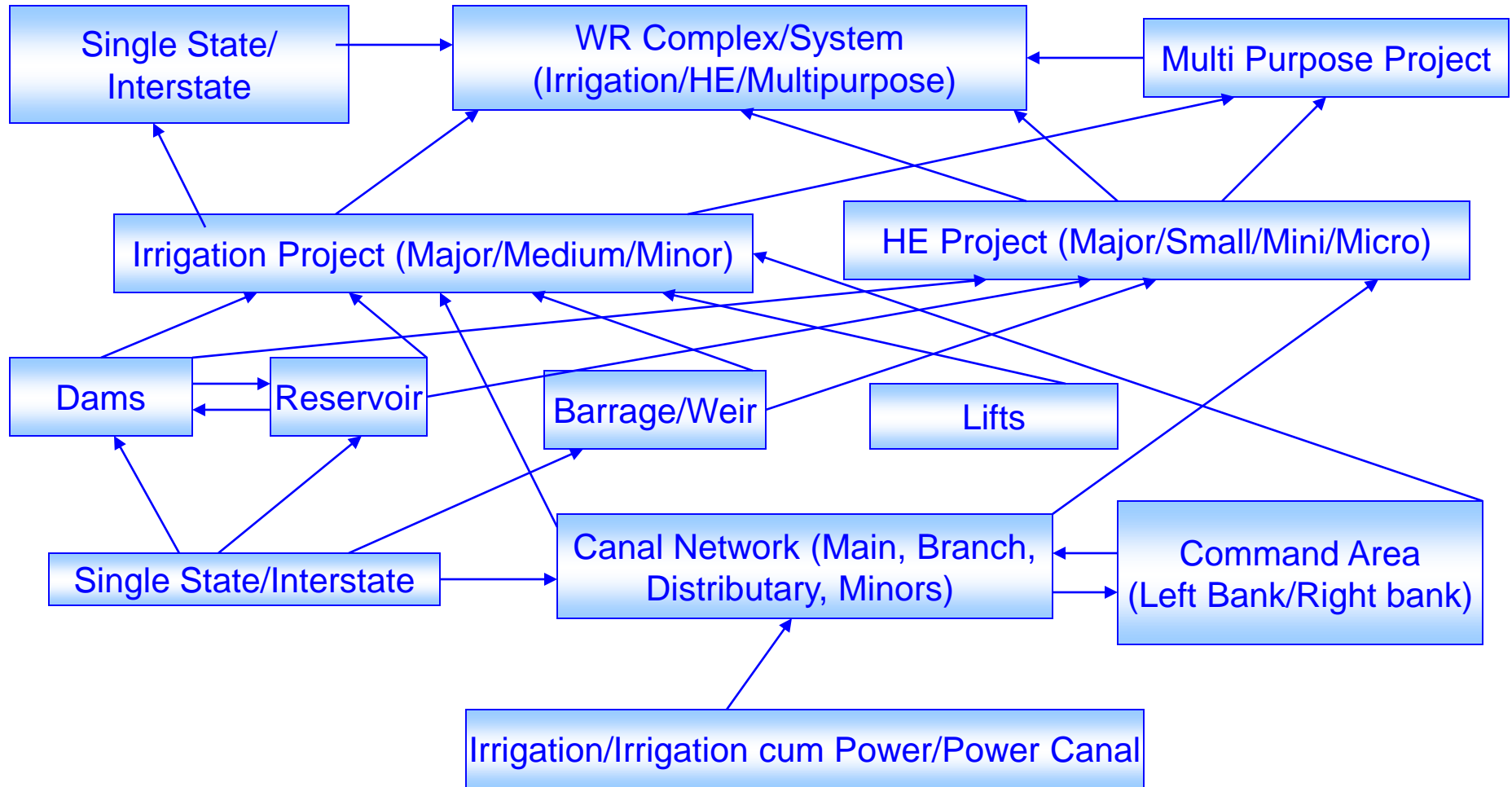


Total Length – 36  
lakh km

# Different Components of Water Resources Project



# DATA-STRUCTURE FOR WATER RESOURCES PROJECT





# WATER RESOURCES PROJECT

**India-WRIS WebGIS**  
Water Resources Information System of India

HOME » WRIS Explorer » GeoVisualization | SubInfoSystem » Water Resource Projects | Temporal Analyst

Get Details | Sedimentation Studies | Reservoir Level | Download Report | WRP Linkages

India-WRIS Data Set

- Administrative
- Canal & Related Layer
- Watershed Atlas
- River Layer
- Surface Waterbody
- Sedimentation
- WRP
- Infrastructure

500 km  
400 mi

Location: Move mouse on map

Spatial Relation  
Query Resu  
Search by Proj  
Project:  
 Structure  
 Projects  
 State-wis  
 Basin-wi

Total major & Medium Irrigation Projects - 1748  
Total Large Dams- 4575  
Number of Barrages/Weir - 540  
Number of Lifts - 352  
Canal Network –3.2 lakh km  
Hydro Power Stations – 293  
Water-bodies- 8.0 lakh

start | List of defectsin WRI... | WARIS\_Presentation ... | WARIS\_Presentation ... | Main Page -- Microso... | India-WRIS Water Re... | 12:07

# Water-Bodies

India WRIS

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Search

## India-WRIS WebGIS

Water Resources Information System of India

HOME » WRIS Explorer » GeoVisualization | SubInfoSystem » Surface Waterbody | Temporal Analyst

Waterbodies Information System | Wetlands Information System | Identify Waterbodies

India-WRIS Data Set

- DEM
- WaterBodies
- WetLands
- WatershedAtlas
- Administrative

**Total around 8.0 lakh water bodies**

Ganga Basin

INDIA

500 km  
400 mi

Water Bodies Search | Water Bodies Results

**Size/ Type wise Search**

Size (Ha):

Type:

Search

**Name wise Search**

Name:

Minimum 3 letters

Search

**Basin/ Sub Basin wise Search**

Basin:

Sub Basin:

Search

**State/ District wise Search**

State:

District:

Search



# Maps/Information Received from State Government

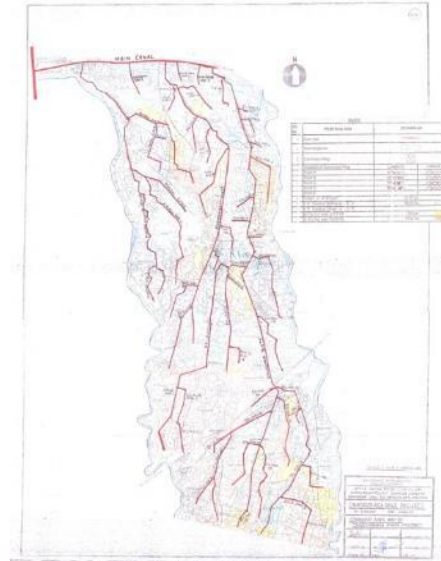
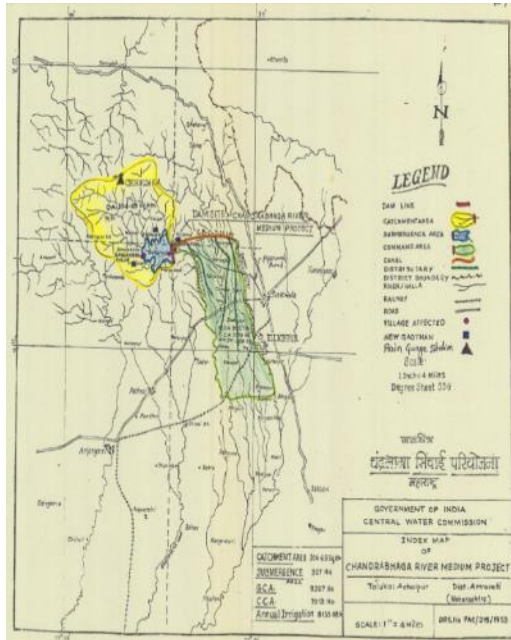
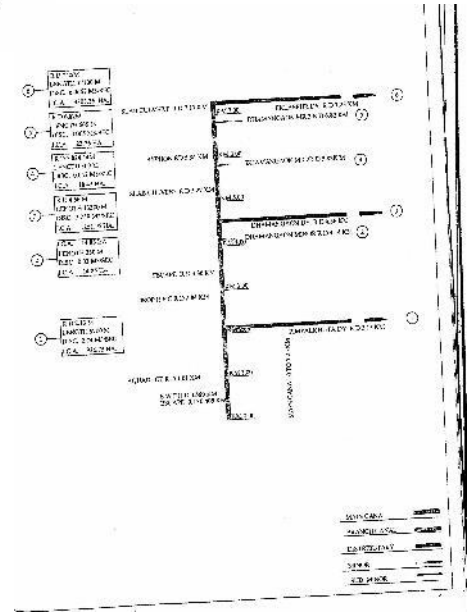


TABLE NO. 10

REMARKS: ...

