National Water Policy

Scenario of Water Resources of India

Water – a vital resource

- What is a policy ?
- Why it is required ?
- What is the impact of past policies?
- How it is formulated ?
- How it is implemented ?
- What if not implemented in letter & spirit ?

Water – a vital resource

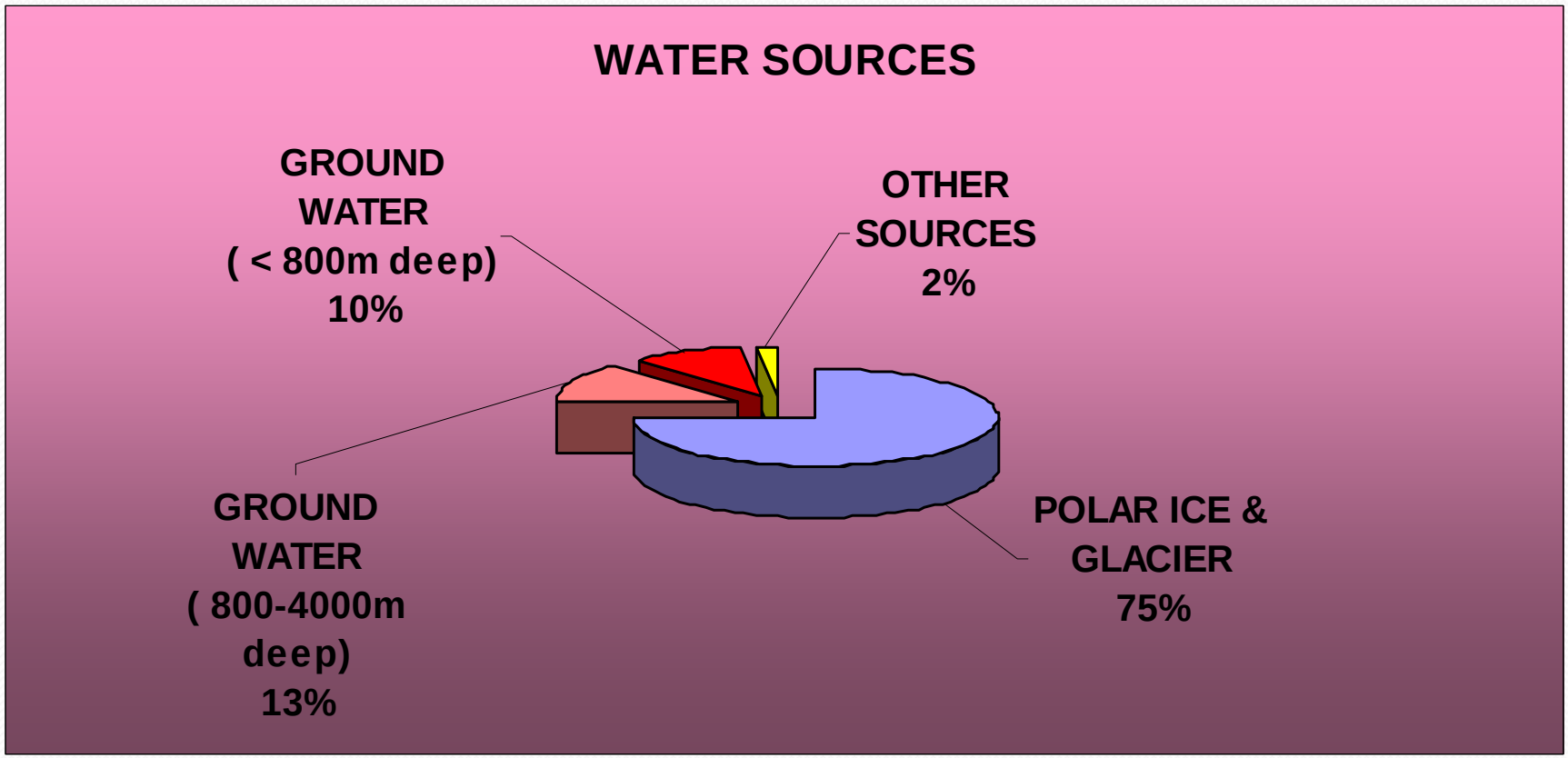
- **Essential for:**
  - **Life**
  - **Livelihood**
  - **Ecology**

- **Vital for economic development**
- **Crucial for:**
  - **Food security**
  - **Energy security**
  - **National Security**

