

**Nature Based Water Solutions : Shaping
our Water Future**

26th August, 2023

World Water SUMMIT -2023

Measures for Water Security in the Country

Bhopal Singh
DG, NWDA

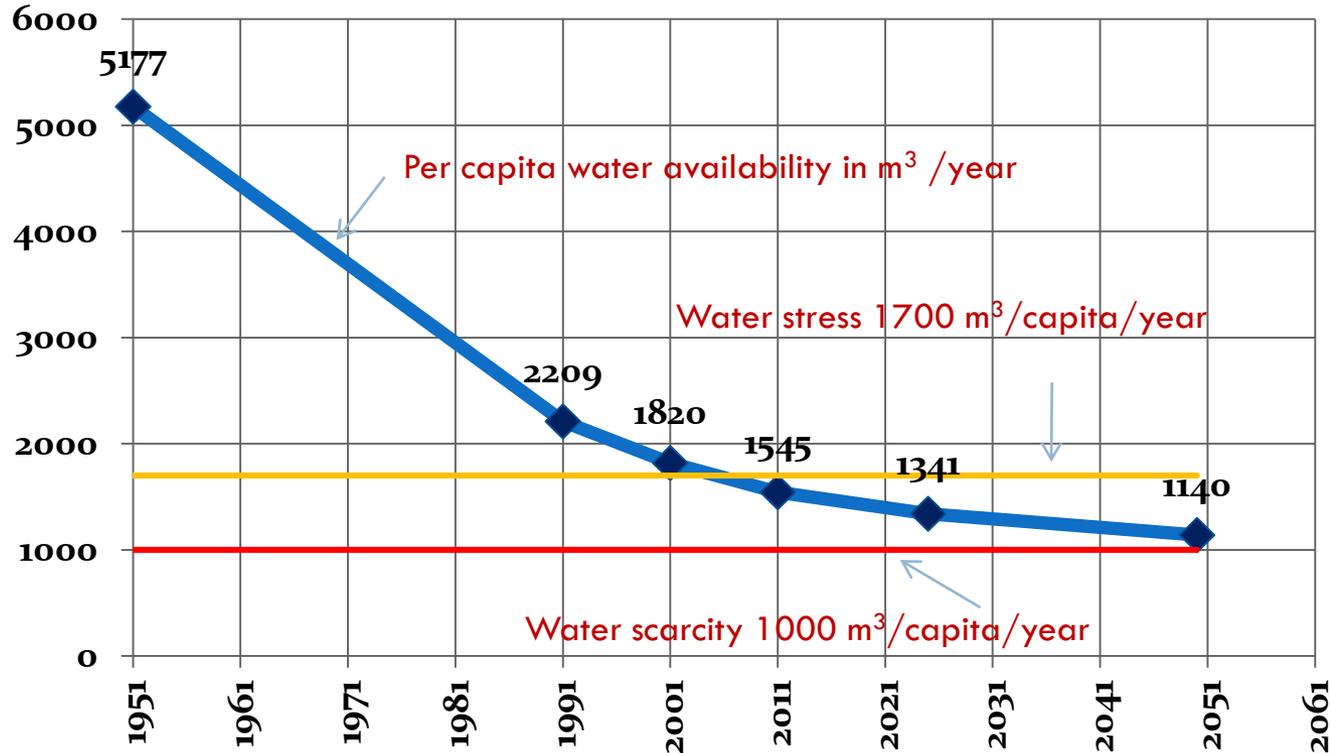
Water Security

- Water security implies not only providing affordable access to clean water for agricultural, industrial and household usage on sustainable basis **but also taking care of our water sources like rivers, GW, lakes, ponds etc**
- **Focus on Source Sustainability**



