Ministry of Water Resources, River Development and Ganga Rejuvenation

Presentation for the Press Conference
19.06.2017

KEY INITIATIVES OF THE MINISTRY

Opportunities in the Water Sector

- Irrigation reform - bridging the IPC & IPU gap
- Reliable Data Availability - National Hydrology Project
- Drought Resilience
- Conflict Resolution
- Flood Management
- River Rejuvenation - Water Quality
- Sustainable use of Ground Water
- Dam Safety
- Future Directions

PMKSY Overview

Category	No. of Projects	Fund required for completion (Rs. in crore)			Central Share (Rs. in crore)	Irrigation Potential Utilisation (Lakh Ha.)
		AIBP	CAD	TOTAL		
Priority-I projects (Completion by 3/2017)	23	7956	5466	13423	6535	14.53
Priority-II projects (Completion by 3/2018)	31	8080	4825	12905	4269	12.95
Priority-III projects (Completion by 12/2019)	45	32510	18757	51268	20538	48.55
TOTAL	**99**	**48546**	**29049**	**77595**	**31342**	**76.03**

PMKSY significant achievements

- 99 Priority Projects; 76.03 Lakh Ha. Irrigation potential
- 23 Projects to be completed during – 2017.
- 31 Projects by March-2018.
- 45 Projects by March-2019.

- Polavaram Project; 2.9 Lakh Ha. Irrigation Project; 960MW of Power Generation on a fast track.

Many projects at standstill such as Gosikhurd (2.5 Lakh Ha.) Maharashtra, streamlined for timely completion.

HKKP & More Crop per Drop

- 22 projects of Maharashtra, 6 projects of Odisha, 17 projects(including phases) of Madhya Pradesh (45 in all) have been put on fast track and likely to be completed in advance of the scheduled time.
- Potential Utilization through the prioritized projects is expected to be more than 14 Lakh Ha. during 2016-17.

- Innovative means - installation of underground pressure pipelines to resolve issues of land acquisition.
- FOCUS on CADWM – HKKP from only 39 projects under CADWM initially – currently 75 projects under CAD – HKKP.
- PIM – WUAs – Pani Panchayats
- Focus from construction to maintenance & management

Funds released under PMKSY during 2016-17

Sr. No.	Item	Funds Released – in crs
1	AIBP	3308
2	CAD	854
3	Polavaram Project	2514
4	State Share from LTIF	3334
	Total	**Rs. 10010 cr**
	State budget	**Rs 7870 cr**
	Projects in pipeline	**Rs. 1200 cr**
Total funds leveraged by LTIF for PMKSY		**Rs 19080 cr**

PMKSY-AIBP Dashboard

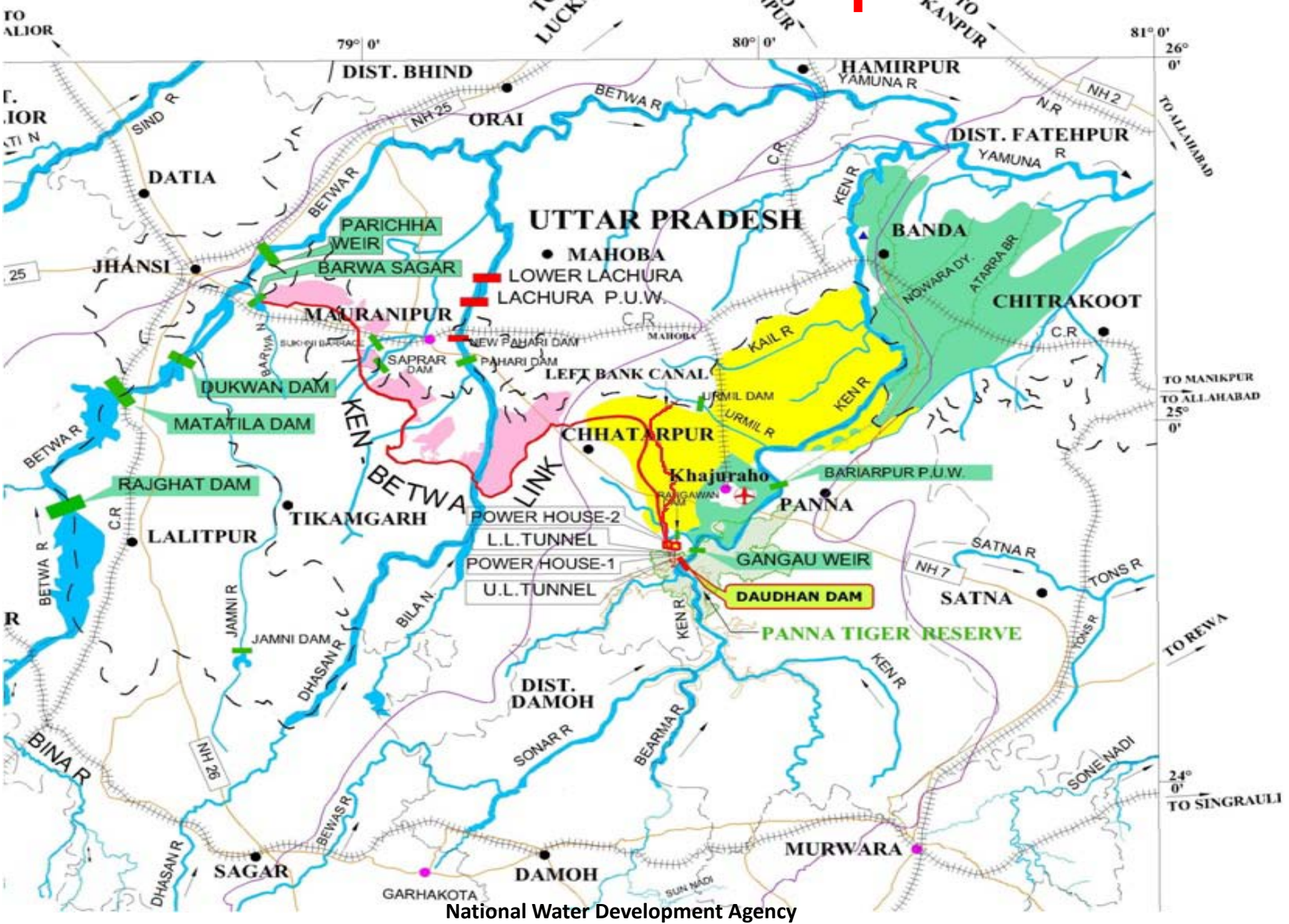
Lowering the Gates of Sardar Sarovar Dam (SSD)

- With lowering of gates of SSD, the **live storage capacity would increase from 1565 to 5740 MCM i.e. by 4175 MCM (267%).**

- In addition, **this additional storage would irrigate about 8 lakh hectares**.

- The clean (hydro-power generation) would increase by present 1300 MW to 1450 MW with increase in annual generation by about 1100 Million Units (i.e. about Rs.400/- crore per annum).