Global Water Scenario

Total 14000 Million BCM

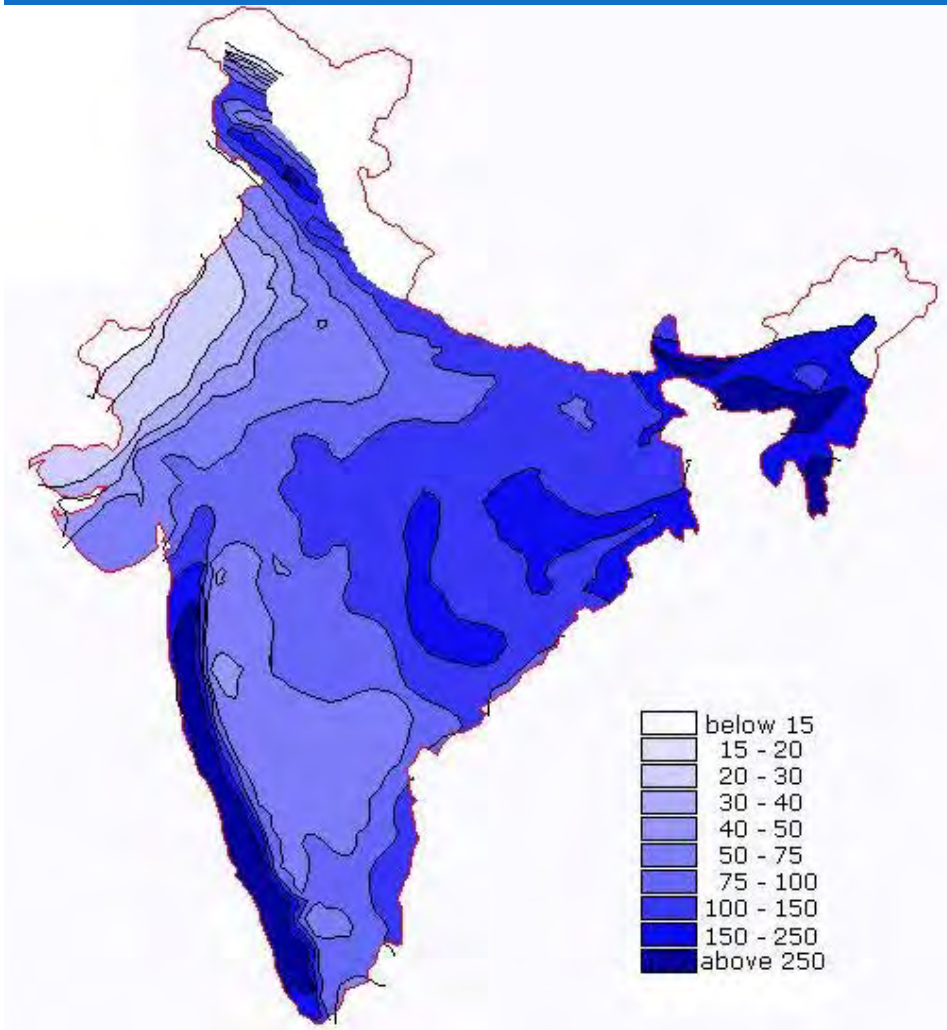
OCEAN WATER	FRESH WATER
97.3%	2.7%



INDIA

- 2.45 % of World's Land Area
- 4 % of World's Fresh Water Resources
- 18 % of World's Population

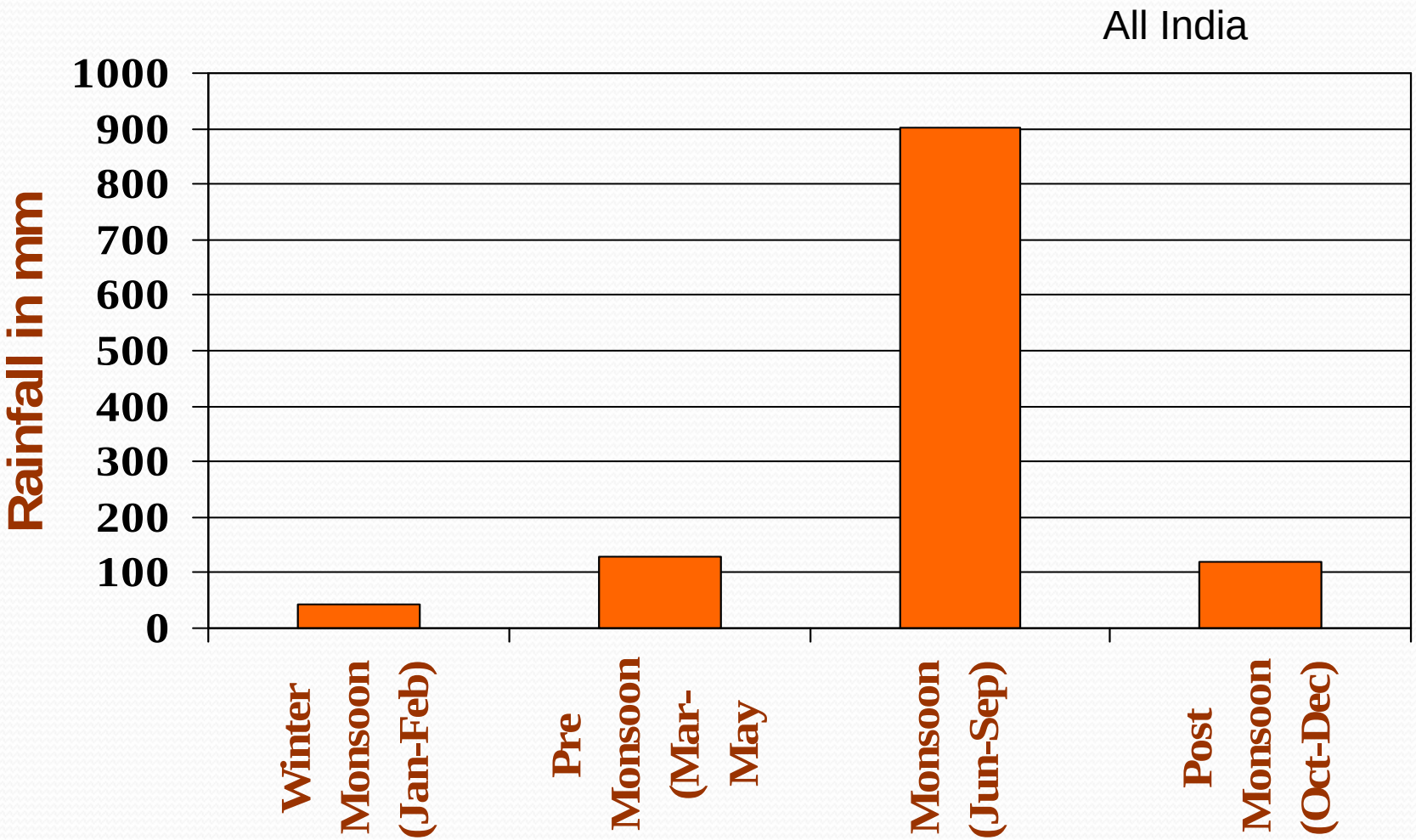
Spatial and Temporal Variation of Rainfall in INDIA



