National Hydrology Project

Consultative Session

30th July, 2019

Overview and Status

Project Objective:

To improve the extent, reliability and accessibility of water resources information and to strengthen the capacity of targeted water resources management institutions in India

$\rightarrow$ Basis for water resources development and management

Challenges in the Water Sector

- Irregular distribution of water resources in space and time

- Meeting increasing demand of water for different sectors,

- Making more efficient use of water, increase irrigation efficiency

- Managing droughts & floods

- Improvement of water quality

- Trans-boundary issues – international/inter-state

- Climate change impacts

Role of NHP in meeting the challenges

- High-level reports/ analytics/ Indicators

- Geospatial information

- Detailed hydro-meteorological data

- Real-time data

- Drought monitoring

- Hydro-met forecasts (flood warning)

- General information

Policy makers, Law makers

Water resources planners/managers

Researchers, modellers

Flood warning/disaster management services

Water companies

Water users (farmers)

Population in flood prone areas

General Public

- Sustainable GW and SW use for Water Security

- Improved Water quality (SW/GW)

- Flood risk management- Flood Forecast, Inundation Map, Flood Zonation

- Integrated Water Resource Management- Better vision for allocation to different sectors, optimizing investment plan, improved ecology through Environmental Flows

- Reservoir Operations

NHP

National Hydrology Project

Project Components:

A. Water Resources Monitoring Systems

B. Water Resources Information Systems (WRIS)

C. Water Resources Operation and Planning Systems

D. Institutional Capacity Enhancement

Financial support **(100% grant to Implementing agencies)**

- Budget: INR 3640 Crore + INR 40 Crore for NWIC

- World Bank Loan: USD 175 IBRD

- Duration: 8 years (2016-2024)

Key initiatives

- **Institutional**

  - Modification of Hydro-met Data Dissemination Policy

  - Establishment of NWIC

  - Capacity building of IAs including Infrastructure strengthening

- **Functional**

  - Facilitated Collaboration between CWC and Google for improving flood prediction system

  - High resolution Digital Elevation Models- under preparation

  - Geo-database in flood prone areas- under preparation

- **Data Acquisition Modernisation**

  - Finalization of surface and ground water RTDAS network

  - Finalization of specifications of the Hydro-met equipment

Key initiatives (cont.)

- **Knowledge products**

  - National Modelling Framework for Water Resource Assessment- under development

  - Snow melt runoff models in Indian Himalayan Region- under development

  - Country-wide Hydro information products(ET, runoff, soil moisture, hydrologic drought)- under development

- **Information System**

  - Finalization of architecture of improved India-WRIS & e-SWIS

  - Development of telemetry module to automatically capture telemetry data

  - Development of groundwater module in e-SWIS

  - Improvement of e-SWIS and India WRIS modules, update of technologies

  - Development of generic State WRIS-creation of 7 dashboards

Key Initiatives (cont.)