Water Scenario in India

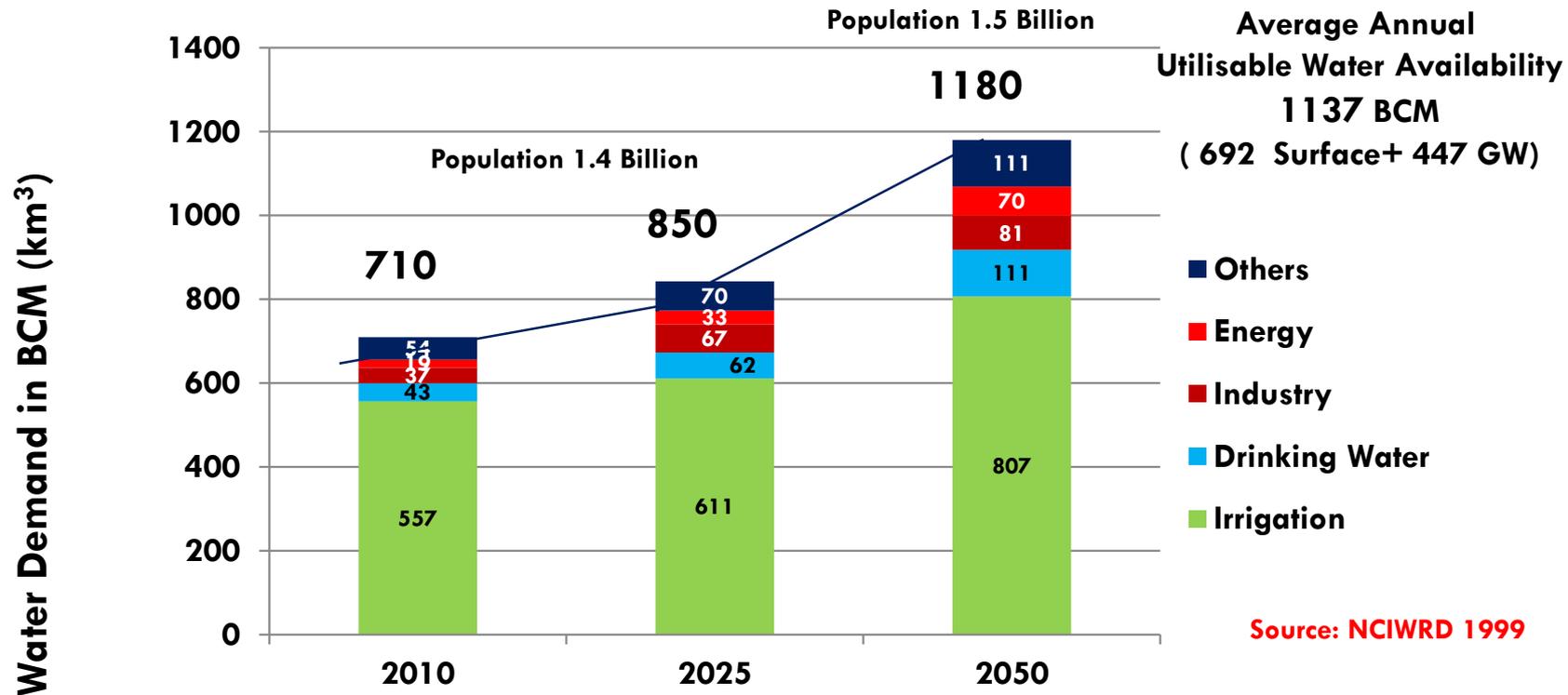
| | |
|--------------------------------|------------------|
| India's Population | 17% of the World |
| Land Resource | 2.45% |
| Renewable Water Resources | 4% |
| Estimated annual precipitation | 4000 BCM |
| Average annual water potential | 1869 BCM |