Ken-Betwa Link Project



National Water Development Agency

First ILR Ken Betwa Link Project & other new projects

Benefits of KBLP

Area Irrigated
6.35 lakh ha.
MP - Chhatarpur, Panna, Tikamgarh
UP - Mahoba, Jhansi, Banda

- Drinking water to 1.5 million people
- Benefits 0.7 Million families

New projects in pipeline

- **North Koel Project**
- **Par Tapi Narmada**
- **Daman Ganga Pinjal**
- **Pancheshwar**

NORTH KOEL PROJECT

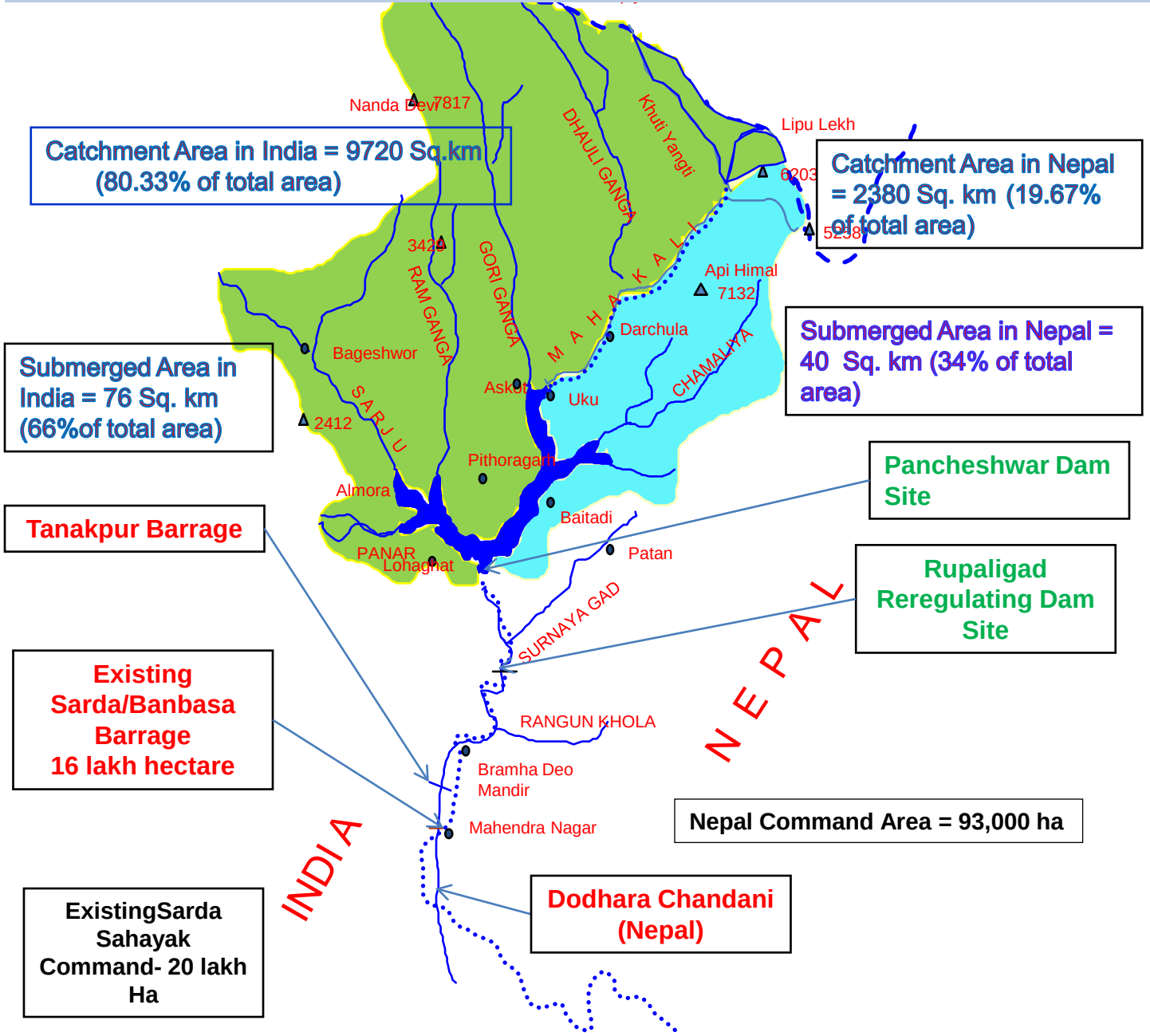
Concrete dam to store 116 MCM water.

A 819.6m long barrage at Mohammadganj, 96 km downstream of the dam; feeeding t*wo canals for Bihar and Jharkhand with distributaries for irrigation.*

The completion of this long pending project shall irrigate additional 39,801 hectares in the tribal/drought prone areas of Bihar and Jharkhand.

44.0 MCM drinking and industrial water

PANCHESHWAR PROJECT AT GLANCE



Benefits from Pancheshwar MPP

- The project envisages a storage of the order of 6 BCM; will **generate 5040 MW power, irrigate 4.3 lakh ha out of which 2.6 lakh ha is in India, at a total cost of Rs. 33108 crore**.
- The project will generate **an annual benefit of Rs.4,592 crores** which includes Rs. 3665 crores as power benefit, Rs. 837 crore as irrigation benefit and Rs. 90 crore as flood benefit.
- The Pancheshwar storage dam would play a significant role in mitigating floods. The disaster due to floods year after year and associated costs could be avoided to Nation's advantage.
- The project will promote eco-tourism as part of the environmental management plan.
- Most of the inputs, labour etc. would come from India and therefore the project will benefit the Indian economy.

FOCUS ON NORTH-EAST

- **Brahmputra board being restructured**

- **4 projects with a balance CA of 617 crores taken up under PMKSY to generate an Irrigation Potential of 1.62 lakh ha.**

- **So far, Rs.184 crore has been spent on protection of Majuli from floods and erosion. An additional Rs.237 crores sanctioned for major works for protection of Majuli.**

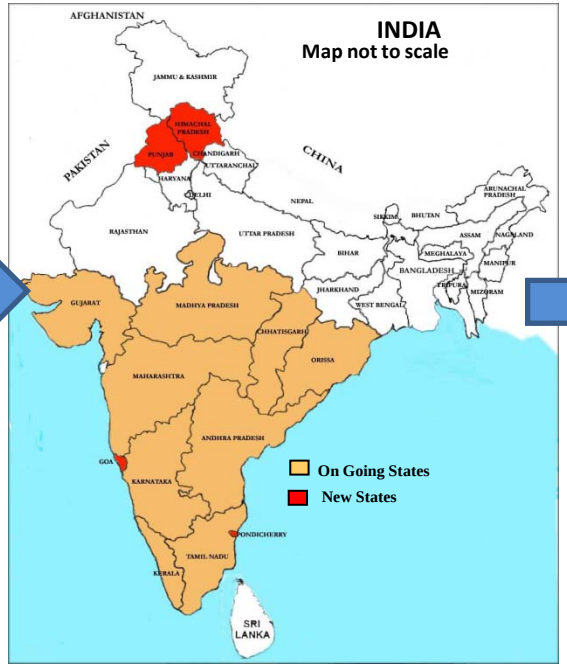
- **Rejuvenating NERIWALM**

National Hydrology Project

HP-I (1995-2003)

- 9 States; 6 Central Agencies
- Manual Data Collection
- Desktop data management
- Data collection & management