- Number of Agencies using e WIMS: 1 → 24
- Number of surface water stations: 878 → 6969
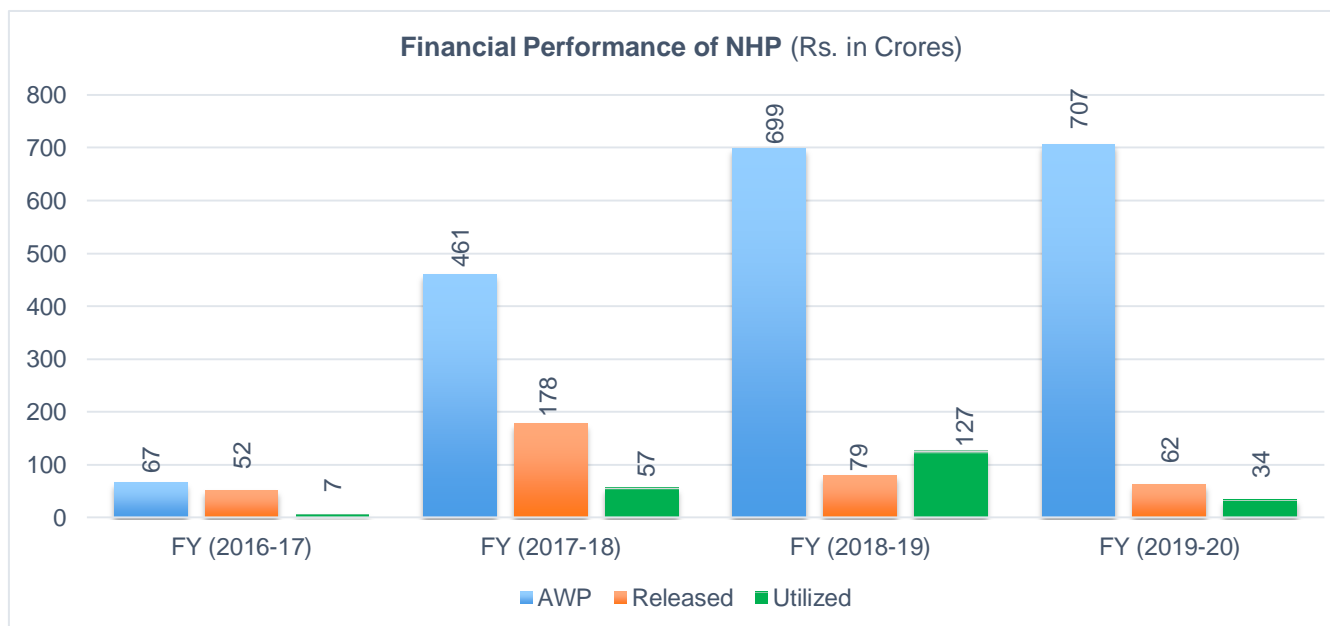- Number of GW stations in e WIMS: 33095

Number of Surface Water Stations in eSWIS

Chart showing number of surface water stations in eSWIS. In 2016: 878. In 2019: 6969. **+ 694%**
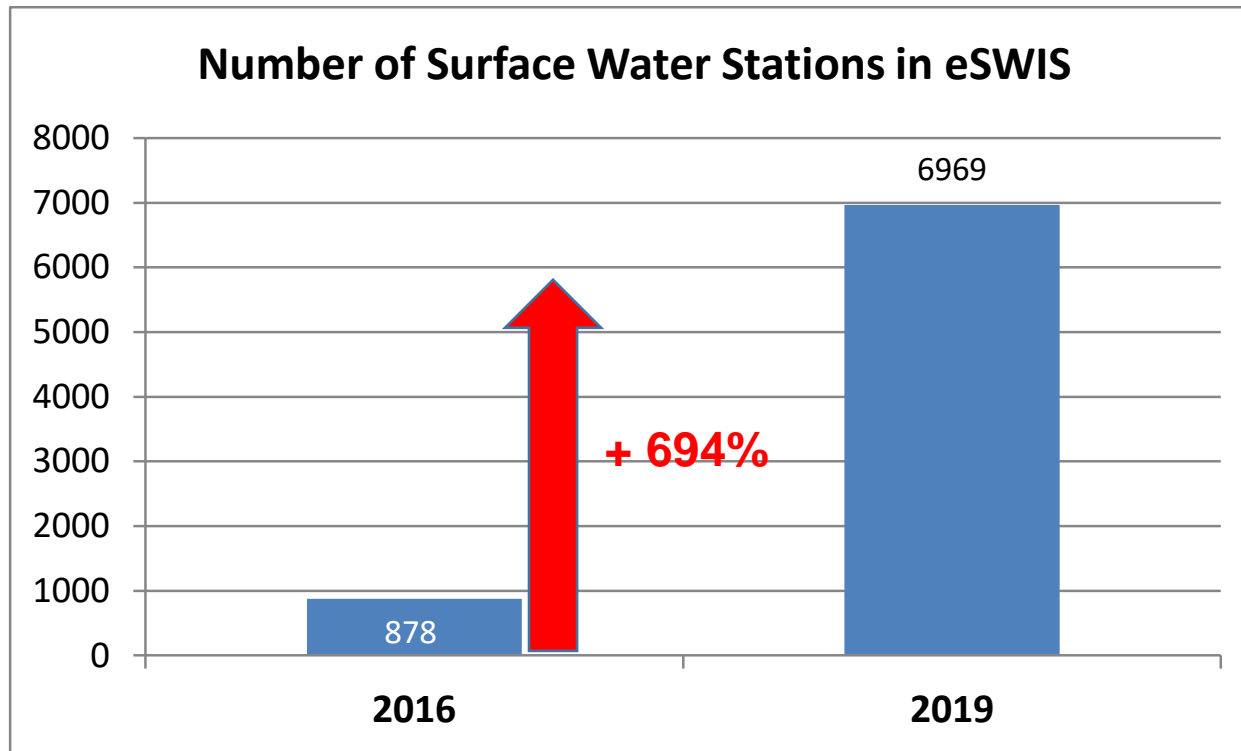
Financial Status – Expenditure vs. Released