Reducing per capita water availability

Water Scenario in India - challenges

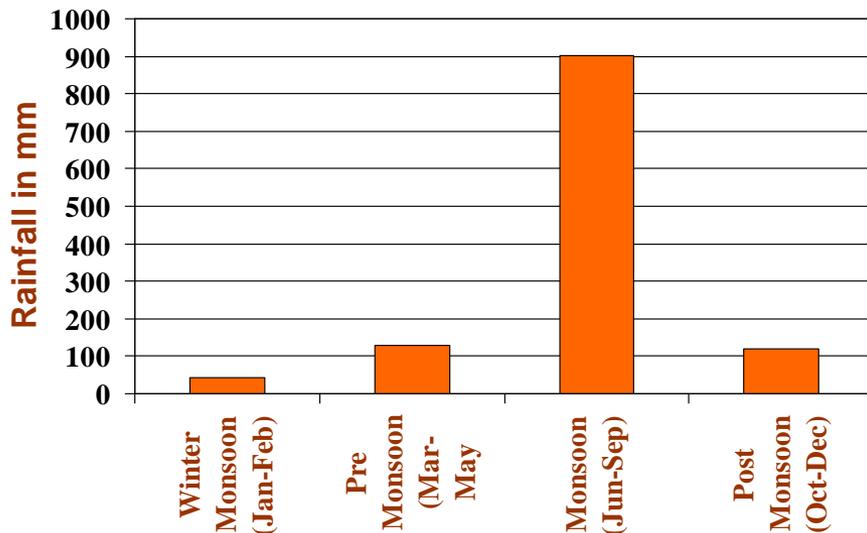
□ Increasing demands of water for various purposes



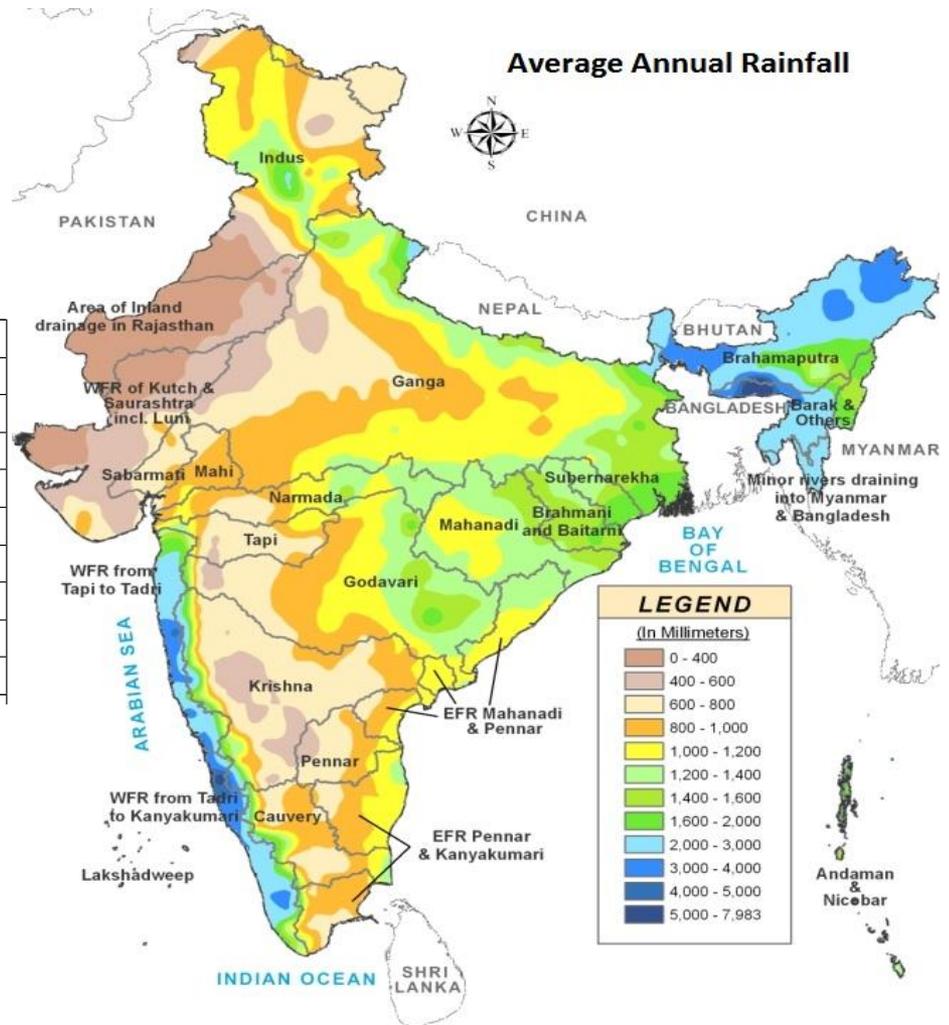
Large variation in rainfall and available water resources in space and time

5

Drought and floods co-exist in the country



Temporal variation of rainfall



Measures for Water Security

Cont.

