Outline

• Background
• Factors affecting rural water supply and sanitation
• Perspective of rural water supply
• Perspective of rural sanitation
• Conclusion
<table>
<thead>
<tr>
<th><strong>Background - India</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
</tr>
<tr>
<td>Population 0-25 years</td>
</tr>
<tr>
<td>Population 0-18 years</td>
</tr>
<tr>
<td>Geographical area</td>
</tr>
<tr>
<td>% Rural Population</td>
</tr>
<tr>
<td>% Literate</td>
</tr>
<tr>
<td>Life expectancy at birth (male)</td>
</tr>
<tr>
<td>Life expectancy at birth (female)</td>
</tr>
<tr>
<td>Total rural habitations</td>
</tr>
</tbody>
</table>

*Source: Census 2011, Government of India*
833.5 million persons live in Rural areas - more than two-third of the total population
377.1 million persons live in urban areas

Source: Census 2011, Government of India
Access to household amenities in Rural India (2001-2011)

Source: Census of India, 2001 and 2011.
India - water availability

- Population – 16% of world’s population - only 4% of global water resources
- Uneven rainfall distribution - Annual average of >10,000 mm in Eastern India (Meghalaya) to <200 mm in Western India (Rajasthan) with an annual average rainfall of 1200 mm
- Minimal rainy days – about 70-80% rainfall received during monsoon months (from June to September) and that too in about 100 hours of rainy days
- Limited water resources - available water resource of 1869 billion cubic meter (BCM) per year. Only 60% is utilisable resource, 690 BCM of surface water and 432 BCM of groundwater
- Per capita water availability - dropped from 5177 m³ in 1951 to about 1840 m³ in 2011
India – MDG target for water

147 countries\(^1\) have met the MDG drinking water target

Source: Progress on sanitation and drinking water – 2015 update and MDG assessment
## Current status of rural water supply

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total rural habitations</td>
<td>1.713 Million</td>
</tr>
<tr>
<td>Population having piped water within 100 m</td>
<td>49%</td>
</tr>
<tr>
<td>Households having piped water within premises</td>
<td>18%</td>
</tr>
<tr>
<td>Informed drinking water sources</td>
<td>3.5 Million</td>
</tr>
<tr>
<td>Uninformed drinking water sources</td>
<td>10 Million</td>
</tr>
<tr>
<td>Habitations affected with geogenic contaminants</td>
<td>78506 (4.6%)</td>
</tr>
<tr>
<td>Habitations getting less than 40 litre per person per day</td>
<td>376,000 (22%)</td>
</tr>
</tbody>
</table>

*Source: Ministry of Drinking Water and Sanitation, 2015*
Water quality/scarcity affected habitations

78,506 (4.6%) water quality affected habitations

- 1,991 habitations are affected by arsenic
- 14,132 habitations affected by fluoride
- 42,093 habitations affected by iron
- 17,472 habitations affected by salinity
- 2818 habitations affected by nitrate

376,000 (22%) habitations get less than 40 litre per person per day

Source: Ministry of Drinking Water and Sanitation, 2015
National Programmes on rural water supply

- 2009: National Rural Drinking Water Programme
- 2002: Swajaldhara Programme
- 1999-2000: Sector Reform Projects
- 1986: Technology Mission
- 1972-73: Accelerated Rural Water Supply Programme (ARWSP)
- 1950: Rural Water Supply included in 11th Schedule of Constitution
Institutional mechanism

NATIONAL
- Ministry of Drinking Water & Sanitation

STATE
- State Water and Sanitation Mission
- Department dealing with rural water supply
- Water and Sanitation Support Organization

DISTRICT
- Zilla Panchayat
- District Water and Sanitation Mission

BLOCK
- Block Resource Centre

PANCHAYAT
- Gram Sabha
- Gram Panchayat
- Village Water and Sanitation Committee
Development of water sources

With increasing awareness, economic prosperity, people realizing the importance of time, rise in demand for:

- adequate quantity of water
- better quality of water supplied, and
- reliability of services
### Investment in rural water and sanitation sector