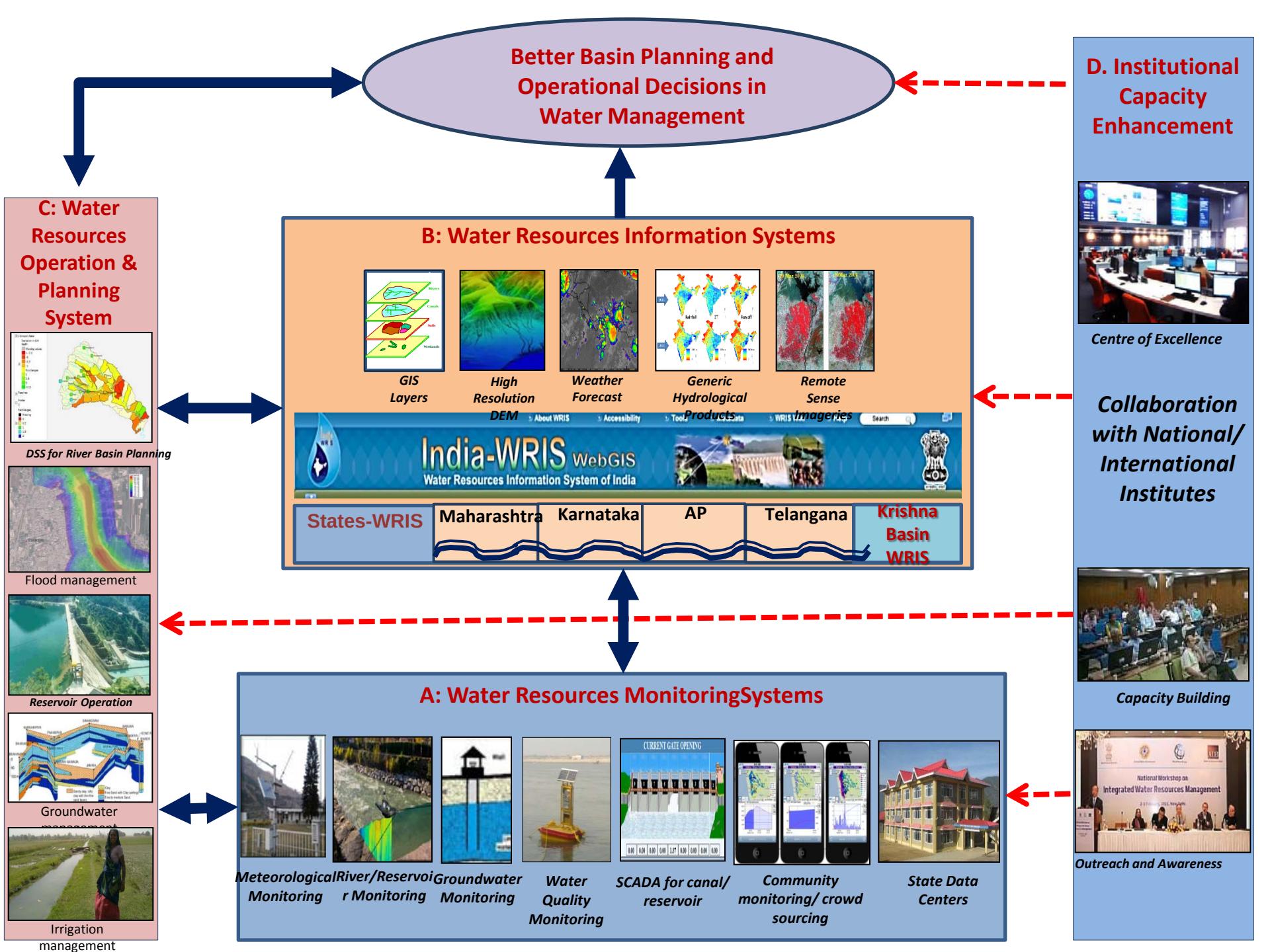
HP-II (2006-2014)



- 13 States; 8 Central IAs
- Real Time Data Acquisition
- Web-based data management
- Data Collection, management & analysis

NHP

- Pan-India; 10 Central IAs
- Standardization of RTDAS as national level
- Web-based National Database – IndiaWRIS
- Institutionalization of data collection, management and analysis


Better Basin Planning and Operational Decisions in Water Management
D. Institutional Capacity Enhancement
Centre of Excellence
Collaboration with National/ International Institutes
Capacity Building
Outreach and Awareness
National Workshop on Integrated Water Resources Management
C: Water Resources Operation & Planning System
DSS for River Basin Planning
Flood management
Reservoir Operation
Groundwater management
Irrigation management
B: Water Resources Information Systems
GIS Layers
High Resolution DEM
Weather Forecast
Generic Hydrological Products
Remote Sense Imageries
India-WRIS WebGIS
Water Resources Information System of India
States-WRIS
Maharashtra
Karnataka
AP
Telangana
Krishna Basin WRIS
A: Water Resources MonitoringSystems
CURRENT GATE OPENING
Meteorological Monitoring
River/Reservoir Monitoring
Groundwater Monitoring
Water Quality Monitoring
SCADA for canal/ reservoir
Community monitoring/ crowd sourcing
State Data Centers

National Water Accounting Framework: Overview

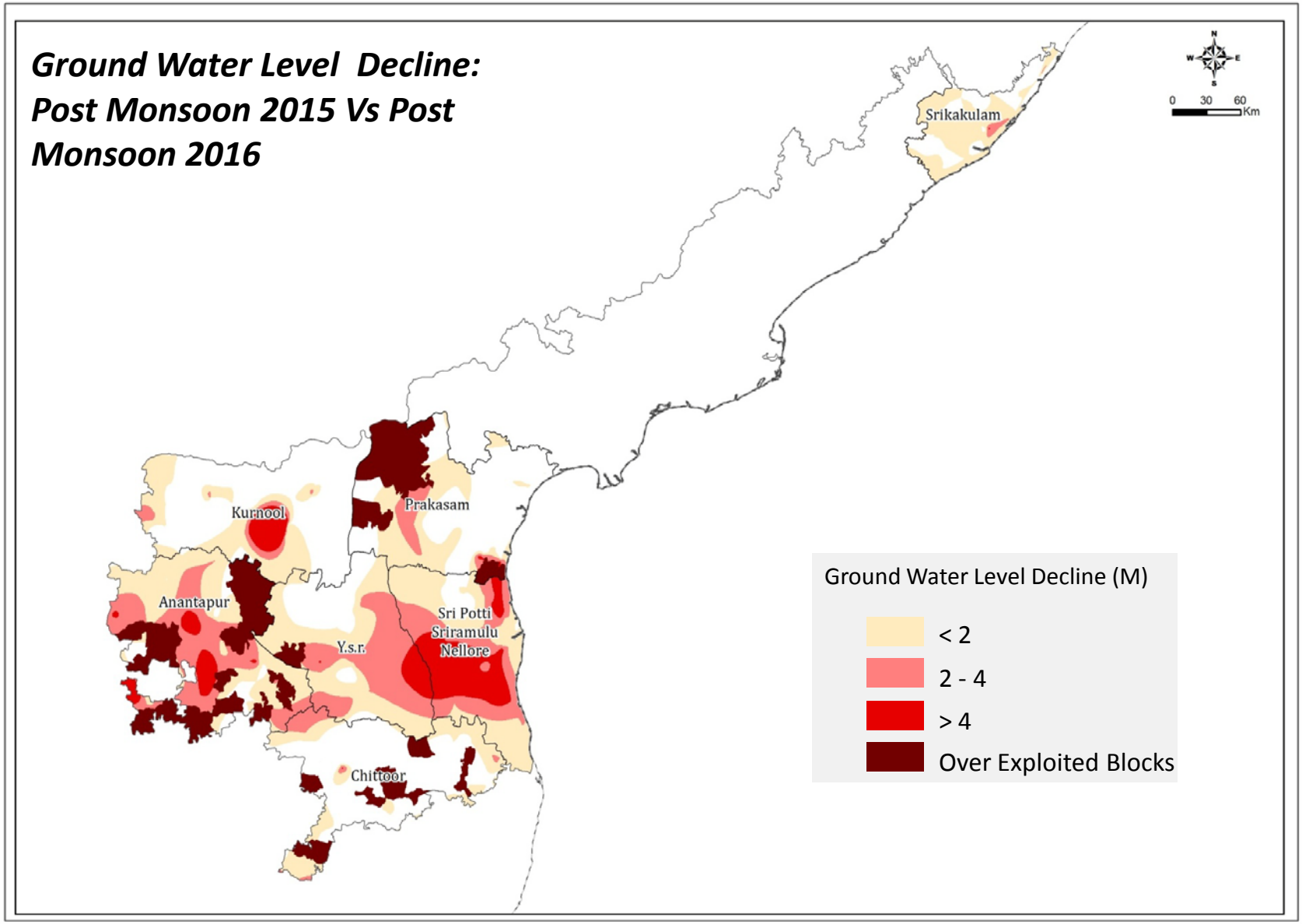
Objectives

- **Architecture for sustainable** equitable, and eco-driven water use;
- **Efficiency in water use and large-scale demand-side management** through analyses of trends in water consumption, availability, efficiency, cost recovery, economic productivity, and quality;
- Support **prioritization of investments** for enhancing water efficiency/ quality improvements and mitigating negative impacts on the environment;
- Create a **knowledge base** for IWRM and RBMP.