NO.	NAME	TYPE	STATUS	REMARKS
1	...	...	...	...
2	...	...	...	...
3	...	...	...	...
4	...	...	...	...
5	...	...	...	...
6	...	...	...	...
7	...	...	...	...
8	...	...	...	...
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10	...	...	...	...
11	...	...	...	...
12	...	...	...	...
13	...	...	...	...
14	...	...	...	...
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16	...	...	...	...
17	...	...	...	...
18	...	...	...	...
19	...	...	...	...
20	...	...	...	...



# Mapping of Irrigation Infrastructure using Cartosat Data

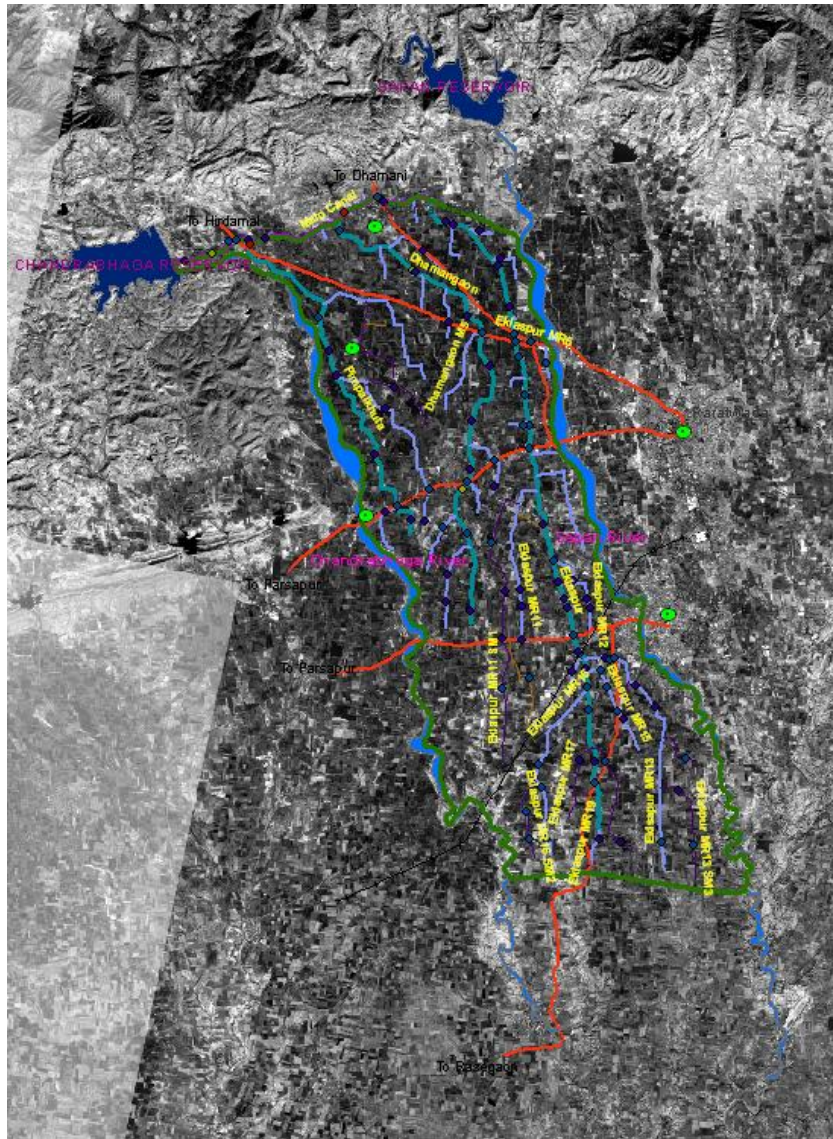
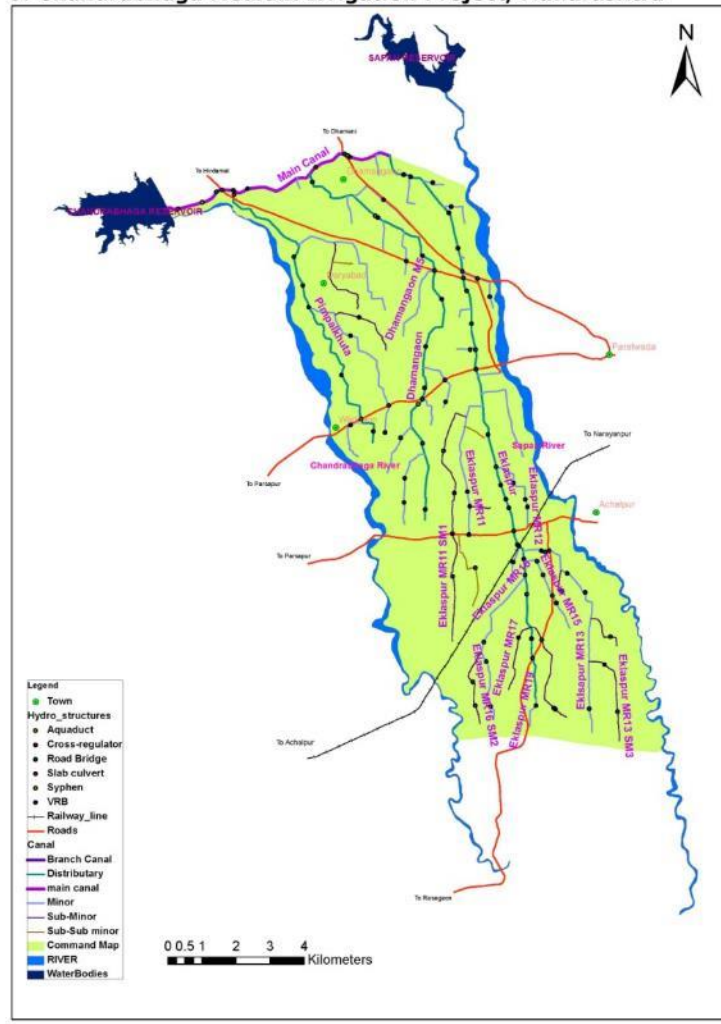


Fig : 5 - Map showing Satellite derived Irrigation Infrastructure of Chandrabhaga Medium Irrigation Project, Maharashtra





# WATER RESOURCES PROJECT & COMMAND AREA

India-WRIS Version 4.0
India-WRIS Water Resource

india-wris.nrsc.gov.in/WRPApp.html?UType=R2VuzXJhbnA=??UName=
Search

India-WRIS WebGIS
India-WRIS
WebGIS
  
Water Resources Information System of India

HOME » WRIS Explorer » GeoVisualization | SubInfoSystem » **Water Resource Projects** | Temporal Analyst

Get Details Sedimentation Studies Download Report WRP Linkages

**India-WRIS Data Set**

- Administrative
- Canal & Related Layer
- Watershed Atlas
- River
- Surface Waterbody
- Sedimentation
- WRP
- Infrastructure

Spatial Relations | Non Spatial Query

Query | Result

Records Found: 389

Name-wise Search:

No.	Name	Type
252	Jayakwadi Stage - I Major Irrigation Project	Irrigation Project
253	Jayakwadi Stage - II Major	Irrigation Project

Related Structures

- Jayakwadi Stage - I Major Irrig
- Command Area ( JAYAK
- Dam ( Jayakwadi-I Dam )
- Structure Purpose ( I
- Structure Purpose ( I
- Powerhouse ( Paithan P
- Reservoir ( Nath Sag
- Multipurpose Project ( Jay
- CADA ( Jayakwadi Proj
- Project Eng Type ( JI004
- Potential ( JI00472 )
- Potential ( JI00472 )
- State ( JI00472 )
- Project Purpose ( JI004
- Cost ( JI00472 )
- Cost ( JI00472 )
- Cost ( JI00472 )