(INR Crores)

Financial Year	Allocation as per approved scheme	Funds released	Expenditure
FY 2016-17	180.0	51.77	7.18
FY 2017-18	360.5	177.97	56.81
FY 2018-19	360.5	79.35	127.34
FY 2019-20	741.0	62.32	34.42
Total	**1642.0**	**371.41**	**225.76**

Financial Performance of NHP (Rs. in Crores)

Financial Status – Expenditure vs. PIP (pro-rata)

Expenditure vs. PIP (Pro-rata)

Entity	Value
Sol	77.7%
NPMU	75.6%
Uttarkhand	47.8%
NRSC	47.0%
Mizoram	35.2%
Puducherry	33.4%
CWPRS	29.1%
Telangana (GW)	28.6%
Andhra Pradesh (GW)	26.3%
Kerala (SW)	26.0%
West Bengal (GW)	25.0%
Sikkim	24.5%
Himachal Pradesh	24.0%
BBMB	22.2%
NIH	19.6%
CPCB	19.5%
Nagaland	19.2%
Manipur	16.7%
DVC	15.2%
Meghalaya	14.0%
Karnataka (SW)	13.6%
West Bengal (SW)	10.1%
Assam	10.0%
Bihar (GW)	9.6%
Chattishgarh (SW)	8.0%
Uttar Pradesh (GW)	8.0%
CWC	7.6%
Gujarat (GW)	7.0%
CGWB	6.4%
Rajasthan	6.3%
Tripura	6.2%
Andhra Pradesh (SW)	6.0%
Maharashtra (SW)	5.5%
Gujarat (SW)	4.2%
Telangana (SW)	4.2%
Maharashtra (GW)	3.6%
Tamil Nadu	3.3%
Kerala (GW)	3.2%
Punjab	3.2%
Bihar (SW)	2.2%
Haryana (SW)	1.8%
Goa	1.6%
Chattishgarh (GW)	1.6%
Madhya Pradesh	1.5%
Odisha (SW)	1.2%
Jharkhand	0.9%
Uttar Pradesh (SW)	0.8%
Odisha (GW)	0.4%
Delhi	0.0%

PIP (Pro-rata**):** 30% of PIP (i.e. 25% for up to FY 2018-19 and 5% for Q-1 of the FY 2019-20 has been considered.
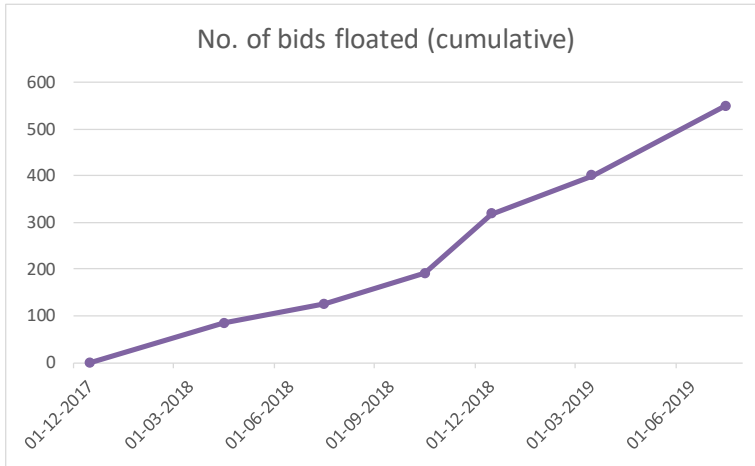
Overall Procurement Status