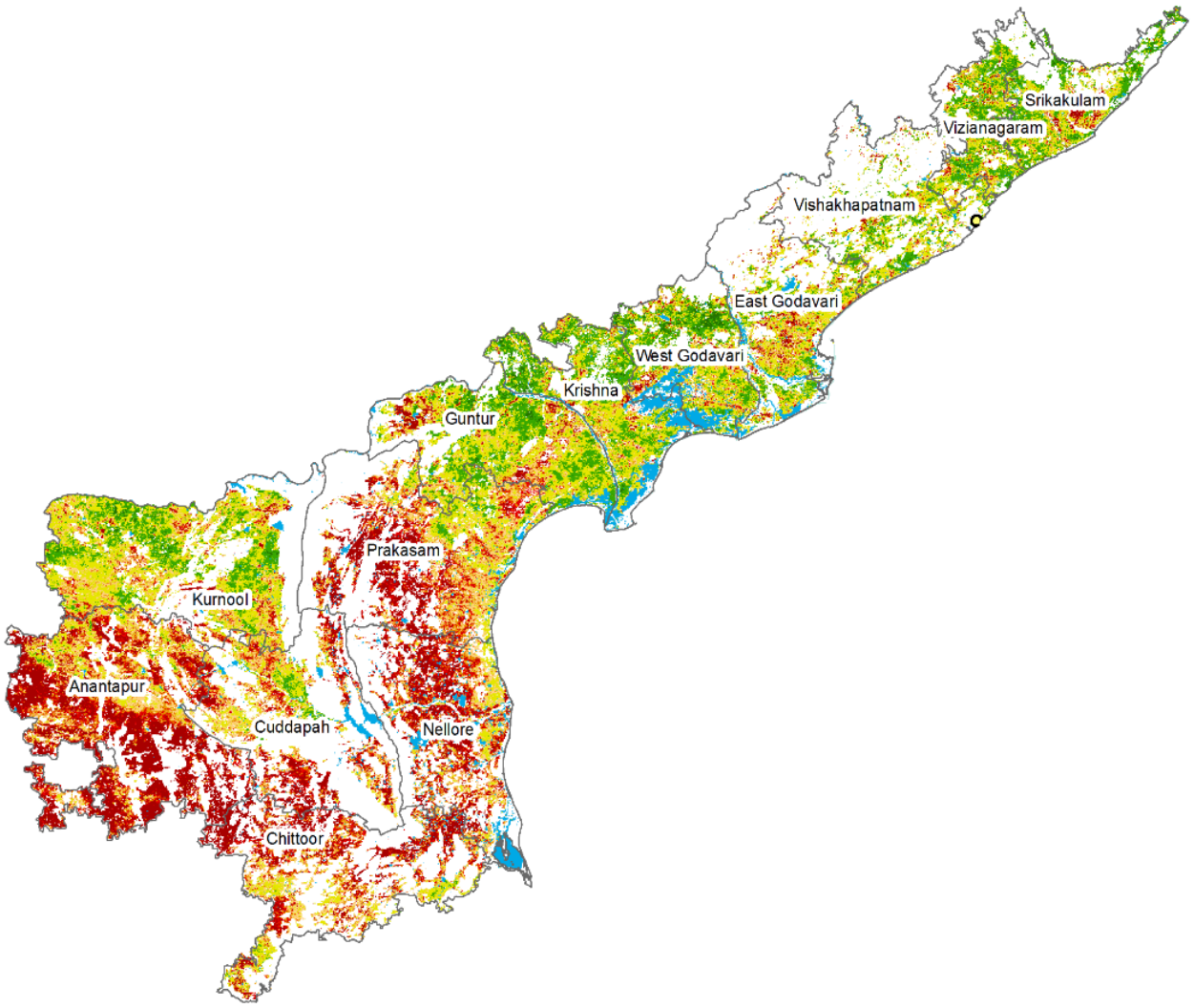
Key policy questions

- **Area-Wise and Sector-Based Water Use**:
- **Water Quality**:
- **Sustainable and Equitable Water Use**:
- **Consumption Trends**:
- **Policy Options**: How can future water consumption trends be influenced?
- **Economic and Social Benefits and Trade-Offs**:

Ground Water Resources: Andhra Pradesh



Drought Situation in Andhra Pradesh



IWMI
International Water Management Institute

South Asia Drought Monitor

16-23 Oct, 2016

Rabi

The Drought Monitoring System produces Integrated Drought Severity Index (IDSI) on a weekly basis by combining satellite derived information on the conditions of vegetation, temperature and rainfall datasets using long-term (15 years) record.

Drought Classes

- Extreme Drought
- Severe Drought
- Moderate Drought
- Stress
- Watch
- Normal
- Healthy
- Non-Agriculture
- Water Body
- Flood Pixels

IDSI product was developed in collaboration with World Meteorological Organizations (WMO), Global Water Partnership (GWP) and CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) led by CIAT and Water, Land and Ecosystems (WLE) led by IWMI.

Disclamier: The drought monitor focuses on broad-scale conditions. Local condition may vary. This is an experimental product and the validation was carried out with limited field observations.

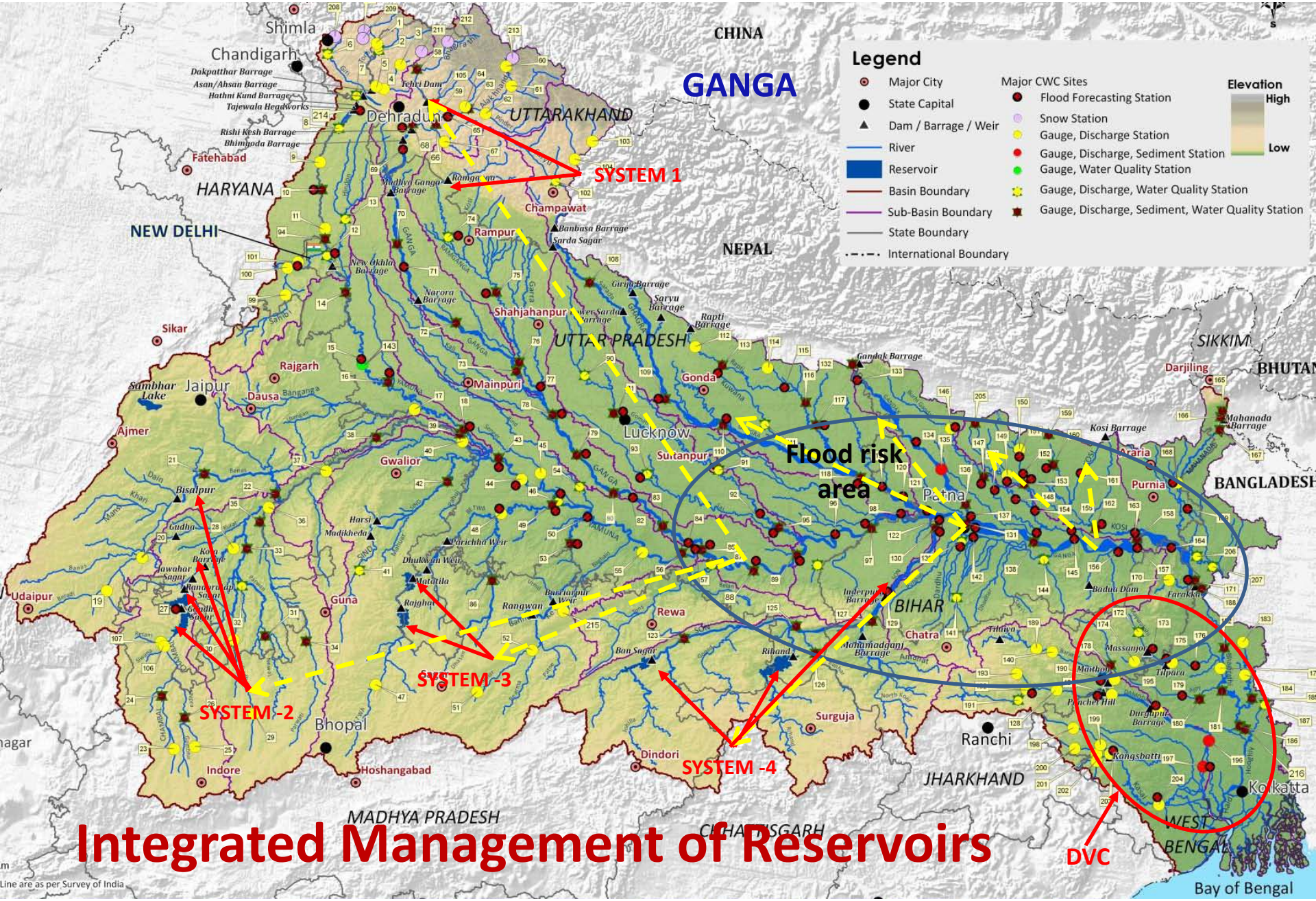
0 50 100 200 km

Extension and Modernisation of Flood Forecasting Network

Time Period	Level Forecast	Inflow Forecast	Total
Upto XII Plan	151	48	199
Under expansion	33	43	76
	Total		275