Salient Features

Sl. No.	Attribute Name	Value
1	Basin	Godavari
2	Crest Level of	455.96
3	Design Flood	22656
4	District	Aurangabad
5	Length of dam	10415
6	Length of	417
7	Max. height	41.3
8	Name of the	Jayakwadi-I Dam
9	Name of the	Paithan Dam
10	Name of the	Godavari
11	Nearest city	Paithan
12	Number of	27
13	Sedimentation	0.75 Acat/Sq.

start India-WRIS Water Re... Microsoft PowerPoint ... EN 09:38



# India-WRIS WebGIS

Water Resources Information System of India



India-WRIS Data Set

- Regulator (Head / Cross)
- Bridge
- Aqueduct / Syphon Aqueduc
- Super Passage / Syphon
- Level crossing / Inlets & outl
- Other Cross Drainage Struc
- Offtake Point

Canal  
 Command Areas  
 Major Command  
 Medium Command

Administrative

Query By Shape

**Administrative Unit**

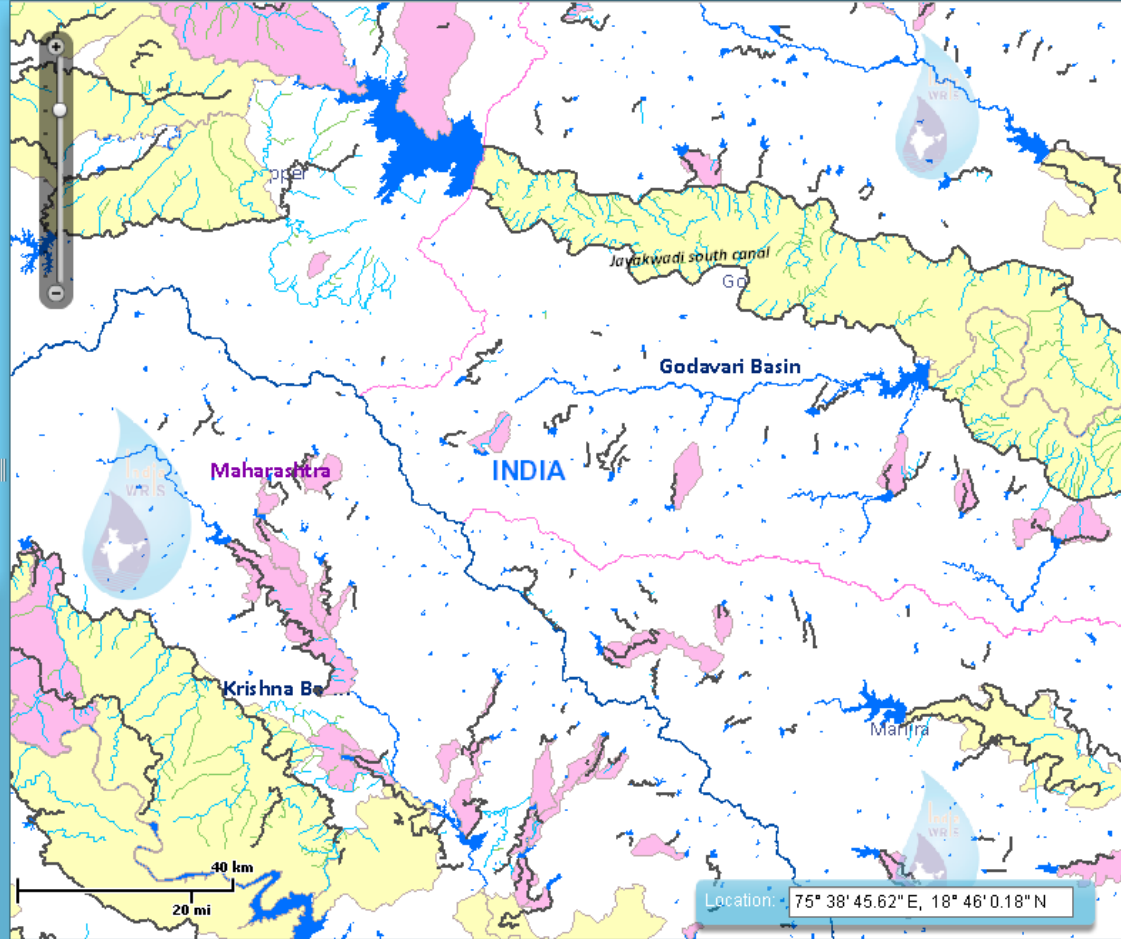
Select a State

Select a District

**Hydrological Unit**

Select a Basin

Select a SubBasin



State wise		Basin wise
S.No.	State Name	Canal Length (
1	Andhra Prade	39521.01
2	Bihar	15523.05
3	Chhattisgarh	13379.32
4	Delhi	189.24
5	Dadara & Na	37.28
6	Goa	221.45
7	Gujarat	11376.29
8	Himachal Pr	25.42
9	Haryana	15420.21
10	Jharkhand	2884.35
11	Jammu & Ka	2479.89
12	Karnataka	29923.93
13	Kerala	3375.92
14	Madhya Prad	14954.35
15	Maharashtra	30508.74
16	Odisha	14141.80
17	Punjab	12764.93
18	Puducherry	24.05
19	Rajasthan	42507.90
20	Tamil Nadu	8569.92
21	Uttarakhand	1866.08
22	Uttar Prades	59215.13
23	West Bengal	5486.17



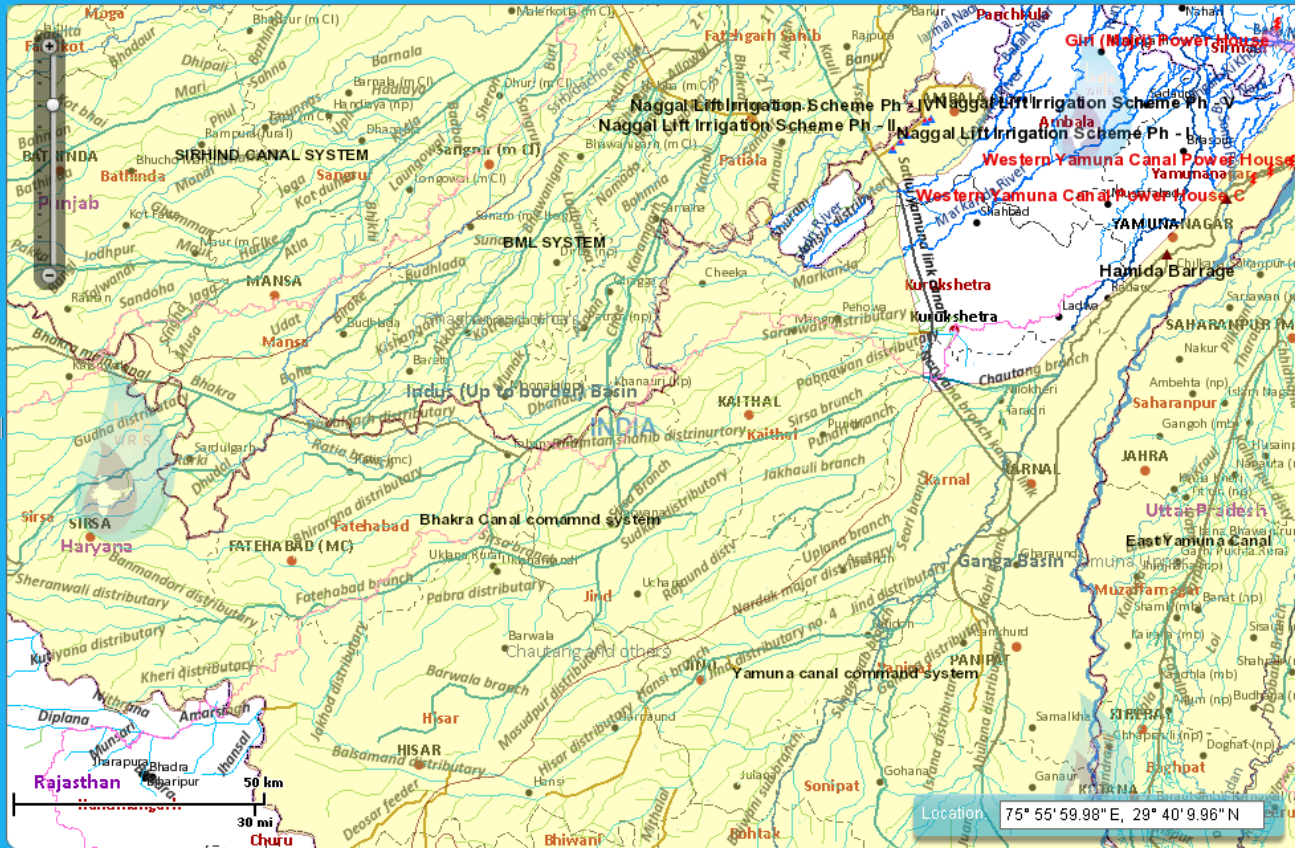


# India-WRIS WebGIS

Water Resources Information System of India



- India-WRIS Data
  - Admin
  - Canal
  - Waters
  - River L
  - Surfac
  - Sedim
  - WRP
  - Infrastr