Status as on	Nos of bids	INR Crore
Bids cleared	44	147
Tenders floated	159	379
Contracts awarded (excl. Operational expenses)	390	438
Total	593	964

Overall Procurement Status

Tenders floated

No. of bids floated (cumulative)

Amount of bids floated (cumulative)

Contracts awarded

No. of contracts awarded (cumulative)

Amount of contracts awarded (cumulative)
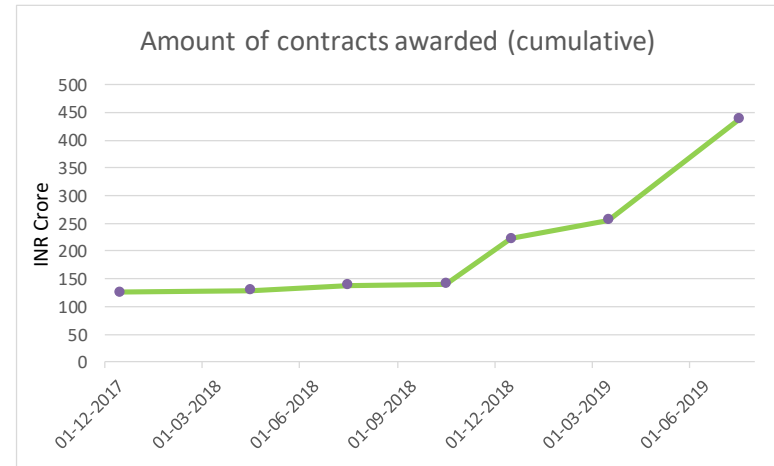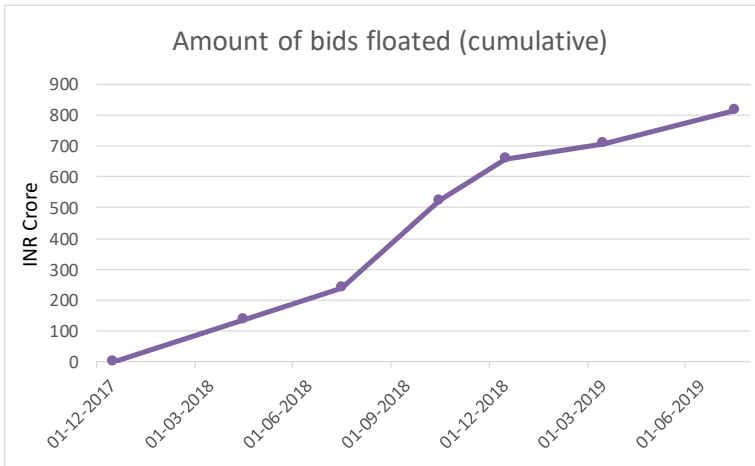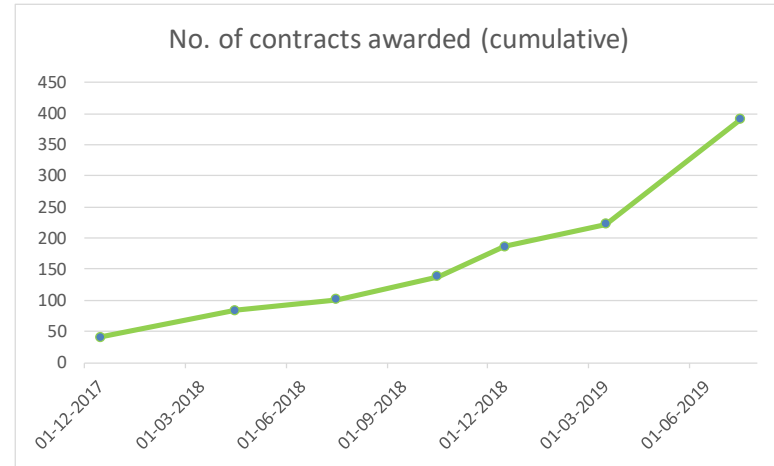
Major Challenges