Automatic Data Acquisition and Real Time Data Transmission

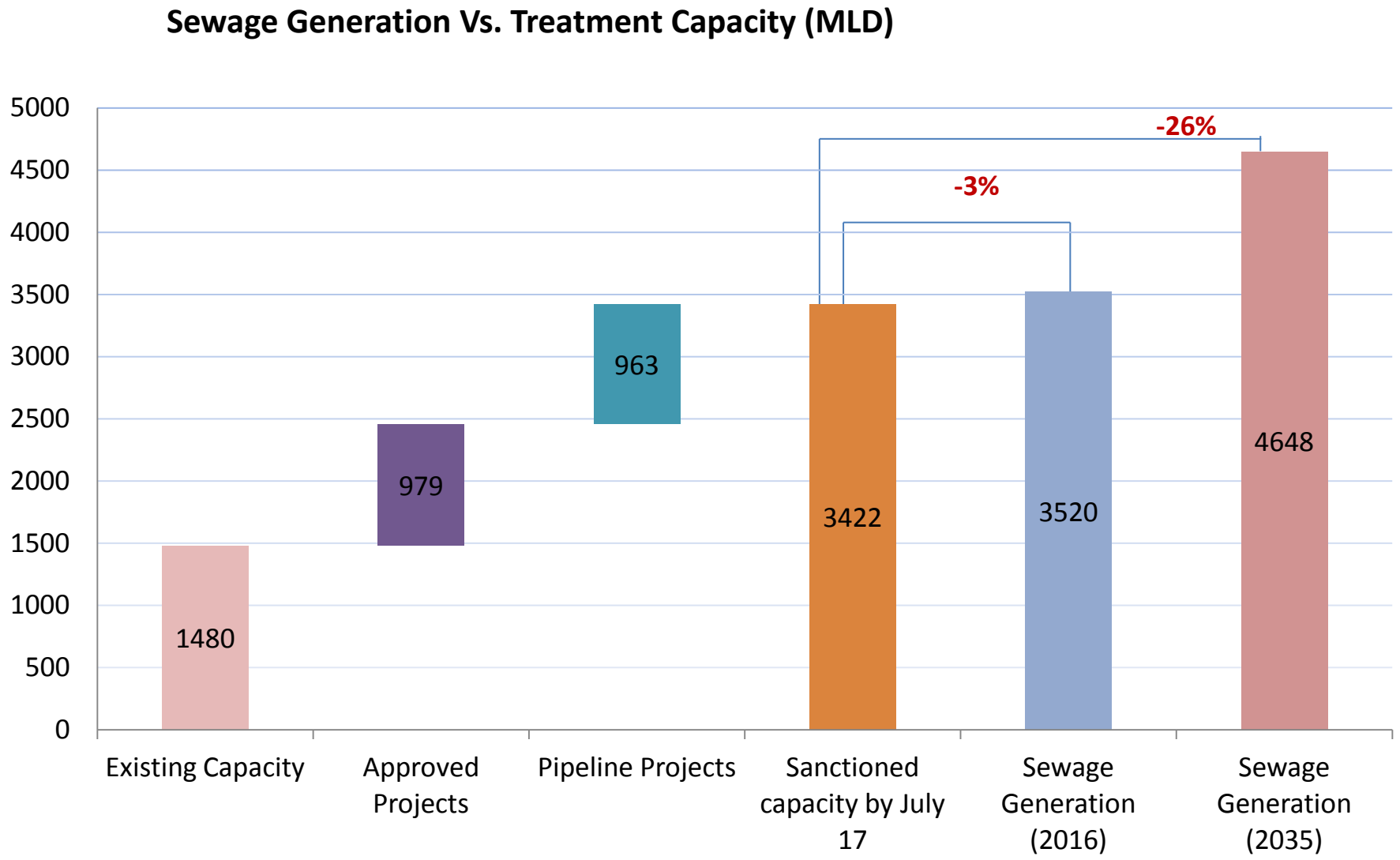
Plan	No of stations
Upto XII Plan	510
Under modernisation	458


GANGA
Legend
Major City
State Capital
Dam / Barrage / Weir
River
Reservoir
Basin Boundary
Sub-Basin Boundary
State Boundary
International Boundary
Major CWC Sites
Flood Forecasting Station
Snow Station
Gauge, Discharge Station
Gauge, Discharge, Sediment Station
Gauge, Water Quality Station
Gauge, Discharge, Water Quality Station
Gauge, Discharge, Sediment, Water Quality Station
Elevation
High
Low
SYSTEM 1
SYSTEM -2
SYSTEM -3
SYSTEM -4
Flood risk area
DVC
Integrated Management of Reservoirs
CHINA
NEPAL
BHUTAN
BANGLADESH
SIKKIM
UTTARAKHAND
HARYANA
NEW DELHI
UTTAR PRADESH
BIHAR
JHARKHAND
WEST BENGAL
MADHYA PRADESH
CHHATTISGARH
Shimla
Chandigarh
Dehradun
Fatehabad
Sikar
Jaipur
Ajmer
Udaipur
Bhopal
Indore
Hoshangabad
Ranchi
Kolkata
Lucknow
Gonda
Mainpuri
Shahjahanpur
Rampur
Champawat
Rajgarh
Dausa
Gwalior
Bisalpur
Guna
Rewa
Surguja
Dindori
Patna
Purnia
Araria
Darjiling
Bay of Bengal

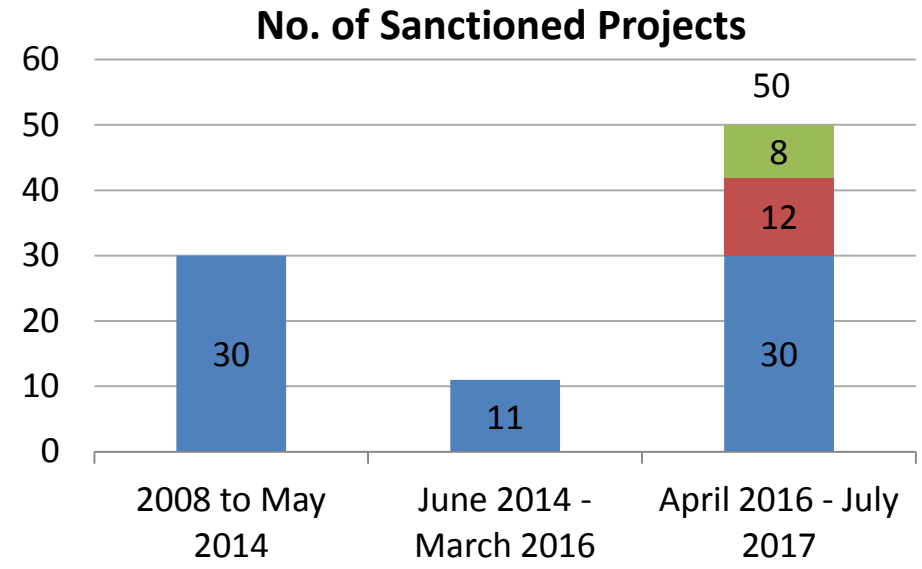
Municipal Sewage Management in Towns along Ganga Main Stem