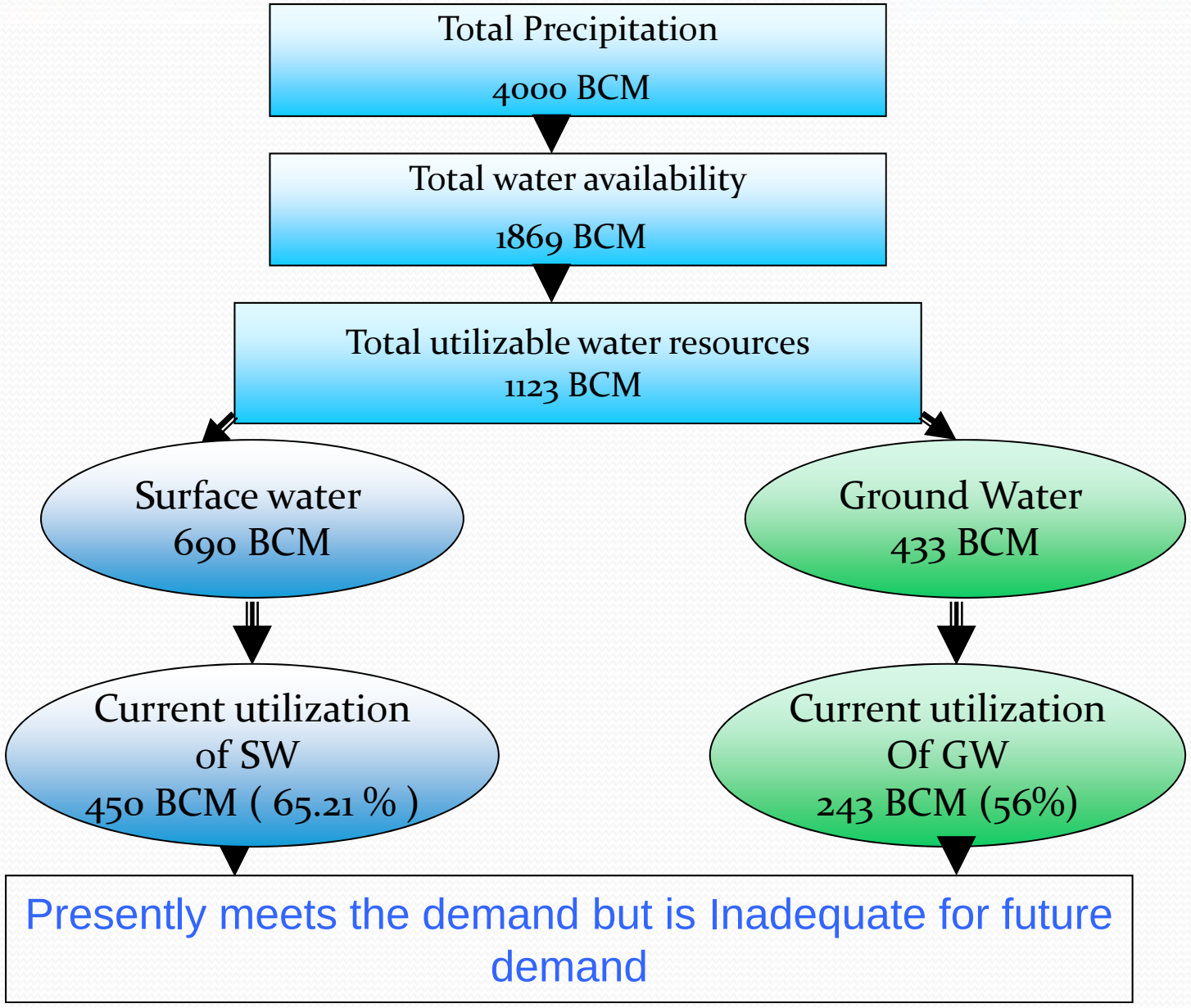
	mm	
Average	**1,170**	
Max.	**11,000**	Meghalaya
Min.	**100**	Western Rajasthan