Search

Search Results

Irrigation Projects

All

All

Select State

Select Basin

# MINOR IRRIGATION

India-WRIS WebGIS Water Resources Information System of India

HOME » WRIS Explorer » GeoVisualization | SubInfoSystem » Minor Irrigation | Temporal Analyst

Select the Scheme: Total No. of M.I. Schemes

India-WRIS Data Set

- Total No Of Scheme

**Around 2 crore**

Shortly 4<sup>th</sup> Minor irrigation census data will be included

**Total No. of M.I. Schemes**

Show Label

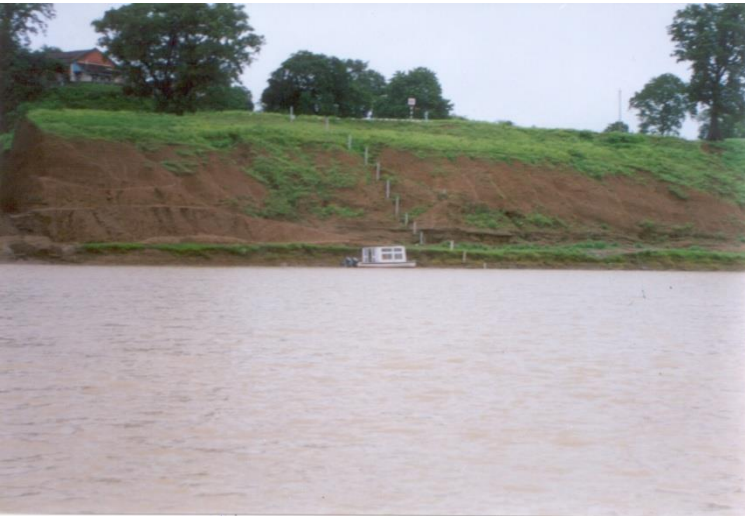
State	Approximate Number of Schemes
JHARKHAND	100,000
KARNATAKA	100,000
KERALA	100,000
MADHYA PRADESH	100,000
MAHARASHTRA	100,000
MANIPUR	100,000
MEGHALAYA	100,000
MIZORAM	100,000
NAGALAND	100,000
ORISSA	100,000
PUNJAB	100,000
RAJASTHAN	100,000
SIKKIM	100,000
TAMIL NADU	100,000
GUJARAT	100,000
GOA	100,000
DELHI	100,000
DADRA & NAGAR HAVELI	100,000
CHHATTISGARH	100,000
CHANDIGARH	100,000
BIHAR	100,000
ASSAM	100,000
ARUNACHAL PRADESH	100,000
ANDHRA PRADESH	100,000
ANDAMAN & NICOBAR	100,000
WEST BENGAL	100,000
UTTARANCHAL	100,000
UTTAR PRADESH	100,000
TRIPURA	100,000

State	Total No. of M.I. Schemes
GUJARAT	2,000,000
MAHARASHTRA	1,000,000
ANDHRA PRADESH	1,000,000
WEST BENGAL	1,000,000
UTTAR PRADESH	1,000,000
RAJASTHAN	1,000,000
BIHAR	1,000,000
ASSAM	1,000,000
ARUNACHAL PRADESH	1,000,000
ANDAMAN & NICOBAR	1,000,000
WEST BENGAL	1,000,000
UTTARANCHAL	1,000,000
UTTAR PRADESH	1,000,000
TRIPURA	1,000,000

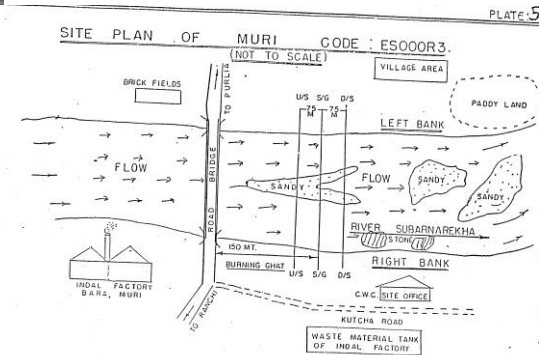
Zoom



# CWC HO Network



Total Stations – 878



## Activities

- Water Level
- Discharge
- Silt Measurement
- Water Quality

# CWC H.O. Network

India-WRIS WebGIS  
Water Resources Information System of India

HOME » WRIS Explorer » GeoVisualization | SubInfoSystem » Hydro Observation Stations | Temporal Analyst

Get Details ---Select Sub Zone--- Download Report Download Data

Total – 878 Sites

Time Series Data from 10 to 40 years for Un-classified Region

New 800 stations to be added during XII plan

1000 km  
500 mi



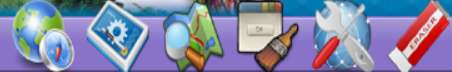


# India-WRIS WebGIS

## Water Resources Information System of India



GIS Explorer | GeoVisualization | SubInfoSystem | **Hydro Observation Stations** | Temporal Analyst



Get Details ---Select Sub Zone--- Download Report Download Data

- India-WRIS Data Set
- DEM
  - Hydro-Meteorological
  - Meteorological Division
  - River
  - Surface Waterbody

Search by Name

Hoshangabad

State Wise Search

Basin Wise Search

Organization Wise Search

Select Organization:

Hydro-Observation Stations



General Station Characteristics | Water Level | Discharge | X-Section | Sediment

Station Characteristics | Establishment Details | Series Characteristics | Data Availability | FF/WaterQuality/AWS Details

General Details		Nearest GTS B.M	
Station Name	Hoshangabad	Nearest GTS B.M	At circuit house,Hoshangabad
Station Code	010215019	Musto Type B.M	Yes
Operational Status	Existing	Musto Type B.M Value(m)	305.525
Activity	HO/FF	Type of Bed	Sandy
Station Type (Current)	GDSQ	River Width(m)	755
Tehsil/Taluk	Hoshangabad	Type of River	Perennial
District	Hoshangabad	Station Bank	Left
State	Madhya Pradesh	Method of Discharge Obs.	Boat
Latitude (DMS)	22.7576260164 N	Zero of Gauge(m)	282
Longitude (DMS)	77.7325435563 E	U/S GaugeLine Dist.(m)	100
Altitude (m)	--	D/S GaugeLine Dist.(m)	100
Distance to Outlet (km)	0	River Origin Location	Amarkantak, Distt Sahdol (MP)
Topo Sheet No.	--	Station History	--
Catchment Area (sq km)	44548		
Basin Details			
Basin	Narmada		
Independent River	Narmada		
Tributary	--		
Sub Tributary	--		