I. Conservation of Rain Water and Flood Water

- All type of measures needed apart from natural conservation processes
 - Small –rain water harvesting structures, ponds, check dams etc
 - Widely spread, no R&R issues, easy to construct but reliability issues during drought years and maintenance issues
 - **Jal Shakti Abhiyan-2019**
 - Nature Based solutions- Soil moisture retention, wetlands, springs, glaciers etc
 - Medium and large reservoir
 - Limited sites, R&R and environmental issues, long gestation period, large capital but cost effective, scale and reliable



Measures for Water Security

III. Improving O&M of Existing Water Infrastructure and Water Use Efficiency

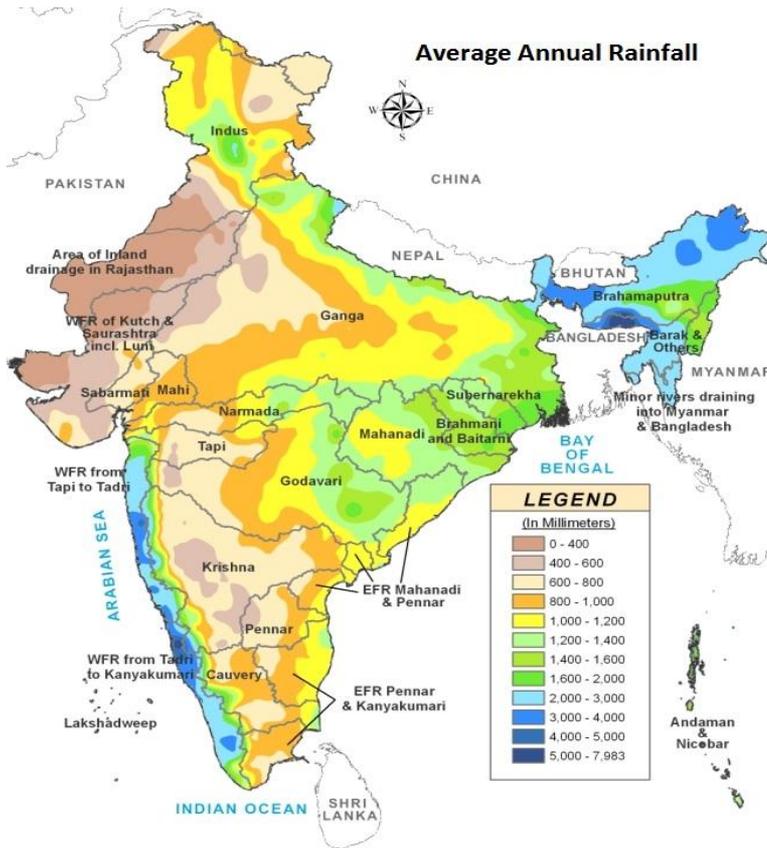
- Water infrastructure created over the years is not maintained and managed efficiently
 - Low efficiency and wide gap between IPC and IPU
 - Lot of leakages-water not reaching to all beneficiaries particularly at tail end
 - Sufficient funds and manpower not made available – low recovery
 - Low participation of beneficiaries (WUAs)
- Focus on using water efficient technologies and PIM in ongoing PMKSY scheme
- Focus on recycle and reuse of water
- Benchmarking major irrigation projects
- **Need for public –private participation in the running and management of water infrastructure on the lines of energy transmission and distribution**