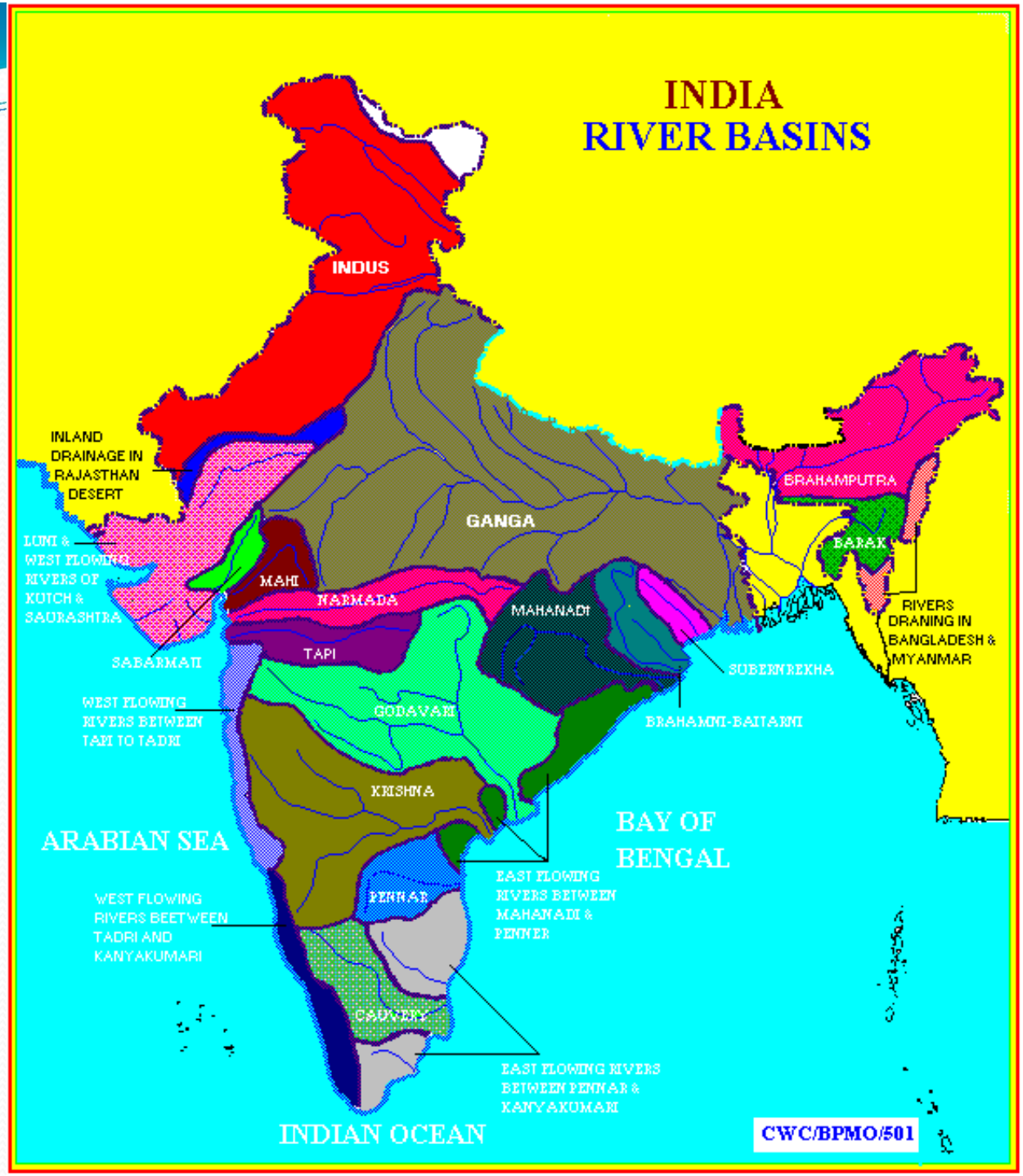
Precipitation during June to September 3000 BCM