# Meteorological Network



## Activities

- Rainfall
- Temperature
- Humidity
- Evaporation
- Wind Speed/Wind Direction





# India-WRIS WebGIS

Water Resources Information System of India



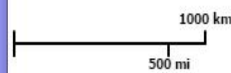
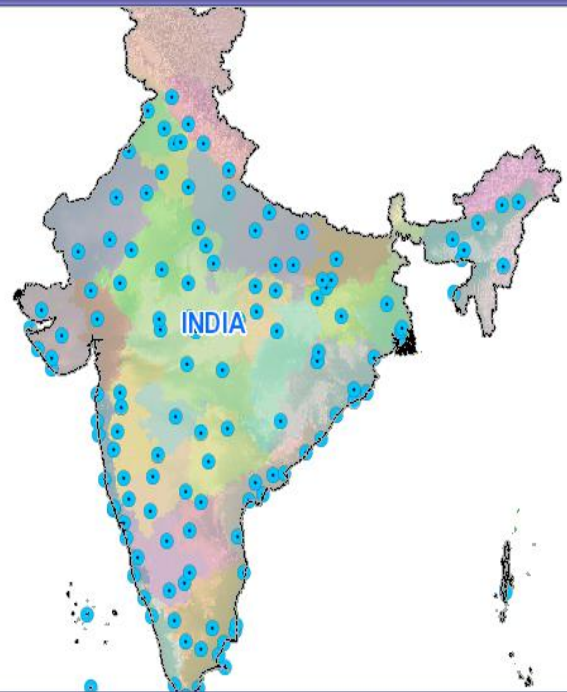
GIS Explorer | GeoVisualization | SubInfoSystem | **Meteorological** | Temporal Analyst



IMD CWC AWS ISRO Monthly Average (10 years) Get Details View Charts of : Precipitation Potential Evapo-Transpiration

- India-WRIS Data Set
- DEM
  - Hydro-Meteorological Zone
  - Meteorological Division
  - River
  - Surface Waterbody
  - Meteorological Stations
  - Administrative

- Weekly Average
- Monthly Average (10 years)
- DRMS
- WMO Recognized Sites



Location: 98° 45' 9.91" E, 19° 47' 50.32" N



# CLIMATE

The screenshot displays the India-WRIS WebGIS interface. At the top, the browser address bar shows the URL: `www.india-wris.nrsc.gov.in/ClimateApp.html?UType=R2VuZXJhbA==?UName=`. The navigation menu includes links for **About WRIS**, **Accessibility**, **Tools**, **Metadata**, **WRIS Wiki**, and **Help**, along with a search bar. The main header features the **India-WRIS WebGIS** logo and the text **Water Resources Information System of India**. Below the header, a secondary navigation bar contains **GIS Explorer**, **GeoVisualization**, **SubinfoSystem**, **Climate**, and **Temporal Analyst**. The main content area is divided into three sections: a left sidebar for **India-WRIS Data Set** with checkboxes for **DEM**, **Watershed Atlas**, **Administrative**, **DistrictwiseNormals**, and **GriddedData**; a central map of India with a grid overlay, labeled with **Ganga Basin**, **Godavari Basin**, and **Krishna Basin**, and a scale bar (1000 km / 500 mi); and a right sidebar for **Districts-wise Normals** and **Gridded Data**. The right sidebar includes an **Administrative Unit-wise Search** section with dropdowns for **State** and **District**, and a **Parameter/ Year-wise Search** section with a **Parameter** dropdown (showing **Rainfall 0.5° x 0.5°**) and a **Years between** dropdown. A **Grid Code** section is also present. The bottom of the interface shows a Windows taskbar with icons for Internet Explorer, File Explorer, Google Chrome, and PowerPoint, and a system tray with the date **05-04-2015** and time **PM 03:35**.

# TEMPORAL ANALYST

The screenshot shows a web browser window displaying the India-WRIS Temporal Analyst application. The browser's address bar shows the URL: [www.india-wris.nrsc.gov.in/TemporalAnalystApp.html?UType=R2VuZXJhbA==?UName=](http://www.india-wris.nrsc.gov.in/TemporalAnalystApp.html?UType=R2VuZXJhbA==?UName=). The page header includes navigation links for About WRIS, Accessibility, Tools, Metadata, WRIS Wiki, and Help, along with a search bar. The main header features the India-WRIS logo and the text "India-WRIS WebGIS Water Resources Information System of India". Below the header, there are links for WRIS Explorer, GeoVisualization, SubInfoSystem, and Temporal Analyst. The main content area is titled "Temporal Analyst" and contains a section labeled "Select Any Data" with three radio button options: "IMD-Weekly Meteorological Data", "Ground Water Level", and "District Wise Monthly Meteorological Data". A scale bar at the bottom left indicates 1000 km and 1000 mi. The Windows taskbar at the bottom shows the system tray with the time 03:54 PM on 05-04-2015.

India-WRIS Version 4.0 x India-WRIS Ground Water x India WRIS Temporal Anal x

www.india-wris.nrsc.gov.in/TemporalAnalystApp.html?UType=R2VuZXJhbA==?UName=

About WRIS Accessibility Tools Metadata WRIS Wiki Help Search

India-WRIS WebGIS Water Resources Information System of India

WRIS Explorer » GeoVisualization | SubInfoSystem | Temporal Analyst

Temporal Analyst

Select Any Data

- IMD-Weekly Meteorological Data
- Ground Water Level
- District Wise Monthly Meteorological Data

1000 km 1000 mi

PM 03:54 05-04-2015

# CONTINUED





# CWC Monitored Reservoir Module

India-WRIS WebGIS Water Resources Information System of India

HOME Reservoir

Reservoir Level Capacity wise graph Download Data Filled Capacity Status of Basins

India-WRIS Data Set

- Basin
- Reservoir

### CWC Monitors for 85 Reservoir

Indus (Up to border)

Area of Indus drainage in Rajasthan

Ganga

Barhamaputra

Barak and Others

West flowing rivers of Kutch and Saurashtra including Luni

Subarnarekha

Brahmani and Bahani

Mahanadi

Godavari

East flowing rivers between Mahanadi and Pennar

West flowing rivers from Tapi to Tapti

Krishna

Pennar

East flowing rivers between Pennar and Kanyakumari

Cauvery

West flowing rivers from Tapti to Kanyakumari

500 km  
400 mi

### Reservoirs Monitored By CWC

All Monitoring Reservoirs

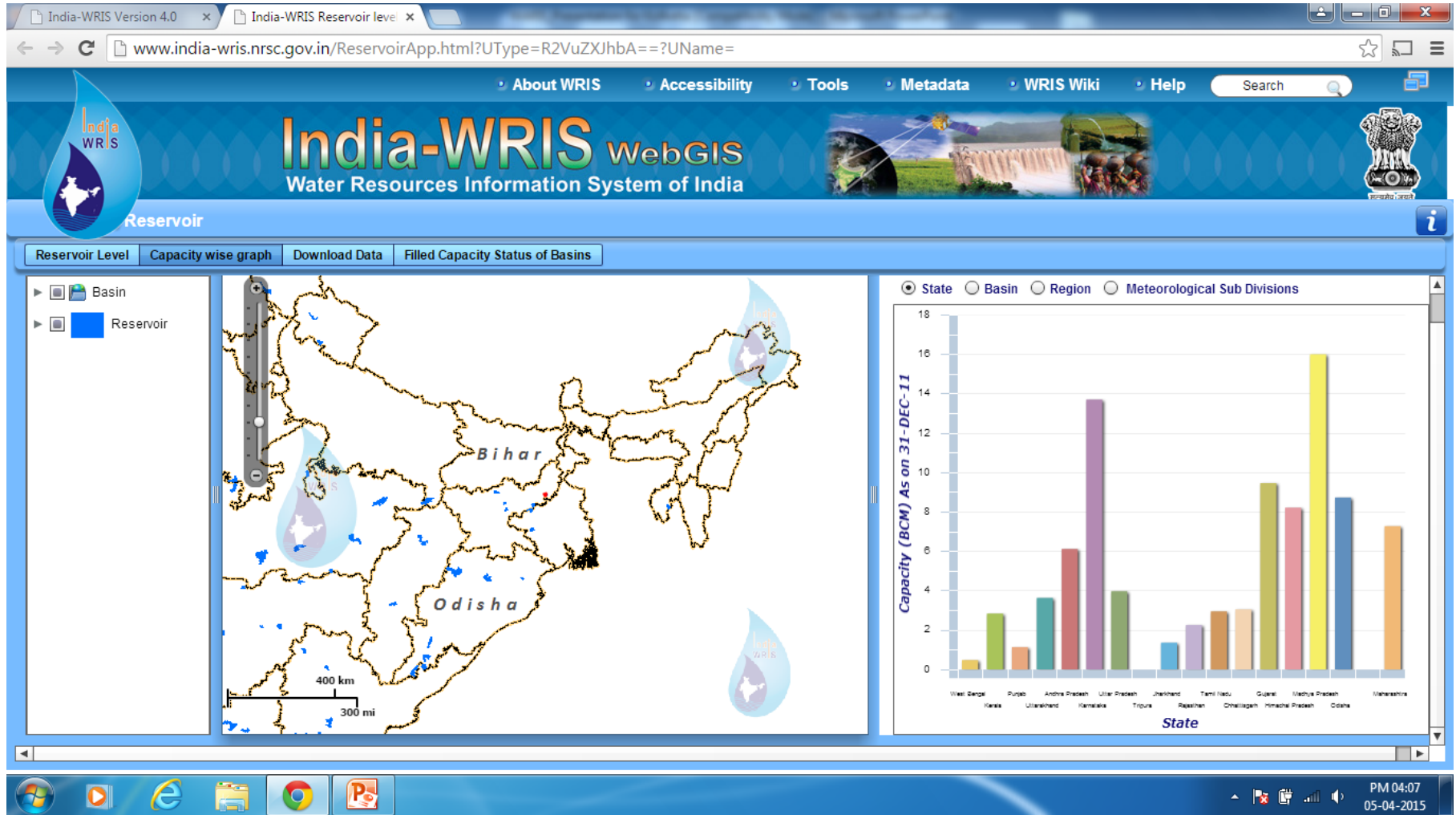
Search By Name :