- Weak PMUs

- Frequent transfers in PMUs

- Inadequate delegation of powers

- Non familiarity with e-procurement and WB procedures

- Limitations in hiring of incremental staff

- Low priority for NHP scientific activities

Major Challenges

- Absence of dedicated units in Central Organizations

- Lengthy procurement process for consultancy

- Limited market capacity for RTDAS, SCADA etc.

- Large no. of procurement activities – around 5000 contracts

- Timely updation of activities in MIS and STEP

- Updation of data on eSWIS and India-WRIS

"Financial progress not truly reflecting physical progress"

Results of World Bank
3rd Review Mission

Performance of Implementing Agencies

Satisfactory

Maintained (5 IAs)	Improved (5 IAs)
Andhra Pradesh-GW, DVC, Gujarat-SW, Himachal Pradesh, Telangana-GW	Andhra Pradesh-SW, Mizoram, Rajasthan, SOI, Uttarakhand

Moderately Satisfactory

Maintained (9 IAs)	Improved (3 IAs)
BBMB, CWC, Gujarat-GW, Kerala-SW, Madhya Pradesh-SW, Maharashtra-SW, Nagaland West Bengal-GW, West Bengal-SW,	Kerala-GW, Uttar Pradesh-GW, NRSC

Performance of Implementing Agencies

Moderately Unsatisfactory

Maintained (9 IAs)	Deteriorated (2 IAs)
Assam, Chhattisgarh-SW, CWPRS, Meghalaya, NIH, Punjab, Sikkim, Tamil Nadu, Uttar Pradesh-SW	Karnataka, Telangana-SW

Unsatisfactory

Remained (12 IAs)	Deteriorated (2 IAs)
Bihar-GW, CGWB, Chhattisgarh-GW, CPCB, Goa, Haryana, Jharkhand, Manipur, Puducherry, Tripura, Odisha-GW, Odisha-SW	Bihar-SW, Maharashtra-GW

Way Forward

- **Institutional Reforms**

  - To maintain dedicated and balanced core teams in PMUs

  - Strengthening of PMUs

  - Delegation of adequate financial and administrative powers to nodal officers
    - Acceptance of single bid, multiple approval process after PIP and AWP approval

  - Coordination of PMU with Implementation units

- **Information System strengthening**

  - To Join e WIMS (e SWIS) and regular updation of SW, GW and WQ data

  - Digitisation and Compilation of data for development of state water resources information systems

Way Forward (contd...)

- **Procurement**

  - Firming up inter se priorities among activities

  - Proper market assessment before floating of bids

  - Chalking out action plan with time lines

  - Review of PIP and submission by 20th August 2019

  - Realistic provisions in PIP and AWP

  - Floating of RTDAS Bids by 30th September, 2019

  - Floating of Bids of equipment by 15th October, 2019

Way Forward (contd…)