<table>
<thead>
<tr>
<th>Plan Period</th>
<th>Centre (Rs. in crore)</th>
<th>State (Rs. in crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>lst (1951-56)</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>lind (1956-61)</td>
<td>0.00</td>
<td>5.00</td>
</tr>
<tr>
<td>IIIrd (1961-66)</td>
<td>0.00</td>
<td>8.00</td>
</tr>
<tr>
<td>IVth (1969-74)</td>
<td>5.70</td>
<td>35.00</td>
</tr>
<tr>
<td>Vth (1974-79)</td>
<td>26.00</td>
<td>58.00</td>
</tr>
<tr>
<td>VIth (1980-85)</td>
<td>150.00</td>
<td>255.00</td>
</tr>
<tr>
<td>VIIth (1985-90)</td>
<td>320.00</td>
<td>410.00</td>
</tr>
<tr>
<td>VIIIth (1992-97)</td>
<td>690.00</td>
<td>850.00</td>
</tr>
<tr>
<td>IXth (1997-02)</td>
<td>1400.00</td>
<td>1800.00</td>
</tr>
<tr>
<td>Xth (2002-07)</td>
<td>2700.00</td>
<td>2520.00</td>
</tr>
<tr>
<td>XIth (2007-12)</td>
<td>6600.00</td>
<td>8100.00</td>
</tr>
<tr>
<td>XIIth (2012-17)</td>
<td>9150.00</td>
<td>12000.00</td>
</tr>
</tbody>
</table>

The graph above illustrates the investment in rural water and sanitation sector from 1951 to 2017, showing the growth in both Centre and State investments. The data is presented in both Indian rupees (Rs.) and US dollars (USD).
Strengths of rural water supply sector

• Robust institutional mechanism

• Availability of trained manpower

• Adequate funding

• Availability of technical expertise and institutions

• Strong presence of private entrepreneurs and NGOs
Target for rural drinking water supply

By Year 2017 (Drinking Water Facilities)

• 35% of rural households have piped water supply
• <20% use public taps
• <45% use hand pumps or other safe and adequate private water sources; and
• All services meet set standards in terms of quality and number of hours of supply every day
Strategic Plans for rural drinking water supply and sanitation

By year 2022 (Drinking Water facilities)

• 90% of rural households have piped water supply
  – >80% of rural households have piped water supply with a household connection
  – <10% use public taps and

• <10% use hand pumps or other safe and adequate private water sources
Challenges in rural water supply sector

- Lack of community ownership
- Need for skill development among Government Staff
- Indifferent coordination among various government agencies and stakeholders
- Inefficient monitoring and evaluation
- Difficulty in scaling up innovation
- Limited involvement of Private Sector
Awareness Generation, Capacity Building, Convergence for improved community ownership

• **Awareness generation** in regional languages through audio-visual, Mass Media, inter-personal and behaviour change communication

• **Capacity building** - from engineers to habitation level functionaries (KRC)

• **Convergence of different flagship programmes** like National Rural Health Mission (NRHM), *Sarva Shiksha Abhiyan* (education for all programme), Integrated Child Development Scheme (ICDS), National Rural Employment Guarantee Act etc.

• **Bridging gaps** between district and *habitation* through block and cluster resource coordinators
Proc Innovation / Best Practices
Structured approaches can help in scaling up innovation

Projects range from 2.5 yrs to 5 yrs

(Source: Arghyam Presentation at the India WATER Quality Expo Nov 2011)
Appropriation of funding can make system more resilient…….

To avoid fully covered habitation slipping back due to source and system (un)sustainability and contaminated water, funds are earmarked as follows:

• Creation of sustainability structure (10%),
• Efficient O&M (15%)
• Water quality monitoring surveillance (3%)
Usage of Hydro-geomorphological (HGM) Maps along with Aquifer Performance Test and Geophysical Logging improves water source sustainability ...........

Identification of sites for Production wells and recharge structures.
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 4.1) has spatial layers and attributes as per data collected till July 2015. Further updating the attribute data and presentation are being done by the India-WRIS Project Team. These data have been collected from concerned state Govt. departments, CWC offices and Govt. of India departments and are organized in this portal.

Based on the type of data and its availability, the present portal contains 12 major info systems, 36 sub info systems having 85 spatial layers along with large
Participation of Private Sector (Sarvajal)

- Sells clean drinking water to more than 70,000 people in rural India at 40 paisa (<1 Cent) per litre
- Installation of a plant costs ~ $2,500
- Sarvajal claims to recover those costs within three years
- Initiating Water ATMs in slums and peri-urban areas to provide access
Households having toilets within the premises by location of water in State of Maharashtra

Households having water within premises, adoption of toilets is more than 2 times likely as compared to households with water near or away from the premises (Source: Census 2011)
Rural Sanitation
India – MDG Target for Sanitation

Only 95 countries have met the MDG sanitation target.