Reservoir Name
Aliyar Reservoir
Almatti Reservoir
Balimela Reservoir
Ban Sagar
Bhadar Reservoir
Bhadra Reservoir
Bhakra Reservoir
Bhavanisagar Reservoir
Damanganga Reservoir
Dantiwada Reservoir
Gandhi Sagar
Gerusoppa Reservoir
Girna Reservoir
Gumti Reservoir
Harangi Reservoir
Hasdeo Reservoir
Hatnur Reservoir
Hemavathy Reservoir
Hidkal Reservoir
Hirakud Reservoir
Idamalayar Reservoir
Idukki Reservoir

**During XII plan 139**

Data available upto 2011 for 84 Reservoirs

# CONTINUED



# CWC Telemetry Network

India-WRIS WebGIS Water Resources Information System of India

About WRIS Accessibility Tools Metadata WRIS Wiki Help Search

Legend

- Non Classified Sites
- Classified Sites

Search by name

State Wise Selection

Select State::

Select A State

Classified Telemetry Sites::

Non-Classified Telemetry Sites::

Basin Wise Selection

Telemetry Site Selection

Disclaimer:

The Telemetry data available on this page are provisional data that have not been reviewed and edited. These data may be subject to significant change and are not citeable.

Select station from left menu or click on the map to get details

Total – 467 Stations

Water Level Chart

```
graph TD
    YAGI[YAGI satellite antenna] -- Burst mode transmission --> DCP[Data Collection Platform (DCP)]
    DCP -- Satellite Down Link --> DDRGS[Direct Digital Readout Ground Station (DDRGS) At Jaipur and Burla]
    DDRGS -- V-SAT Transmission --> MC[MODELLING CENTERS]
    MC -- Satellite Down Link --> MC
    METSAT[METSAT] -- Satellite Down Link --> DCP
    INSAT[INSAT] -- Satellite Down Link --> MC
```



# CGWB Ground Water Well Network

The screenshot displays the India-WRIS WebGIS interface. At the top, there is a navigation bar with links for 'About WRIS', 'Accessibility', 'Tools', 'Metadata', 'WRIS Wiki', and 'Help'. A search box is located on the right. The main header features the 'India-WRIS WebGIS' logo and the text 'Water Resources Information System of India'. Below the header, there is a breadcrumb trail: 'HOME > WRIS Explorer > GeoVisualization | SubInfoSystem > Ground Water Level | Temporal Analyst'. The interface includes several panels: 'Get Details' and 'Water Level Maps' buttons; a 'Static Parameters of Well' table with columns for 'Attribute' and 'Value'; a 'Graphical view of Water level Data' panel with dropdown menus for 'Select a State', 'Select a District', 'Select a Basin', and 'Select a SubBasin', along with a 'Click to draw area on map' option and a 'Clear' button; and a central map of India showing a dense network of wells in blue. A scale bar at the bottom indicates 1000 km and 500 mi. A large blue text box on the right contains the following information:

Total 20,000 well located

Time series data from 1995 to 2010

Ground Water Information System to be integrated

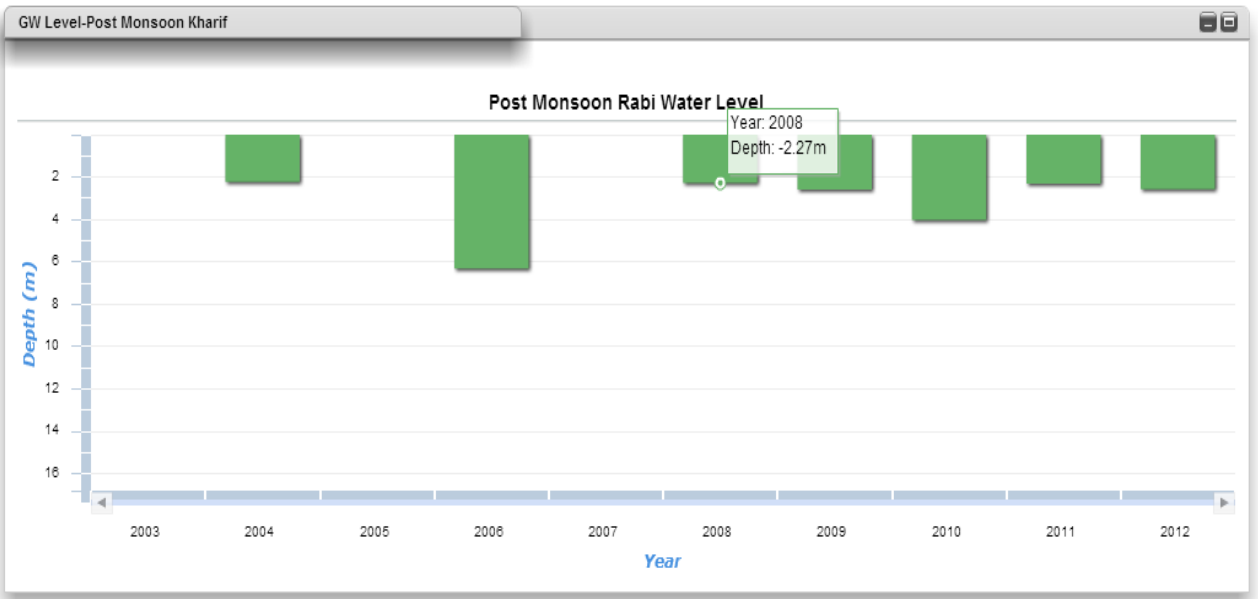


HOME WRIS Explorer

### Temporal Analyst

Seasonal Water Level Graph Comparison of Water Level Graph Yearly Water Level Graph

West Bengal Birbhumi Site Name: Abdullapur Select from Map Start Year: 1996 End Year: 2012 Create Graph



GW Level-Pre Monsoon



# CONTINUED

The screenshot displays the India-WRIS Ground Water Level (WL) Maps application. The browser address bar shows the URL: [www.india-wris.nrsc.gov.in/GWLevelApp.html?UType=R2VuZXJhbA==?UName=](http://www.india-wris.nrsc.gov.in/GWLevelApp.html?UType=R2VuZXJhbA==?UName=). The application header includes navigation links for About WRIS, Accessibility, Tools, Metadata, WRIS Wiki, and Help, along with a search bar. The main title is "India-WRIS Water Resources Information System".