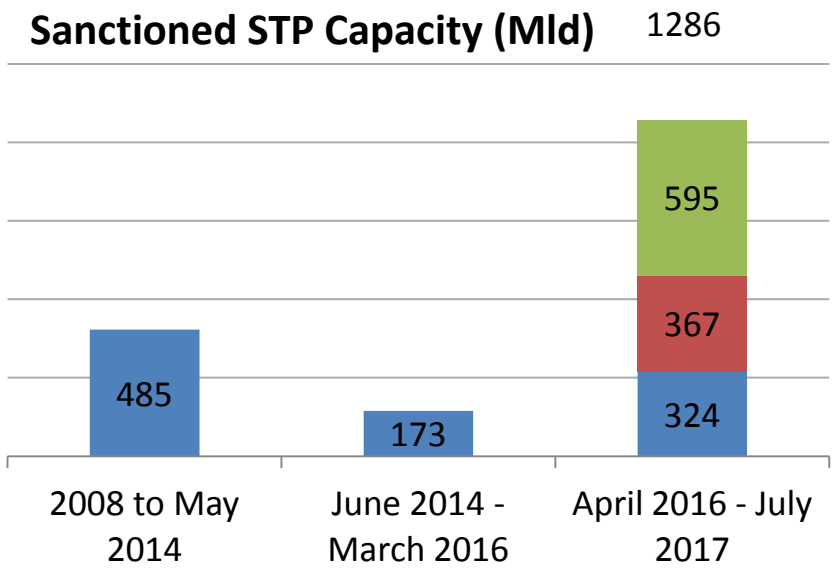
Sr. No.	State	Total Sewerage Generation (MLD)		Total Existing STP Capacity (MLD)	Treatment Capacity Gap (MLD)		Projects under Implementation (MLD)			
		2016	2035		2016	2035	Ongoing	Under Tendering	Approved	Proposed
1	Uttarakhand	160	210	83	79	128	1	113	19	0
2	Uttar Pradesh	1203	1688	811	428	878	390	50	72	158
3	Bihar	556	869	0	556	869	173	0	60	319
4	Jharkhand	15	20	0	15	20	12	0	4	0
5	West Bengal	1586	1861	586	1031	1297	85	0	0	486
Total		3520	4648	1480	2109	3192	661	163	155	963
				43 Town			20 Town	7 Town	8 Town	20 Town

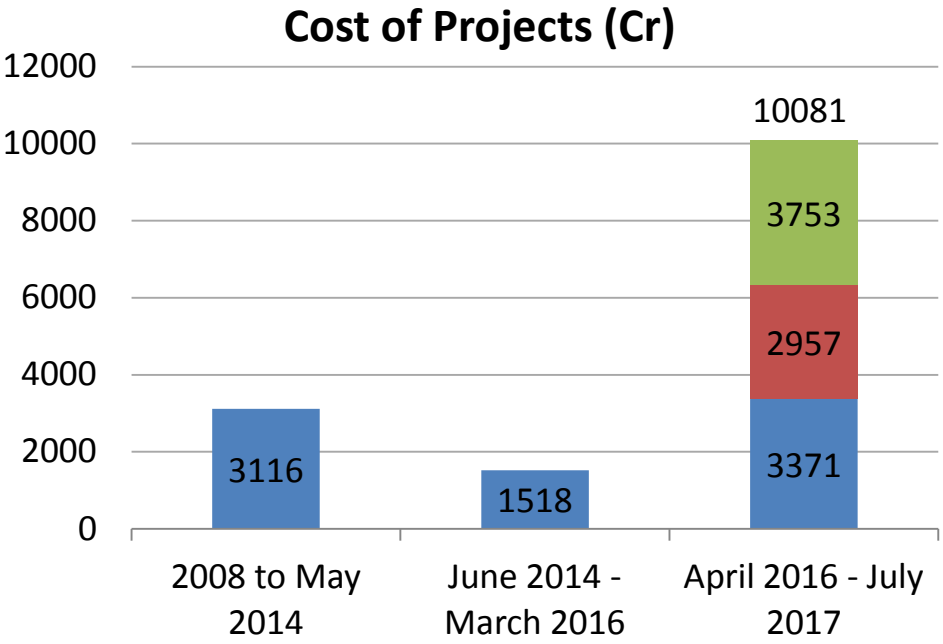
Municipal Sewage Management in Towns along Ganga Main Stem

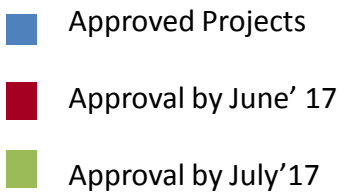


Progress in Sewage Treatment Capacity- Ganga Mainstem



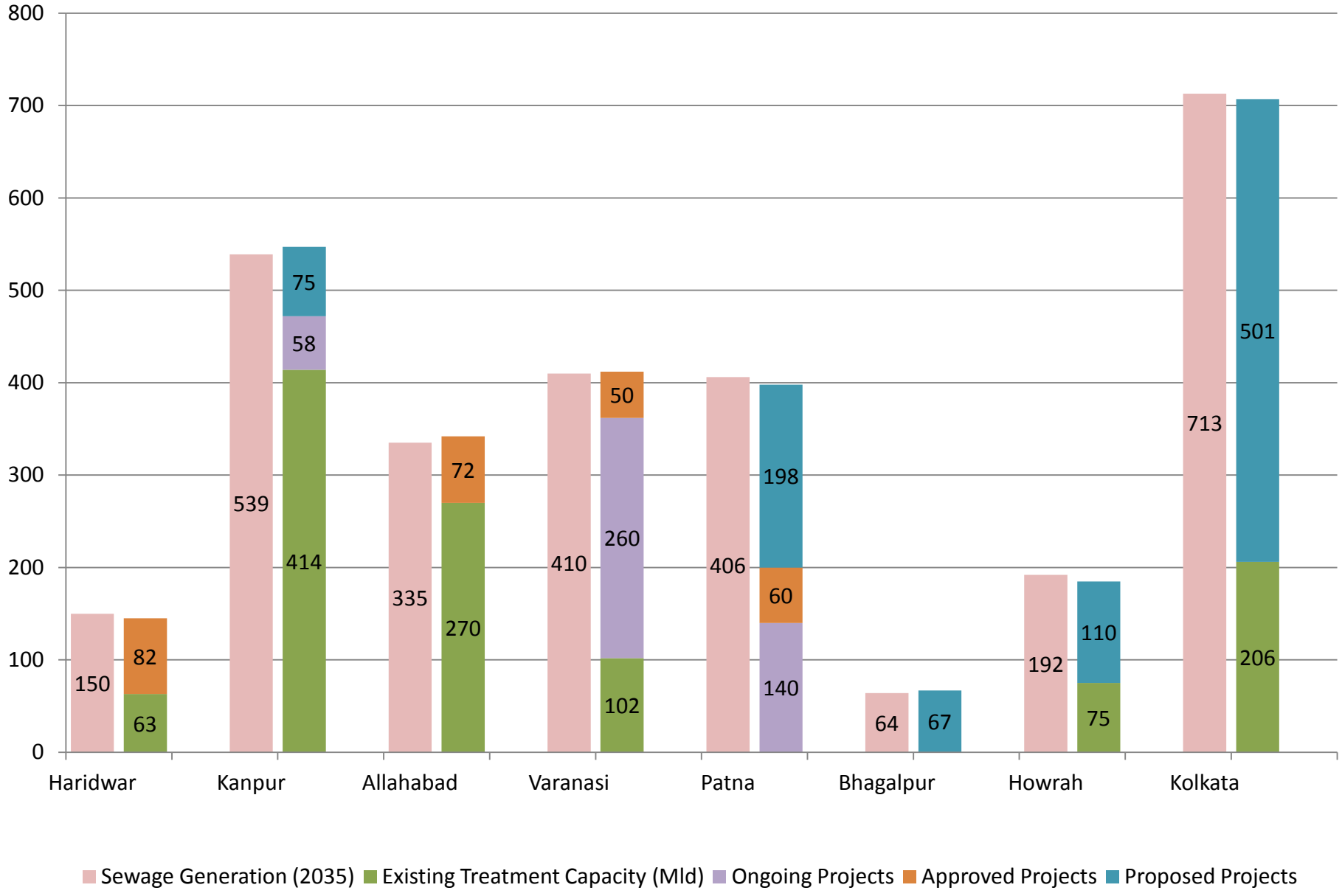






Focus on Large Cities of Ganga Main Stem

All figures are in Mld



Industrial Pollution Control & Regulation

Grossly polluting industries	1109
Industries inspected	1109
Industries inspected - special drive Mar – Apr 2017	751
Inspection reports received (358+239)	597
Status	
Closed	171
Complying	218
Non-complying	208
Action taken for non-compliance	
Closed by directions	99
Show Cause Notice issued	109