- **Technical Studies**

  - Submission of Concept notes to NPMU for firming up TOR

  - To identify regional/local institutes of repute for taking up small studies

  - To designate core team

- **Capacity Building**

  - Training Need Assessment

  - Special attention to modelling capabilities

  - Trainings not limited to PMU staff only

  - Customised Trainings

Suggestive Focus areas for revamping PIP

1. Modernising discharge and water quality measurements
2. SCADA for DAM/Barrages/Canals
3. Capturing Digital Elevation Models of high resolution and vertical accuracy
4. Reservoir Bathymetry, Topographical surveys, Cross sections
5. Water Quality monitoring
   - Strengthening of departmental water quality labs
   - Complete Outsourcing of water quality testing
   - Hybrid mode: Space and basic infrastructure by the IA to the vendor, further development and testing to be done by the vendor
6. Irrigation Bench Marking
7. Water availability and water balance studies
8. Urban Flooding
9. Spring Rejuvenation
10. Preparation of DPRs for tackling regional issues

Thank You

Overall performance

Overall Performance (March 2019)
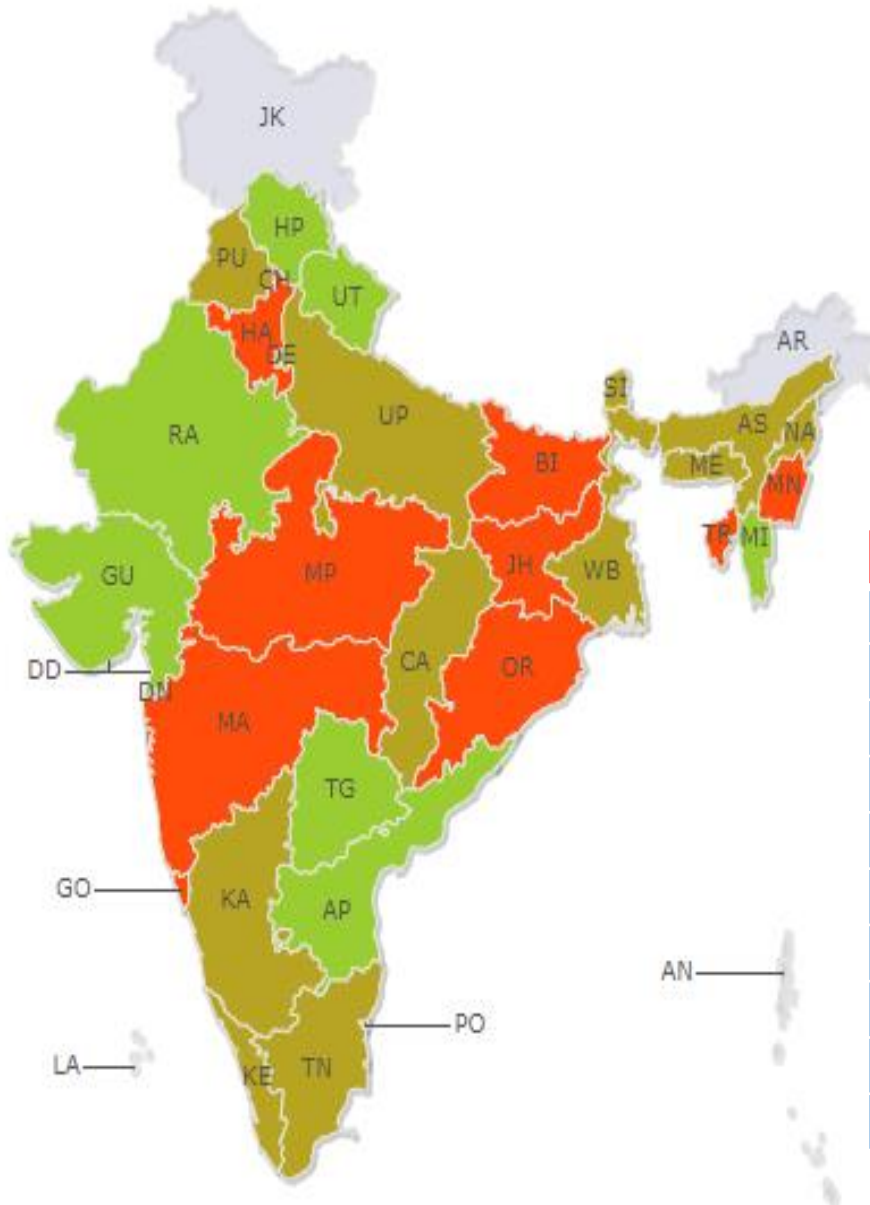
	Top Ten Performer	
1	Andhra Pradesh (SW)	1
2	Himachal Pradesh	2
3	Uttarakhand	3
4	Andhra Pradesh (GW)	4
5	Rajasthan	5
6	DVC	6
7	Telangana (GW)	7
8	Mizoram	8
9	Gujarat (SW)	9
10	BBMB	10