The interface is divided into several sections:

- Left Panel:** "India-WRIS Data Set" with checkboxes for DEM, Watershed Atlas, Administrative, and GW Level. Below it is a "Graphical view of Water level ..." section with dropdown menus for State, District, Block, and Substation, and a "Click to draw area on map" button.
- Main Map:** A map of India showing groundwater levels. A scale bar indicates 1000 km and 500 mi.
- Right Panel:** "Ground Water Level (WL) Maps" for the year 2006 and West Bengal. It contains four sub-maps:
  - Pre Monsoon WL 2006:** Scale 100 km / 50 mi.
  - Post Monsoon WL 2006:** Scale 200 km / 100 mi.
  - WL Fluctuation due to recharge 2006:** Scale 200 km / 100 mi.
  - WL Fluctuation due to draft 2006:** Scale 100 km / 50 mi.Each sub-map includes a "Show Legend" button and a note: "This map is prepared from available Ground Water Level data of CGWB using inverse distance weighted interpolation technique".

The Windows taskbar at the bottom shows the system clock as PM 03:39 on 05-04-2015.

# Town & Village Location & Extent

The screenshot displays the India-WRIS WebGIS interface. The browser address bar shows the URL: `india-wris.nrsc.gov.in/RuralApp.html?UType=R2VuZXJhbA==?UName=`. The main header features the India-WRIS logo and navigation links: About WRIS, Accessibility, Tools, Metadata, WRIS Wiki, and Help. A search bar is also present.

The interface is currently in the 'Rural' section, with sub-navigation for 'Village Location', 'Village Boundary', and 'Get Details'. The 'India-WRIS Data Set' panel on the left shows the following layers:

- DEM
- Common Layers
- Rural Settlement
- Urban Settlement

The 'Query By Shape' panel includes the following options:

Administrative Unit

- Select a State: [Dropdown] [Go]
- Select a District: [Dropdown] [Go]

Hydrological Unit

- Select a Basin: [Dropdown] [Go]
- Select a SubBasin: [Dropdown] [Go]

The main map area shows a topographic map of Maharashtra with numerous red dots representing village locations. Key locations labeled include Mashik, Buldana, Washim, Godavari Basin, and PARBHANI. A scale bar indicates 40 km and 30 mi. The location coordinates are displayed as 75° 50' 26.74" E, 19° 17' 20.79" N.

**Total – 8.90 lakh**



# Road Network

The screenshot displays the India-WRIS WebGIS interface. The browser address bar shows the URL: `india-wris.nrsc.gov.in/InfrastructureApp.html?UType=R2VuZXJhbA==?UName=`. The page header includes navigation links: About WRIS, Accessibility, Tools, Metadata, WRIS Wiki, and Help. The main title is "India-WRIS WebGIS Water Resources Information System of India". Below the header, there are tabs for "HOME", "WRIS Explorer", "GeoVisualization", "SubInfo System", "Infrastructure", and "Temporal Analyst".

The interface features a "Get Details" section with tabs for "Road", "Rail", "Airport", and "WaterWay". The "Road" tab is selected. On the left, the "India-WRIS Data Set" panel shows checked options for DEM, Administrative, Watershed Atlas, Infrastructure, and Other Road. Below this is the "Select By Shape" section with dropdown menus for "Select a State", "Select a District", "Select a Basin", and "Select a SubBa...", each with a "Go" button and a "Clear Selection" button.

The main map area shows a detailed road network in Maharashtra and the Godavari Basin. The map includes labels for "Maharashtra", "Godavari Upper", "Godavari Basin", "Godavari Middle", "Godavari Lower", "Aurangabad", "Ahmadnagar", "Bid", "Bhimadurbet", "Bead Urban", and "Jalna". A scale bar indicates 20 km and 10 mi. The location coordinates are shown as 75° 32' 1.19" E, 19° 14' 28.52" N. The Windows taskbar at the bottom shows the "start" button, "India-WRIS Infrastru...", "Microsoft PowerPoint ...", and the system clock at 11:04.

Total – 27.0 lakh km



# Automatic Map Generation

The screenshot shows the 'Automatic Map Generation' web application. The interface is divided into several sections:

- Map View:** A large map of India with various river basins highlighted in green. The 'Hoshangabad' basin is selected.
- Automatic Map Generation Procedure:**
  - Area of Interest:** Includes dropdowns for 'Basin' (Madhya Pradesh), 'State' (Hoshangabad), and 'Theme' (Surface Waterbodies).
  - Quality Parameters:** Includes a slider for 'FASTEST', 'NORMAL', and 'BEST' (set to NORMAL), and radio buttons for 'No DEM', 'DEM in Area of Interest', and 'Overlay DEM'.
  - Layout Parameters:** Includes radio buttons for 'A3-PORTRAIT', 'A3-LANDSCAPE', 'A4-PORTRAIT', and 'A4-LANDSCAPE'.
- Buttons:** 'Submit', 'Clear', and 'Download' buttons are located at the bottom of the procedure section.

The screenshot shows the generated map titled 'Hoshangabad District - Surface Waterbodies Map'. The map displays the district's boundaries and various water bodies in blue. The map is surrounded by a green border with a scale bar and a north arrow. The legend on the right side includes:

- State Boundary
- District
- Lakes/Pond
- Reservoir
- Tank
- Aquaculture pond
- Island
- River Polygon
- Elevation (m): High, Low

The map is prepared by the National Remote Sensing Centre, Indian Space Research Organisation, Dept. of Space, Government of India. The interface also shows a 'Pages' panel on the left and a taskbar at the bottom.

# WRIS-WIKI



## India-WRIS wiki

Water Resources Information System of India



सत्यमेव जयते

Log in

Page Discussion

Go Search

### Navigation

Main page  
Detailed Projects  
Recent changes  
Help  
Sitemap  
Related Links

### Categories

India's Water Wealth  
Basins  
States  
Rivers in India  
Water Resources Projects  
Hydro Electric Projects  
Multi Purpose Projects  
Inter State Projects  
Irrigation and Power Complexes  
AIBP  
CADWM  
Evaluation Studies for Irrigation Projects  
Hydro-meteorological Sites  
Hydro-Observation Sites  
Flood Management  
River Water Quality

## Welcome to Water Resources Information System-Wiki

### About India - WRIS Project



Vision of India-WRIS is to provide a 'Single Window Solution' for all water resources data and information in a standardized national GIS framework. It will allow users to Search, Access, Visualize, Understand and Analyze comprehensive and contextual water resources data for assessment, monitoring, planning, development and finally Integrated Water Resources Management (IWRM).

"India WRIS a **Single Window Solution** for all Water Resources data and information in a standardize National GIS Framework"

read more

### About WRIS Wiki



India-WRIS Wiki is a collaborative knowledge sharing web application developed for sharing 'updated information' regarding the various aspects of the Water Resources of the nation.

A lot of information of India-WRIS is available in Non-GIS form, mainly textual and imagery. India-WRIS Wiki provides a platform to this Non-GIS data with intricate links to the GIS component.

India-WRIS Wiki has a number of tools like Search, Recent Changes, Interactive maps (India-WRIS and Bhuvan), Image view, Help, Sitemap, Print etc.

read more

### Categories



- India's Water Wealth UPDATED
- Water Resources Projects In India | Hydro Electric Projects| Multi Purpose Projects| Inter State Projects| Irrigation and Power Complexes NEW
- Basins UPDATED
- States
- Rivers in India
- Inland Waterways
- Inter Basin Water Transfer Links
- Ground Water Resources
- Hydro-Meteorological Sites
- Flood Management NEW
- Legal Instruments on river in India NEW
- Water Tourism
- Inter State Disputes in India NEW
- Large Dams in India NEW

Internet

start

List of defectsin WRI...

WRS Presentation

WARIS\_Presentation ...

WARIS\_Presentation ...

India-WRIS Version 4...

Main Page - - Micro...