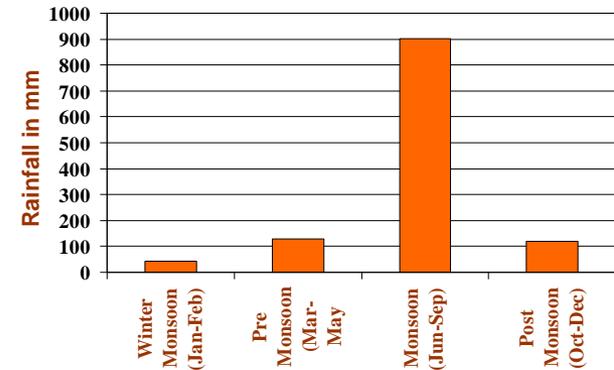
(iv) Inter Basin Water Transfers [IBWT] for Water Security in the Country

9

- Large variation in rainfall and available water resources in space and time
- As a result of this variability, drought and floods co – exist in the country



Temporal variation of rainfall



- Inter-basin Water Transfers (IBWT) from surplus basins to water deficit basins/areas is imperative to address the imbalance in water availability across the country and water security in the country
- IBWT will help in Mitigating the likely adverse impact of climate change.
- Promote integrated development and management of country's water resources

Success Stories of Some Important Indian IBWT Projects

10

| <u>Name of Scheme</u> | <u>Water transfer (BCM / year)</u> |
|--|--|
| Periyar - Vaigai Link | 1.29 |
| Kurnool - Cudappa Canal [Tungabhadra (Krishna) – Pennar] | 2.68 |
| Telugu Ganga Canal [Krishna – Pennar] | 0.34 |
| Parambikulam - Aliyar Project | 1.49 |
| Ghagra – Sardar | 15.16 |
| Madhopur – Beas link [Ravi - Beas] | 4.50 |
| Beas – Sutlej link | 4.71 |
| Indira Gandhi Canal Project [Beas, Sutlej rivers water to Thar desert of Rajasthan] | 9.36 |
| Sardar Sarovar Scheme [Narmada to Sabarmati and to Thar desert of Rajasthan] | 11.60 |
| Tehri Dam Project [Ganga to Yamuna] | 0.44 |
| Saryu Nahar Pariyojan (ongoing) | 5.4 |

Vision 2047-Inter Basin Water Transfers [IBWT] for Water Security in the Country

National Perspective Plan for Water Resources Development-1980

Peninsular Rivers Development - 16 links

Himalayan Rivers Development - 14 links

The implementation of NPP would give benefits of 25 million ha of irrigation from surface waters, 10 million ha by increased use of ground waters, raising the ultimate irrigation potential from 140 million ha to 175 million ha and generation of 34000 MW of power, apart from the incidental benefits of flood control, drought mitigation, navigation, water supply, fisheries, salinity and pollution control etc.

Vision 2047 –IBWT

- Strive hard to implement the NPP of ILR projects to the extent feasible.
- Complete about 20 ILRs projects under NPP
- Facilitate implementation of about 20-25 intra-state links
- Investment of about Rs 8 lakh crore
- Create Irrigation potential of about 20 Mha
- Provide drinking water to about 100 million people



Vision 2047-IBWT

Key Challenges and Way Forward

12

Key Challenges

- ❖ **Inter State Issues.**
- ❖ **International Issues**
- ❖ **Financing these capital intensive projects**
- ❖ **Environmental and R&R issues**

Way Forward

- Pursuing with Consensus Building/Negotiation amongst the states concerned in a proactive manner.
- Taking up desired legal reforms for facilitating the implementation of ILR projects as per NPP.
- Financial Incentive: Implementation of ILR projects with funding pattern of 90:10 (Centre : State).
- Constitution of National Interlinking Rivers Authority (NIRA) for implementation with Special Purpose Vehicles (SPVs) for each link.
- Ways to incentivise the donor states/regions?
- Initiating dialogue with neighbouring countries.

Concluding.....

- For making the country a water secure country, a lot of investment would be required in water infrastructure be it supply side augmentation, transmission and distribution network, efficient utilization, sources conservations etc.
- Integrated planning and management of the water sector and the effective participation of all stakeholders are key to achieve the defined objectives.
- Science based analysis/evidences backed by sound data are the backbone of right decision making in the planning and management of water resources on sustainable basis.

THANK YOU