Source: Progress on sanitation and drinking water – 2015 update and MDG assessment
India – Sanitation Coverage

In 47 countries, areas or territories, less than half the population uses improved sanitation in 2015

Source: Progress on sanitation and drinking water – 2015 update and MDG assessment
Trends in reduction of open defecation in the richest and poorest rural wealth quintiles 1995–2012

Sixteen countries have reduced open defecation rates by at least 25 percentage points

- Ethiopia: 64%
- Nepal: 56%
- Cambodia: 42%
- Viet Nam: 39%
- Pakistan: 36%
- Angola: 33%
- Bangladesh: 33%
- India: 31%
- Haiti: 29%
- Morocco: 29%
- Plurinational State of Bolivia: 28%
- Honduras: 28%
- Peru: 28%
- Guinea: 26%
- Benin: 26%
- Malawi: 25%

Reductions in rural open defecation have been primarily among the richest in Southern Asia, except in Bangladesh.
Sanitation coverage in rural areas over years

Census 1981: 1.00
Census 1991: 9.00
Census 2001: 21.92
NFHS-III (2005-06): 26.00
DLHS-III (2007-08): 30.90
NSSO (2008-09): 34.80
ASER-2010: 42.00
Usage Lags behind Access

Note: Even NGP in its present form has not been a solution to ensure ODF communities

Source: TARU-Unicef Study-2008 in six states and 162 habitations
Cause of Dysfunctional Toilets

Source: CMS study, 2010 in 664 Open Defecation Free Villages in 12 States
National Programs on Rural Sanitation

- **1951-56** - Sanitation part of national agenda in first 5-year plan
- **1986** - Focus on Sanitation - *Central Rural Sanitation Programme (CRSP)* launched
- **1999** - *Total Sanitation Campaign (TSC)* launched
- **2003** - Community incentive scheme - *Nirmal Gram Puraskar (Clean Village Award)* launched on 2<sup>nd</sup> October 2003
- **2012** - *Nirmal Bharat Abhiyan (Clean India Campaign)* – US $ 694 million annual allocation
- **2014** – *Swachchha Bharat Abhiyan (Clean India Campaign)*
Swachh Bharat Mission (Clean India Campaign) launched on 2\textsuperscript{nd} October, 2014
Objectives of Swachh Bharat Mission (Clean India Campaign)

• To make India Open Defecation Free (ODF) India by 2019, by providing access to toilet facilities to all

• To provide toilets, separately for Boys and Girls in all schools by August 15, 2015

• To provide toilets to all Anganwadis (Infant and Pregnant Women Care Centers)

• Villages to be kept clean with Solid and Liquid Waste Management
Issues and Challenges

- Traditional mind-set to trigger toilet usage
- Absence of/Inadequate staff at the habitation level
- Ineffective IEC and behaviour change communication
- Indifferent Multilateral Partners, NGOs, community based organisations and Corporates
- Community disengagement
- Lack of Monitoring of IEC/IPC activities
- Non-availability of water for use of toilets
- Defunct/dysfunctional toilets
- Non-availability of sanitary material in rural areas
Addressing sanitation challenges

- Improved co-ordination between Sanitation and Water Supply programmes

- Implementation and validation of new technologies

- Innovation Window opened in Ministry Website for disseminating Information

- Annual and Concurrent Monitoring - Toilet usage to be monitored through ICT technology

- Rapid Action Learning Units (RALU) at National and State level to learn and disseminate Best Practices, try out new ideas
Addressing sanitation challenges (contd)

- Involving Stakeholders: Multilateral Agencies, National NGOs, community organizations, community and Corporate/Entrepreneurs
- State to decide on utilization of Incentives, with wide flexibility given
- Incentivising better performing States
- Mechanism of ‘Trigger’ plus Incentives to create demand and construct quality toilets
- Monitoring Outputs (Construction) and Outcomes (Usage)
Conclusion

- So much has been done but a lot is still to be done
- There is paradigm shift in water supply and sanitation with community at center stage
- Lessons are learnt and optimum policy mix is being attempted
- Monitoring is improved and there is move from output to outcome monitoring
- Political leadership is also jointly driving the programme
- There exists opportunities for entrepreneurs in water and sanitation sector in India
Acknowledgement

Prof Dave Sabatini and Conference Organizers

Mr Sujoy Mojumdar, UNICEF, New Delhi

Mr D Rajasekhar, Ministry of Drinking Water and Sanitation

Director, NEERI and my colleagues
Thank you

Sanitation is more important than Independence

Cleanliness is next to Godliness