Improvement of Water Quality of Tributaries of River Ganga

River	DO mg/l (year)		Trend	BOD (year)		Trend
Dahela	0.0-.01 (2009-10)	0.7-2.3 (2013-16)	↑	63-340 (2009-10)	5-121 (2014-16)	↓
Bahela	0.0-1.0 (2009-10)	1.2-3.4 (2014-16)	↑	44-179 (2009-10)	13-141 (2014-16)	↓
Kosi	3.5-7.8 (2009-10)	7.4-8.2 (2014-16)	↑	1.0-10.0 (2009-10)	0.0-5.0 (2014-16)	↓
Ramganga Before confluence	5.4-9.2 (2009-10)	5.3-12.2 (2014-16)	↑	4.0-8.4 (2009-10)	3.0-7.7 (2014-16)	↓

Rural Sanitation

1679 Gram panchayats

Rs. 578 Crores to Ministry of Drinking Water and Sanitation

State-wise status of ODF in Ganga Bank Villages					
S. No.	State Name	District	Villages (near Ganga)	Villages declared ODF	% of ODF villages
1	Bihar	12	487	342	70.23
2	Jharkhand	1	73	64	87.67
3	U.P	25	1627	1353	83.16
4	Uttarakhand	7	222	222	100.00
5	W.B	7	2106	2095	99.48
Total		**52**	**4515**	**4076**	**90.28**

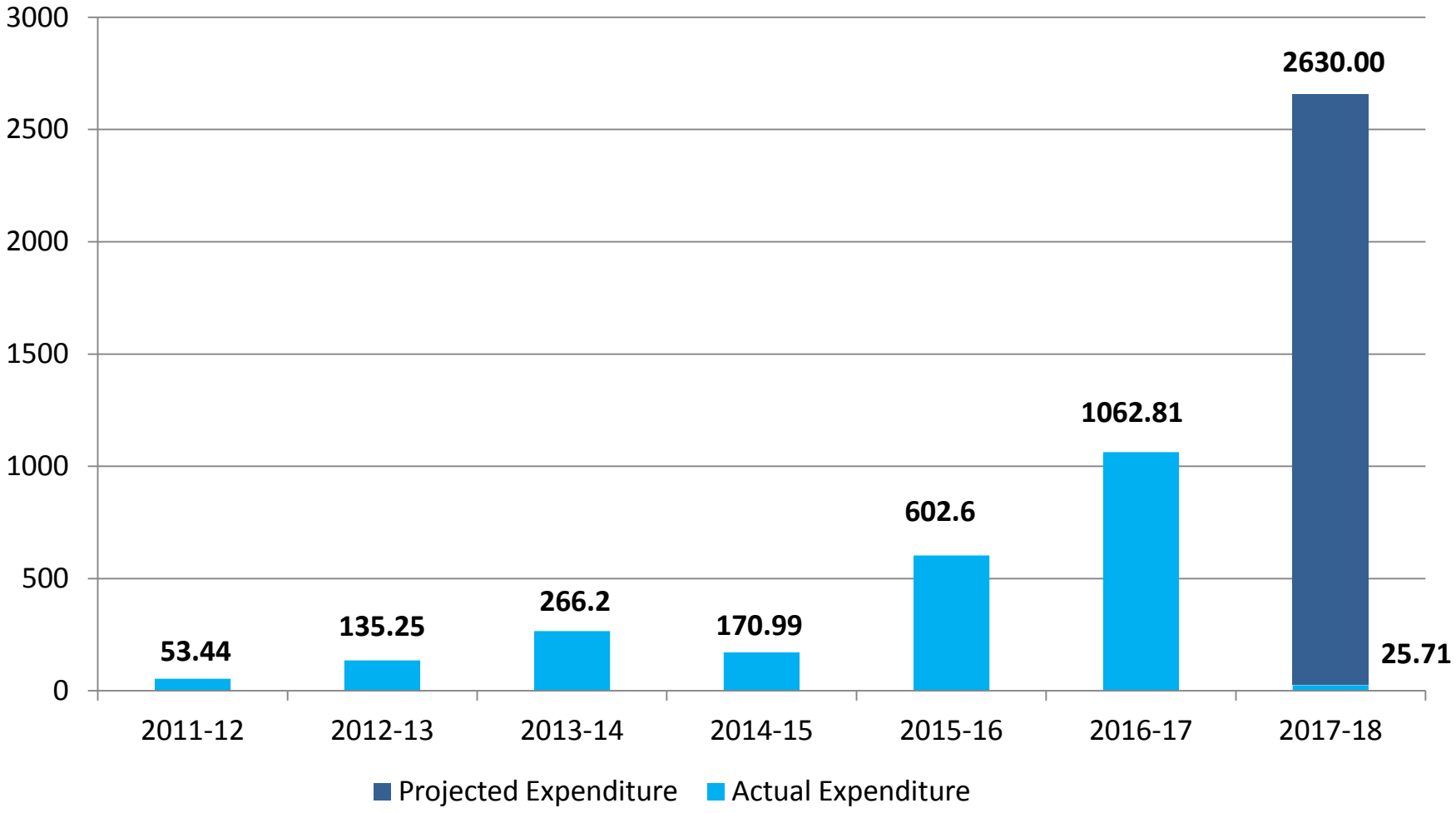
Third party verification being done by National Level Monitors and Quality Council of India

Work expected to be competed by June 2017

Other key initiatives

- **River & Ghat cleaning activities**
- **Trash skimmers**
- Biodiversity conservation
- **Afforestation**
- IEC and Co-ordination

Year wise Expenditure of NMCG (Rs. in crore)



GW Management Challenges

Indiscriminate GW development

- Decline of in GW levels.
- Drying up of Shallow Wells
- Reduction in sustainability of wells
- Deterioration in GW quality.
- Sea water ingress in coastal areas.
- Decrease in base flow in many small rivers
- Increased Energy Consumption & increased CO_2 emission footprints

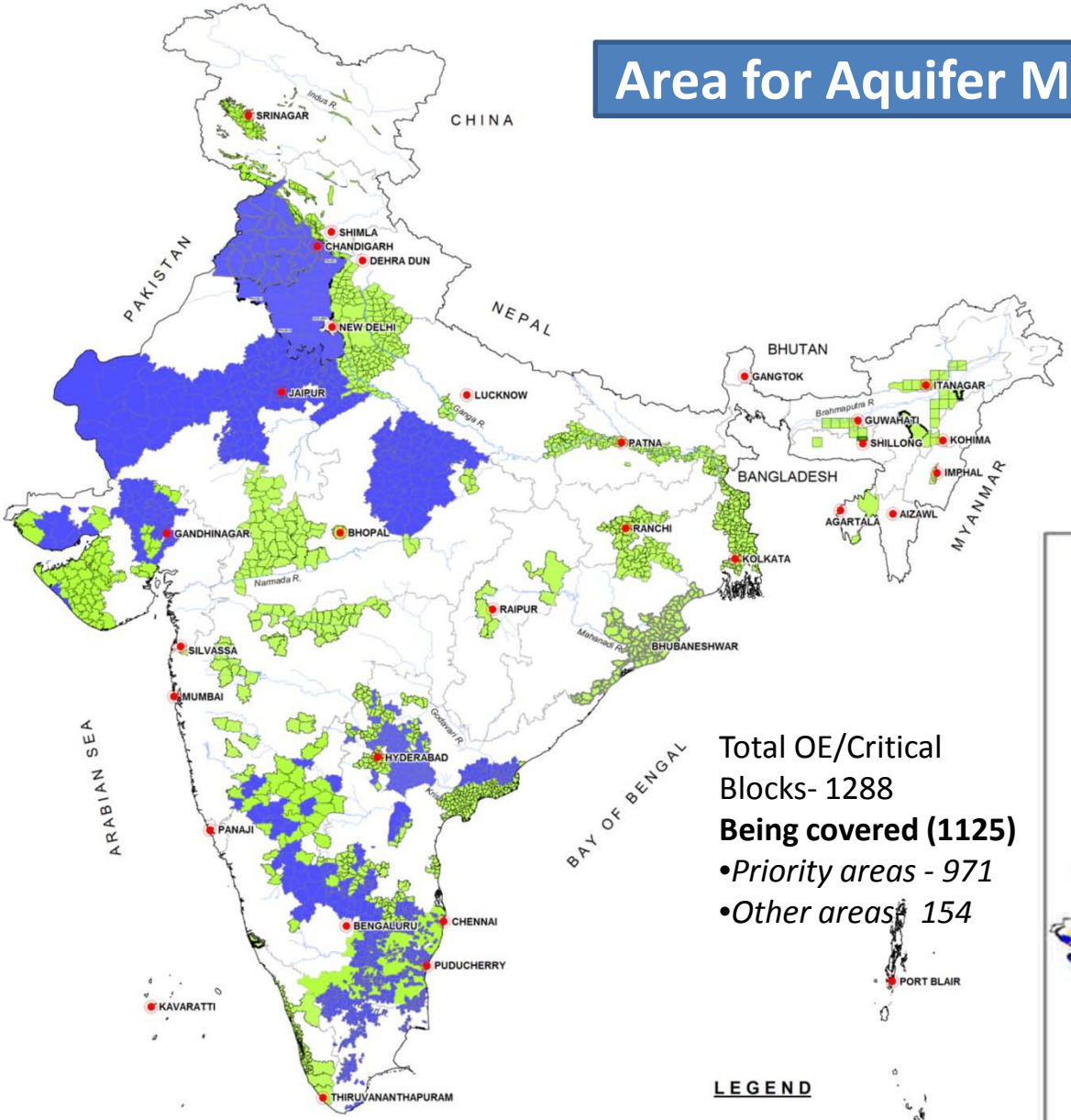
Strategy to mitigate impact of over-exploitation