EN

10:22

# Linked View with Bhuvan Portal

**India-WRIS wiki**  
Water Resources Information System of India

India-WRIS Version 4.0 | Indra Sagar D02080 -

india-wris.nrsc.gov.in/wrpinfo/index.php?title=Indira\_Sagar\_D02080

Help  
Sitemap  
Related Links

**Categories**

- India's Water Wealth
- Basins
- States
- Rivers in India
- Water Resources Projects
- Hydro Electric Projects
- Multi Purpose Projects
- Inter State Projects
- Irrigation and Power Complexes
- AIBP
- CADWM
- Evaluation Studies for Irrigation Projects
- Hydro-meteorological Sites
- Hydro-Observation Sites
- Flood Management
- River Water Quality Monitoring
- Ground Water Resources
- Inland Waterways
- Inter Basin Water Transfer Links
- Legal Instruments on river in India
- Inter State Disputes
- Large dams in India
- Water Tourism
- Glossary of terms

**Toolbox**

- What links here
- Printable version
- Permanent link

**Associated Relationships with Dam**

Sl.No.	Name
1	Indira Sagar (NHDC) Reservoir
2	Indira Sagar /Narmada Sagar Project Major
3	Indira Sagar Canal head Power House
4	Indira Sagar Power House
5	Indirasagar Dam (Unit - I)
6	Punasa Lift Irrigation Project

[View in Water Resources Projects Info-System](#)

[India WRIS Map view](#)

[Bhuvan](#) [Bing Map](#) [Bing Aerial Map](#) [OSM](#)

**Salient Features**

Name of the Dam: Indira Sagar (NHDC) Dam

start | Indra Sagar D02080 ... | Bhuvan - Accelerated... | WARIS\_Presentation ... | WARIS\_Presentation ... | EN | 10:11



# 2D-3D Linked View

• About WRIS • Accessibility • Tools • Metadata • WRIS Wiki • Help

Search



## India-WRIS WebGIS

Water Resources Information System of India



HOME » 2D-3D Linked View



WRIS 2D Map



Google 3D View



# Major Challenges Faced

- **Defining Data Structure for Water resources Project being Complex in nature**
- **Collection of Water Resources Project Data from State Government and conversion into GEO-Database**

# Where are we now

- **Water Resources Information System to Spatial Decision Support System for IWRM has three stages:**
  - 1. Pulling the entire database and designing a common framework of water resources data along with ancillary data to be used by all stakeholders for water related issues.**
  - 2. Detailed studies are carried out on watershed, river basin or state level using detailed data, customized application studies and applying models for problem solutions.**
  - 3. Involve automation in the entire process for data collection & organization and accordingly real or near real time analysis and forecasting.**
- **India-WRIS WebGIS Project jointly executed by CWC & NRSC, ISRO has accomplished the first stage to a large extent. The second and the third stages are to be accomplished by proposed National Water Informatics Centre alongwith stakeholders.**



# **National Water Informatics Center**

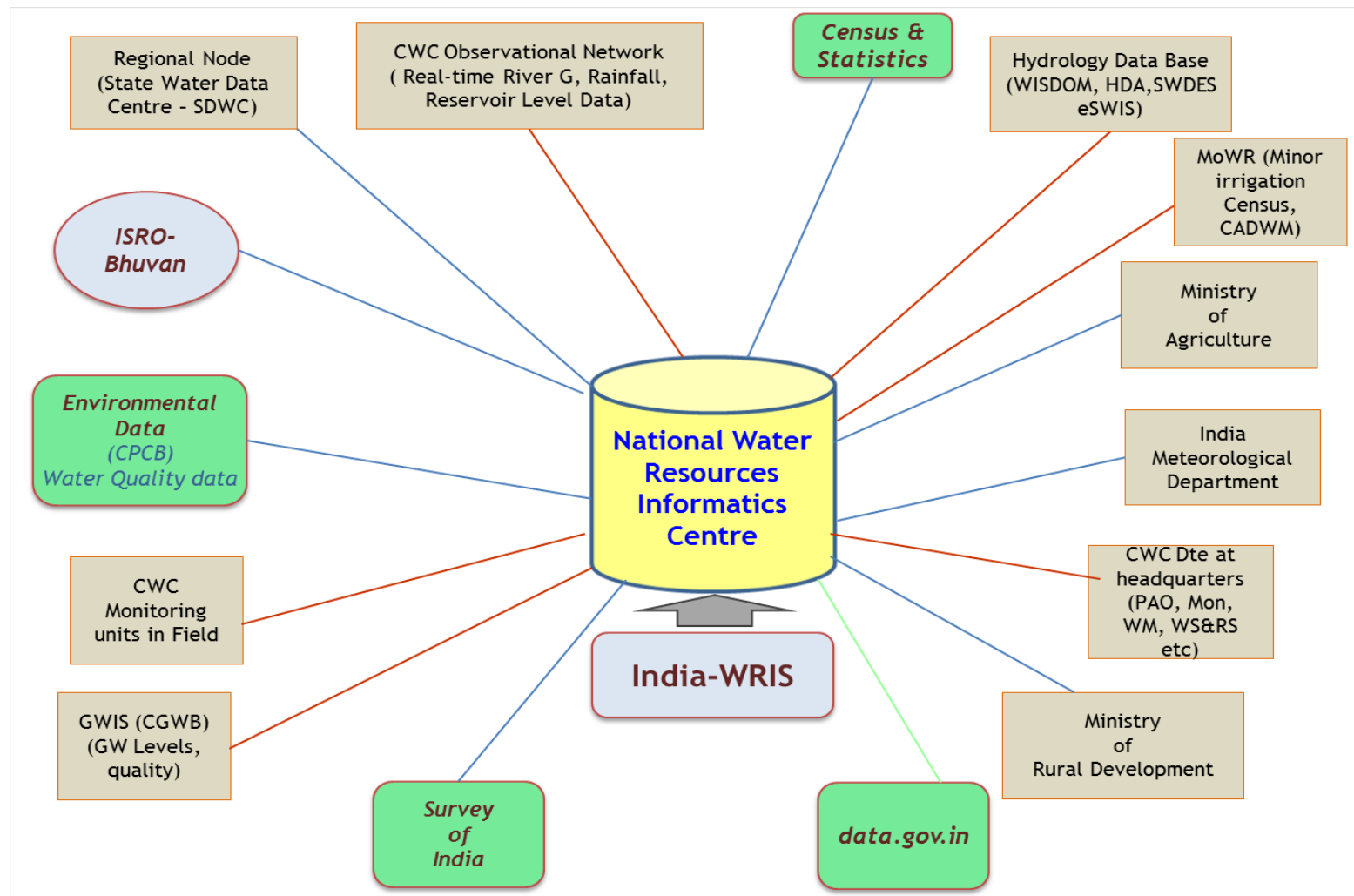
# Goal of NWIC

To generate, organize and provide up to date data and information on water resources and allied themes in public domain; and develop value added products and services for integrated water resources management.

**Centre will be manned by Water domain expertise, Geo-Informatics & IT/Systems domain (Role of CWC & CGWB will be extremely important alongwith other stakeholders )**

# Conceptual framework of the linkages

- The center will have professional linkages with central government departments, state government water resources departments, regional CWC offices and linkages with the portals having water resources related data/information. Conceptual framework of the linkages is described in figure below.





# Major Focus Area of NWIC (Next 5 years)

- **Creation of Nodes /linkages in states & Institutions - Regular update and addition of new database**
- **Real time data (Reservoir, River, Water quality, meteorology, Ground water, flood, soil moisture) - Linkage through RTDAS/SMS based (DWRIS & HP-III)**
- **Integration/linkages with modules – PMP Atlas, HDA, e-SWIS, e-GEMS, DSS (P)**
- **Mapping/Monitoring (Using sub meter satellite data) - CADA works, RRR Scheme, AIBP, Flood protection, Glacial lakes & Development of MIS, Coastal Management Information System**
- **Emergency Response during Floods to CWC & State authorities (Flood inundation mapping) , Estimation of Flood using QPF (With IMD help)**
- **Generation of data on 1:10K & 1:4 K**

# Continued

- **Software – Web map & Web feature services, Mobile App, Crowd Sourcing (For floods, water quality and water bodies etc), Improve user friendliness, Multilingual, WRIS Education**
- **Application/Studies with the help of domain expertise (Irrigated and un-Irrigated area, crop mapping in MMI command vis-a-vis originally planned, Sedimentation Index, Watershed prioritization for major reservoirs, Water Quality status of India, Virtual water trade amongst states etc)**
- **Bringing out State of the Art report ( State-wise & Basin Wise Irrigation/Water Resources Development , Water stress Area Atlas etc)**
- **Input – Re-Assessment of Basin-wise water resources potential studies, Morphological studies, e-water**
- **Awareness Programme**
- **Publication- Irrigation Atlas of India**

Thank you



<http://www.india-wris.nrsc.gov.in>