Temporal Variation of Rainfall

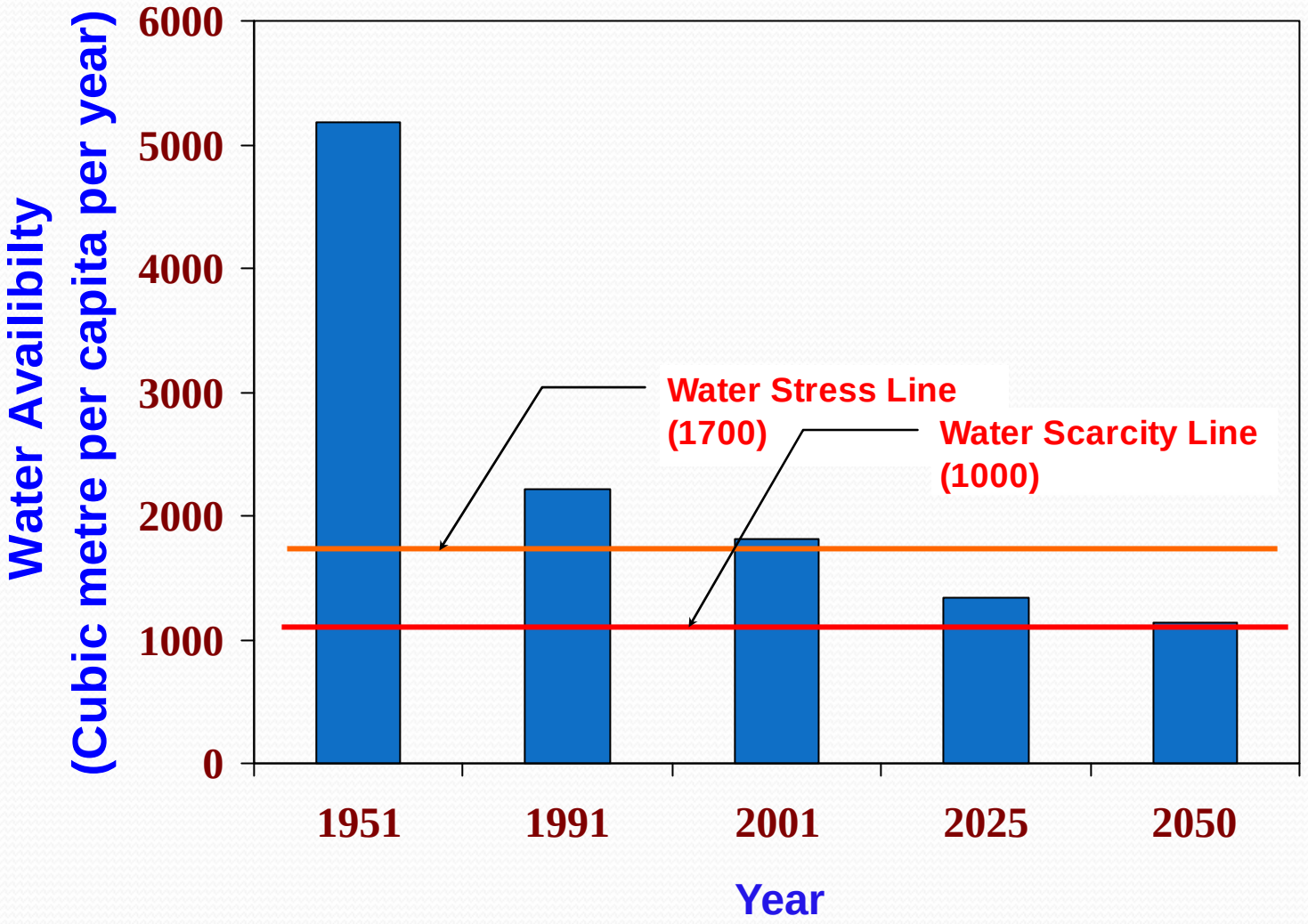


Water Availability



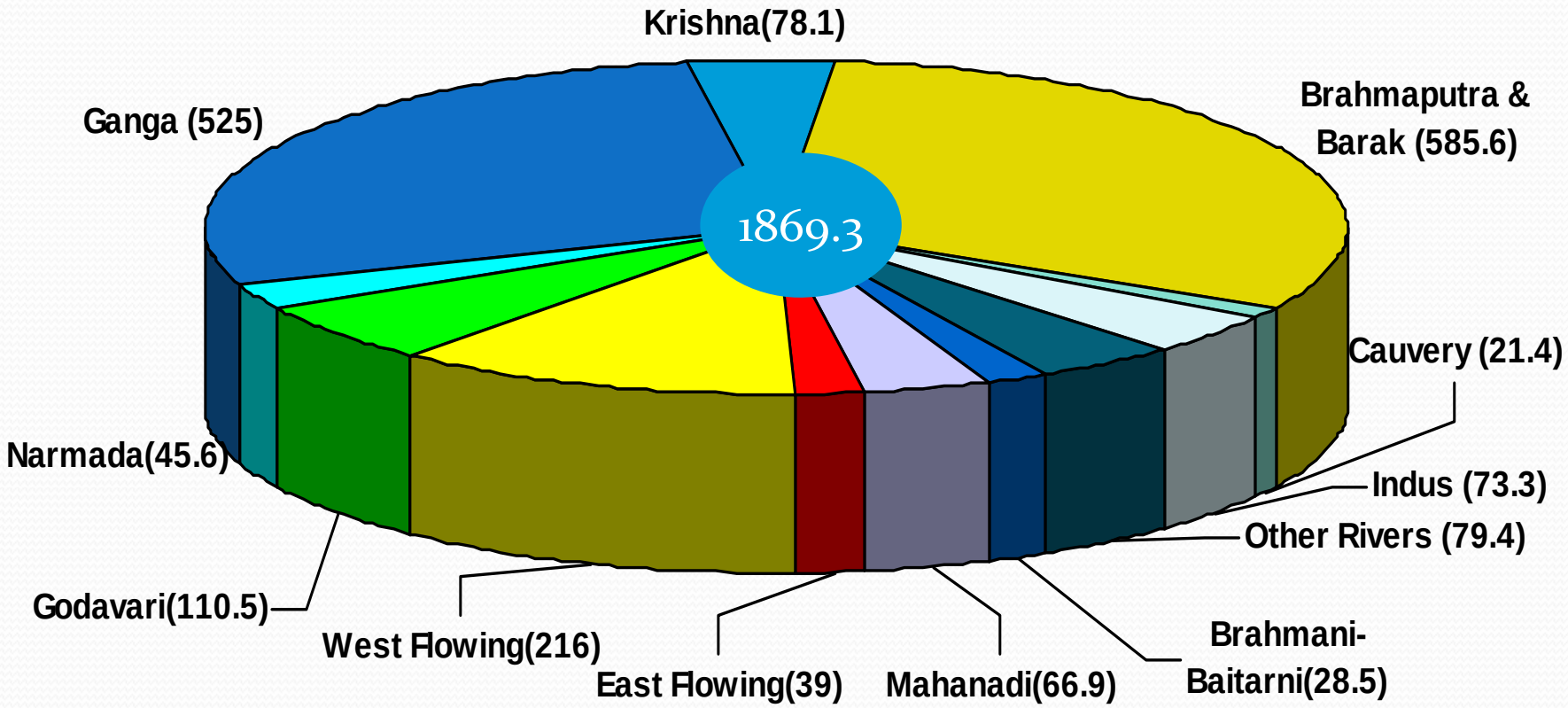

INDIA
RIVER BASINS
INDUS
INLAND
DRAINAGE IN
RAJASTHAN
DESERT
LUNI &
WEST FLOWING
RIVERS OF
KUTCH &
SAURASHTRA
SABARMATI
MAHI
NARMADA
TAPI
GANGA
BRAHAMPUTRA
BARAK
RIVERS
DRANING IN
BANGLADESH &
MYANMAR
MAHANADI
SUBERNREKHA
BRAHAMNI-BAITARNI
WEST FLOWING
RIVERS BETWEEN
TAPI TO TADRI
GODAVARI
KRISHNA
ARABIAN SEA
BAY OF
BENGAL
EAST FLOWING
RIVERS BETWEEN
MAHANADI &
PENNER
PENNAR
WEST FLOWING
RIVERS BEETWEEN
TADRI AND
KANYAKUMARI
CAUVERY
EAST FLOWING RIVERS
BETWEEN PENNAR &
KANYAKUMARI
INDIAN OCEAN
CWC/BPMO/501