	Bottom Ten Performer	
31	Bihar (SW)	31
32	Jharkhand	32
33	Goa	33
34	Haryana	34
35	Manipur	35
36	Tripura	36
37	Odisha (GW)	37
38	Odisha (SW)	38
39	Maharashtra (GW)	39
40	Bihar (GW)	40

S. No.	Agency Name	Rank	S. No.	Agency Name	New Rank
1	Andhra Pradesh (SW)	1	21	Sikkim	21
2	Himachal Pradesh	2	22	Punjab	22
3	Uttarakhand	3	23	Assam	23
4	Andhra Pradesh (GW)	4	24	Chattishgarh (SW)	24
5	Rajasthan	5	25	Telangana (SW)	25
6	DVC	6	26	Uttar Pradesh (SW)	26
7	Telangana (GW)	7	27	Tamil Nadu	27
8	Mizoram	8	28	Karnataka (SW)	28
9	Gujarat (SW)	9	29	Chattishgarh (GW)	29
10	BBMB	10	30	Puducherry	30
11	Uttar Pradesh (GW)	11	31	Bihar (SW)	31
12	West Bengal (GW)	12	32	Jharkhand	32
13	Kerala (SW)	13	33	Goa	33
14	Kerala (GW)	14	34	Haryana (SW)	34
15	Maharashtra (SW)	15	35	Manipur	35
16	West Bengal (SW)	16	36	Tripura	36
17	Madhya Pradesh	17	37	Odisha (GW)	37
18	Nagaland	18	38	Odisha (SW)	38
19	Gujarat (GW)	19	39	Maharashtra (GW)	39
20	Meghalaya	20	40	Bihar (GW)	40

| S. No.	Implementing Agency	PIP	Cumulative Amount		Utilisation (%)
			Funds Released	Expenditure	
1	Andhra Pradesh (GW)	8,000	1,294.41	630.46	49%
2	Andhra Pradesh (SW)	8,000	438.05	143.76	33%
3	Assam	4,700	297.87	140.92	47%
4	Bihar (GW)	3,000	96.05	86.62	90%
5	Bihar (SW)	10,500	278.60	69.72	25%
6	Chattishgarh (GW)	3,200	102.85	14.94	15%
7	Chattishgarh (SW)	4,800	125.56	115.41	92%
8	Goa	6,800	50.00	32.13	64%
9	Gujarat (GW)	3,100	230.82	64.70	28%
10	Gujarat (SW)	7,000	419.60	88.65	21%
11	Haryana (SW)	5,000	371.50	26.41	7%
12	Himachal Pradesh	7,000	860.41	503.99	59%
13	Jharkhand	6,000	366.00	15.95	4%
14	Karnataka (SW)	11,000	654.36	448.18	68%
15	Kerala (GW)	4,000	226.00	44.36	20%
16	Kerala (SW)	4,200	678.86	327.75	48%
17	Madhya Pradesh	9,000	360.60	41.76	12%
18	Maharashtra (GW)	3,600	215.50	39.39	18%
19	Maharashtra (SW)	15,000	1,101.45	249.33	23%
20	Manipur	2,500	191.50	125.02	65%
21	Meghalaya	2,500	198.00	104.77	53%
22	Mizoram	3,100	420.00	327.27	78%
23	Nagaland	2,800	320.93	161.51	50%
24	Odisha (GW)	5,500	134.74	6.32	5%
25	Odisha (SW)	6,000	391.00	22.01	6%
26	Punjab	7,400	544.00	70.28	13%
27	Rajasthan	12,800	726.75	242.97	33%
28	Sikkim	2,500	371.65	183.90	49%
29	Tamil Nadu	10,000	500.00	99.80	20%
30	Telangana (GW)	7,000	1,082.67	600.83	55%
31	Telangana (SW)	9,700	567.74	120.81	21%
32	Tripura	2,500	119.28	46.55	39%
33	Uttar Pradesh (GW)	5,000	270.00	119.64	44%
34	Uttar Pradesh (SW)	12,100	552.75	29.74	5%
35	Uttarkhand	7,500	1,613.93	1,075.52	67%
36	West Bengal (GW)	5,000	510.63	375.38	74%
37	West Bengal (SW)	10,000	373.25	303.72	81%
38	Delhi	500	-	-	0%
39	Puducherry	2,000	280.36	200.32	71%
40	BBMB	3,000	271.50	199.87	74%
41	CPCB	2,600	148.00	152.00	103%
42	DVC	5,000	359.87	228.40	63%
43	NIH	8,500	549.80	498.97	91%
44	NRSC	8,000	1,859.98	1,128.19	61%
45	SoI	30,000	10,549.50	7,001.44	66%
	Sub-Total (A)	2,97,400	31,076.32	16,509.62	53%