- Sound GW management on scientific considerations.
- Water Conservation / Augmentation of GW resources through community participation.
- Regulation of GW development
- Increase in GW Use Efficiency

Sustainable development of ground water for ensuring water and food security

Area for Aquifer Mapping during 2012-17

The aquifer maps and management plans for an area of about 5.90 lakh sq km has already been completed.



Total OE/Critical Blocks- 1288

Being covered (1125)

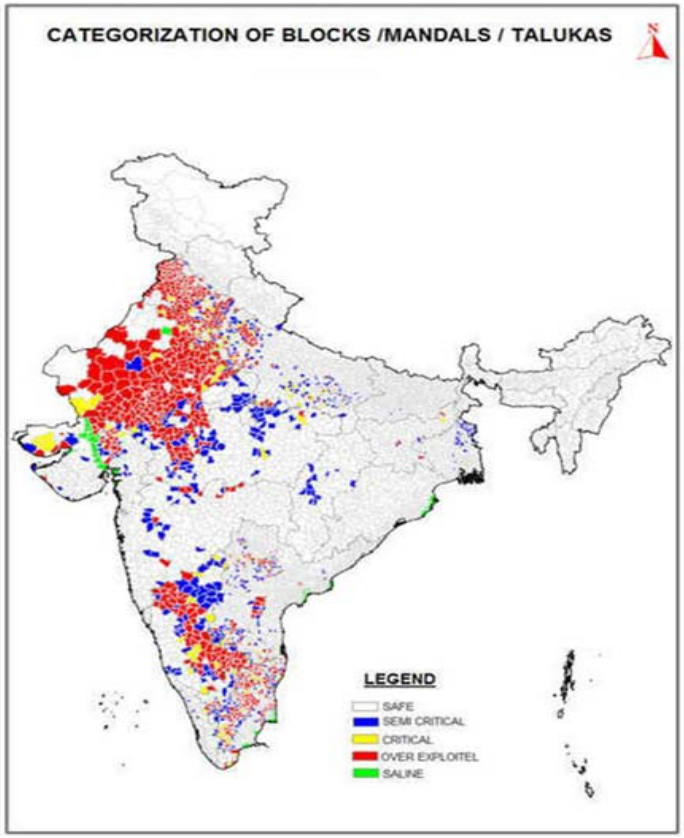
- *Priority areas - 971*
- *Other areas - 154*

LEGEND

- State Capital
- State Boundary
- National Boundary
- River

5.25 lakh sq.km — REPRIORITIZED AREA FOR AQUIFER MAPPING

3.64 lakh sq.km — BALANCE AREA FOR AQUIFER MAPPING



Regulation, Development and Management of Ground Water Resources

- **Convergence with MGNREGA**

- Roof top rain water harvesting made mandatory by 30 States/UTs through inclusion in Building Bye Laws /Rules/Regulations for urban areas.

- So far 15 States/UTs enacted legislation. Revised Model Bill- 2017, presented to the NITI Aayog in May, 2017, after concurrence of the States. The Model Bill 2017 is under consideration of NITI Aayog

Application and Advanced techniques / Innovative Practices in CGWB

- Application of isotope techniques in GW in collaboration with BARC/IAEA/PRL/NIH
- Use of satellite data in collaboration with NRSC / IIRS and application of GIS techniques.
- Modernization of chemical labs / equipment's and analytical practices including accreditation of chemical laboratories of CGWB
- Enhanced use of open source software's for GW modelling (iMOD) and GIS (QGIS) and collaboration with IITs, IISC in modeling
- Strengthening of ground water monitoring network in time and space with real time monitoring mechanism through installation of DWLRs with telemetry System. Development of Mobile Apps for data dissemination .
- Application of advanced geophysical techniques including heliborne surveys in aquifer mapping in collaboration with NGRI and Denmark

Dam Rehabilitation & Improvement Programme

- **DRIP covers 250 dams at an estimated cost of Rs. 2100 crore within seven states Kerala; MP; Odisha Tamil Nadu ; Karnataka, Uttarakhand (UNVNL) and Jharkhand (DVC) .**

- **New technologies and improvement in institutional capacities for dam safety evaluation and implementation at the Central and State levels and in some identified premier academic and research institutes of the country.**
  - **Guidelines for dam safety**
  - **Inspections by independent dam review panels**
  - **Rehabilitation of distress dams**
  - **Emergency action plans**
  - **Dam Safety Bill**

Legislative Reforms in the Water Sector

- The Cabinet Note for amendment to existing **Inter- State River Water Disputes Act, 1956** (amended last in 2002), has been approved by the Cabinet on 07.12.2016 for constitution of a stand-alone Tribunal with common establishment. The Bill has been introduced in the Parliament on 14.3.2017.

- Cabinet Note on **Dam Safety Bill** ready.

- **Draft Law on river Ganga - National River Ganga (Regulation, Protection and Management) Bill under preparation.**

- **Model Bill for Groundwater Protection** submitted to NITI Aayog after concurrence of the States.

MOUs – International Collaboration

- MoUs on Water Resource Management and Development have been signed with Australia; European Union, Israel, Hungary and Tanzania during July 2016 to November 2016.

- Working with U.S. Bureau of Reclamation (USBR)

- UNESCO IHE

Mini-Ratna WAPCOS Limited

Afghan-India Friendship
(Salma Dam), Afghanistan

Water Supply scheme, Tanzania

Stung Tasal Dam, Cambodia

Irrigation Schemes, Laos

DPR Pancheshwar, Nepal

Involved in AMRUT - M.P, Haryana and Rajasthan

Composite Water Management Index

- ✓ **Source Augmentation**
  - o **Ground water**
  - o **sustainable water management**
- ✓ **Supply side management**
  - o **Major and medium irrigation**
  - o **Watershed management**
- ✓ **Participatory Irrigation management**
  - o **Demand side management**
  - o **Sustainable on farm water use practices**
- ✓ **Drinking Water Supply**
  - o **Rural**
  - o **Urban Water supply and sanitation**
- ✓ **Policy and Governance**

Work in progress

- E-flows
- River Basin Management Ganga; Krishna; Godavari; & Mahanadi
- Restructuring of CWC
- Think tank for conflict management
- Recycling urban sewage
- Focus on 112 irrigationally marginalised districts

THANK YOU