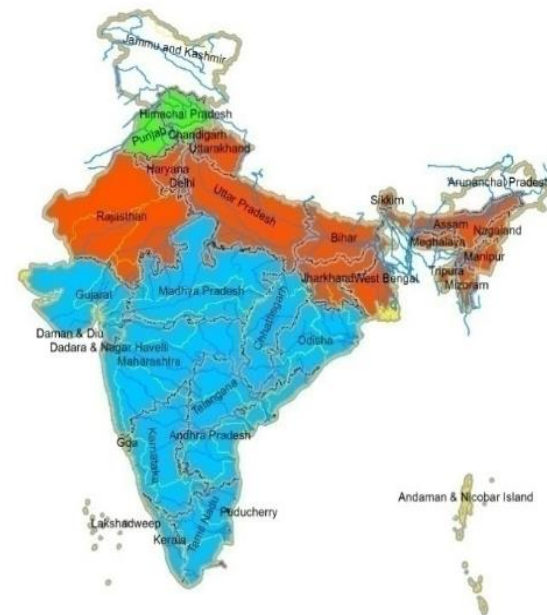# NHP Journey

HP-I (1995-2003)

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

HP-II (2006-2014)
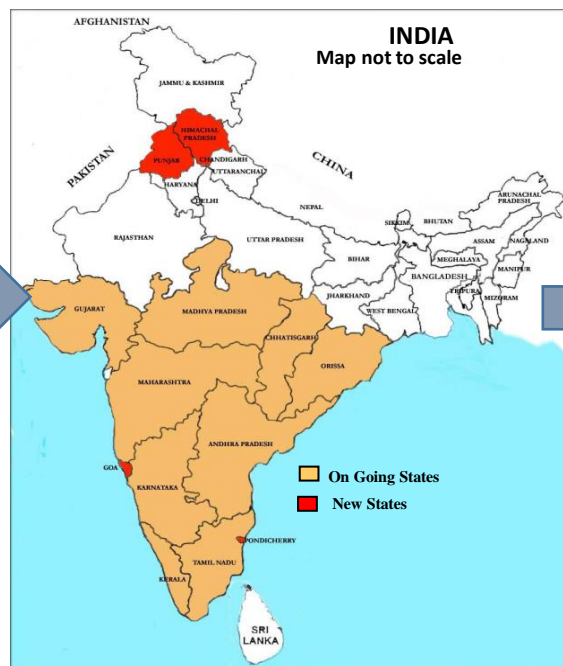
- 13 States; 8 Central IAs
- Real Time Data Acquisition
- Web-based data management
- Data Collection, management & analysis

NHP

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