Per Capita Availability

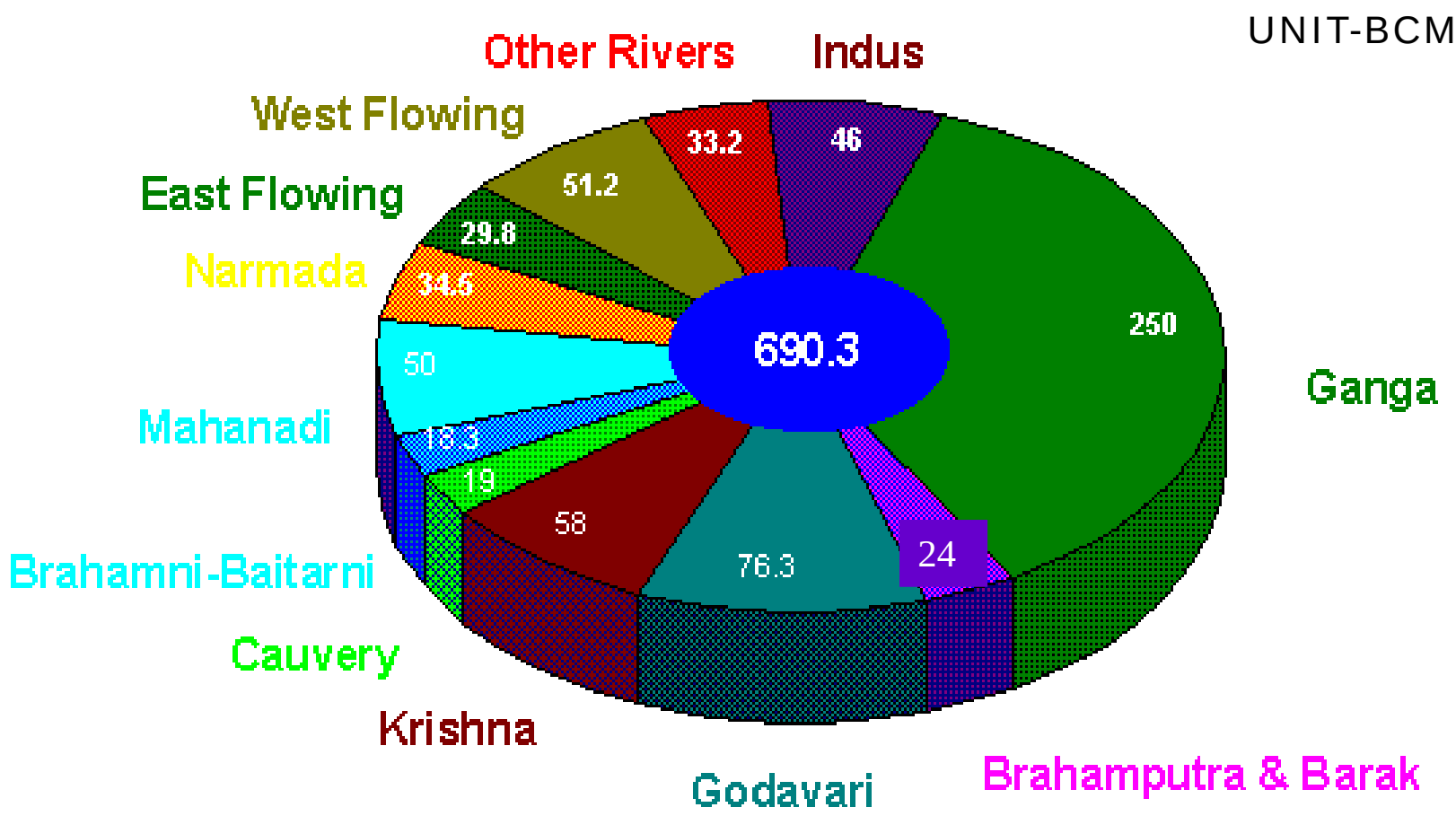


Basin wise Water Resources Potential

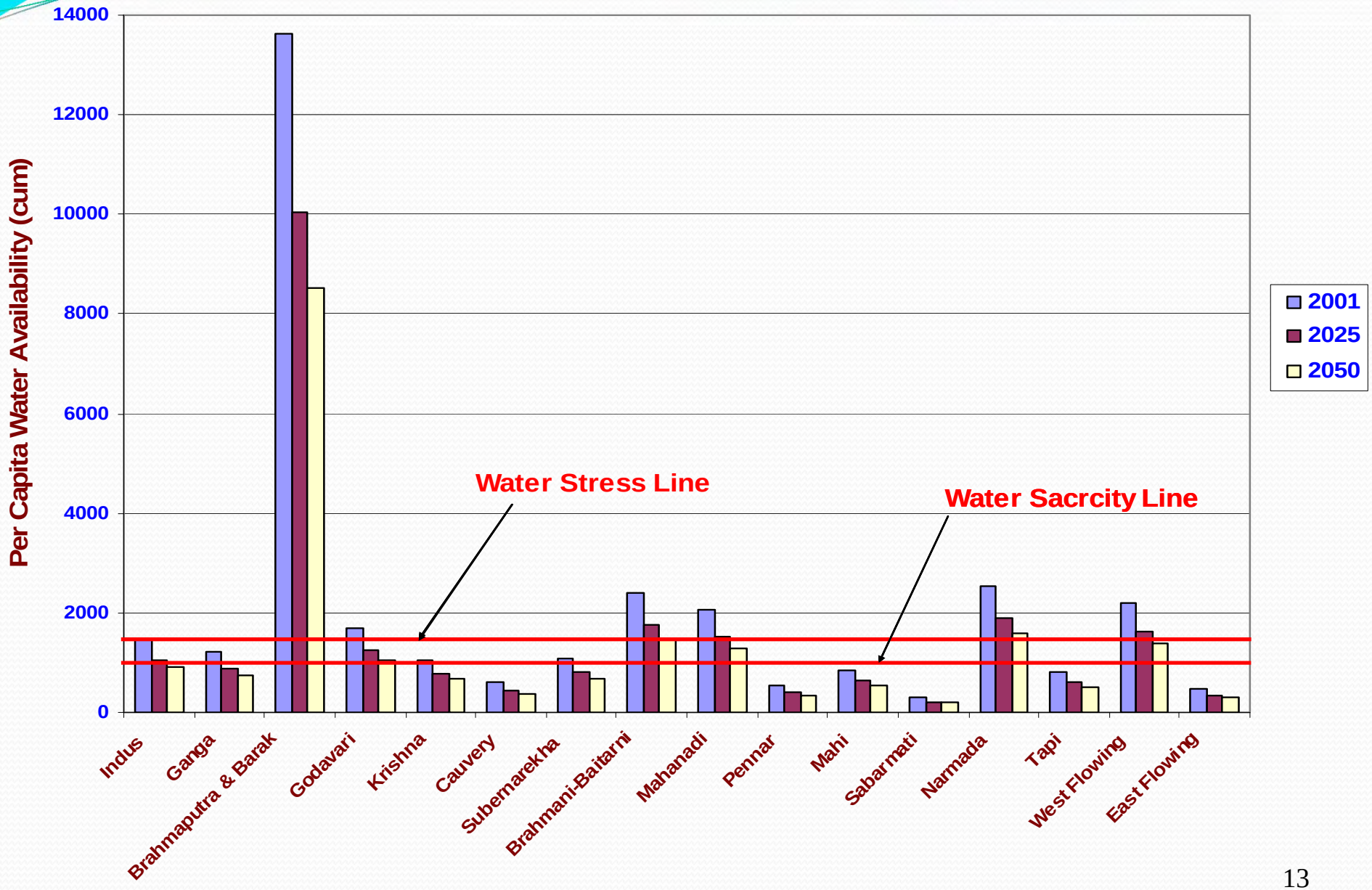
Unit : BCM



Basin wise Utilizable Surface Water Potential



Basin wise Per Capita Availability

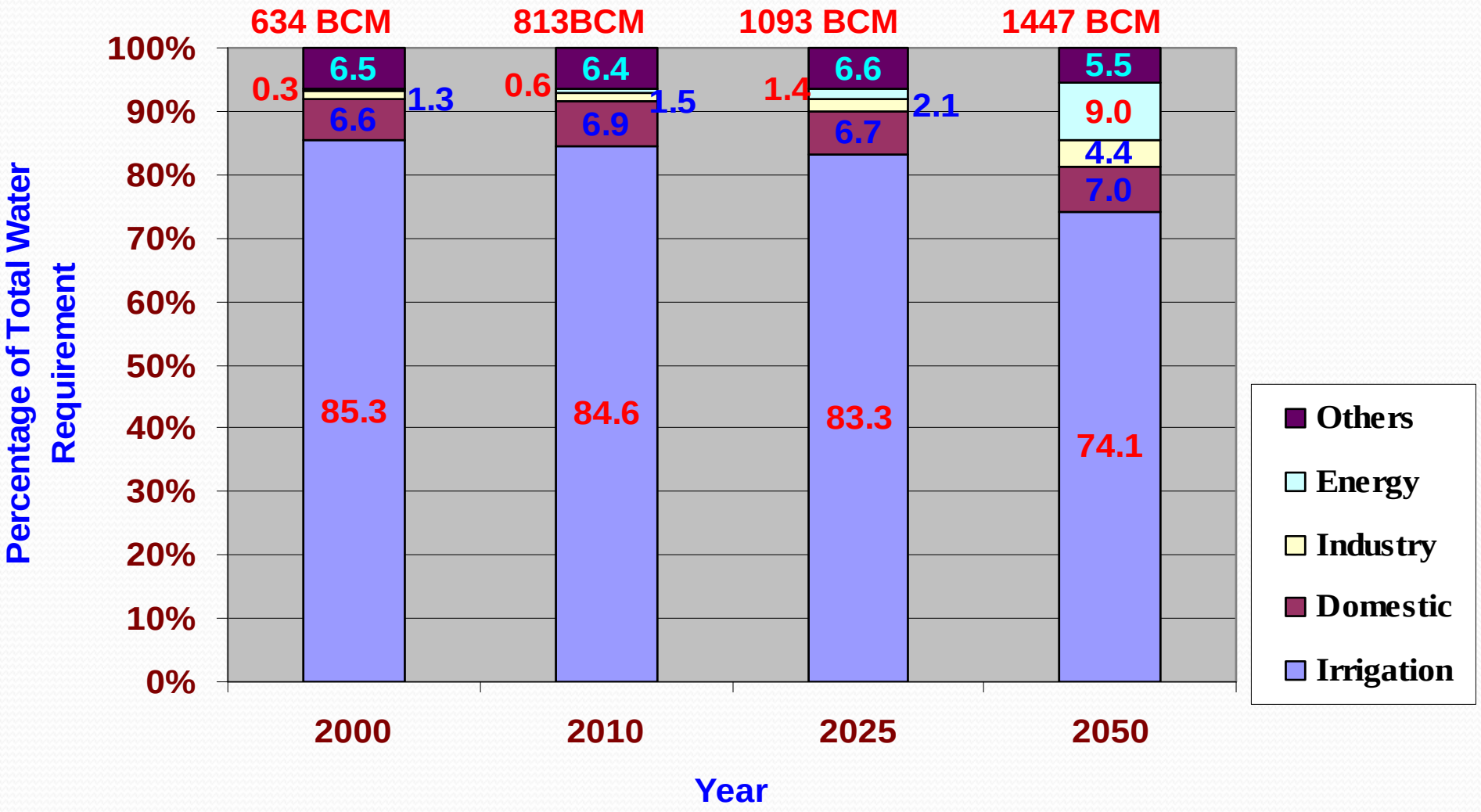


INDIA : Water Requirement in BCM

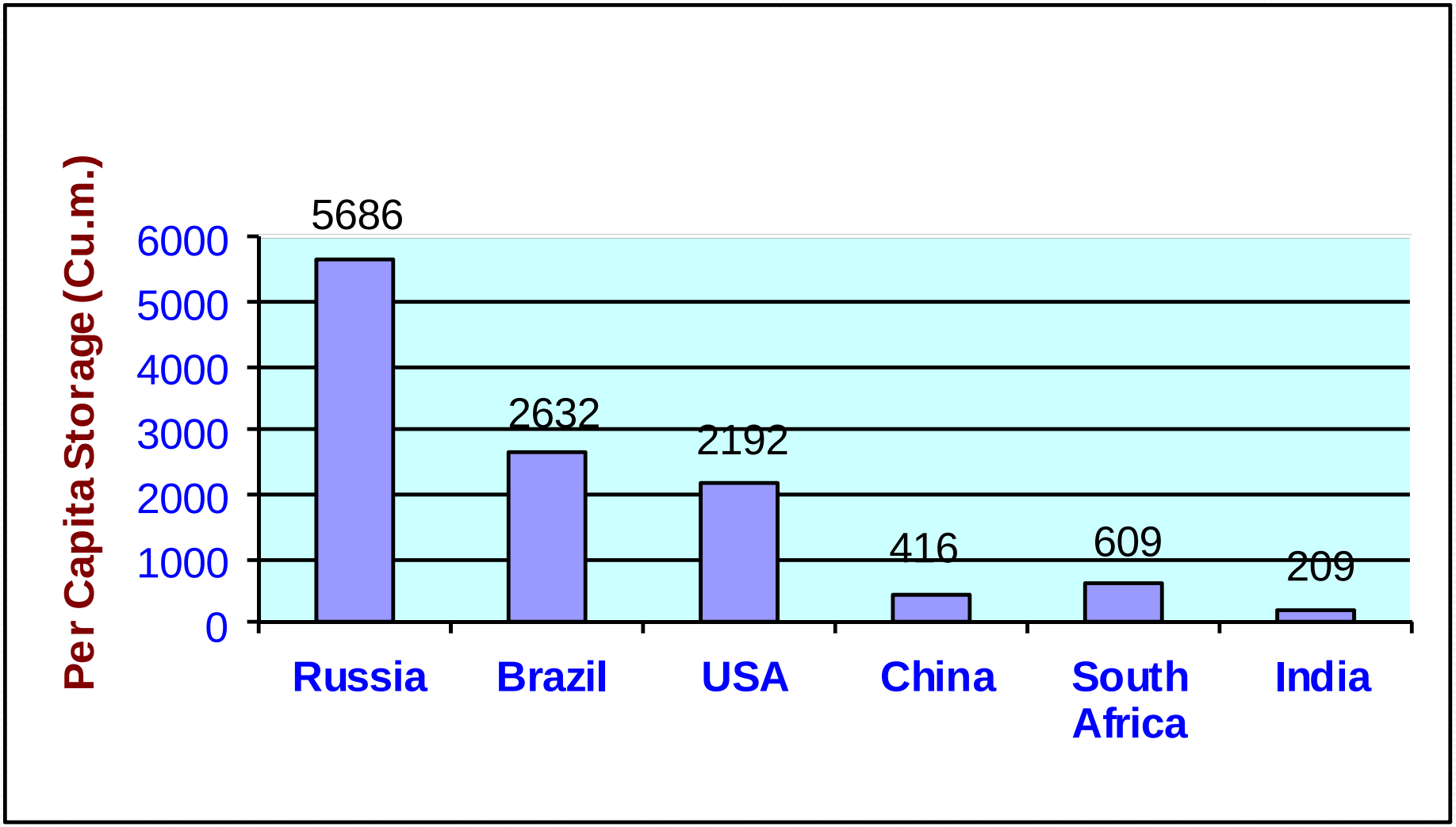
SECTOR	2000	2025	2050
DOMESTIC	42	73	102
IRRIGATION	541	910	1072
INDUSTRY	8	23	63
ENERGY	2	15	130
OTHER USES	41	72	80
TOTAL	634	1093	1447

SOURCE: Report of Standing Sub-Committee on Assessment of availability of water and requirement for diverse uses in the country – August, 2000.

Projected Water Demand



Per Capita Storage



Food Scenario

Food grain Production

At Independence 22 MT

In 1950-51 51 MT

PRESENT

- Population 1.13 Billion
- Food Requirement 200-220 MT
  - Production 250 MT (2011-12)
  - Production 264.38 MT (2013-14)

YEAR 2050

- Population 1.64 Billion
- Food Requirement 450 MT

EVOLUTION OF NATIONAL WATER POLICY

- National Development Council (36th meeting held on March 14, 1982) observed that a climate should be created in which national water plans are prepared keeping in view the national perspective as well as State and regional needs.

- Accordingly, Government of India, by resolution dated 10th March, 1983 set up National Water Resources Council (NWRC)

  Chairman : Prime Minister

  Vice Chairman: Union Minister of Water Resources

  Members : Union Ministers dealing with water ,
  Minister of State for Water Resources
  Chief Ministers of all States
  Lt. Governors/Administrators of all UTs

  Secretary : Secretary (Water Resources)

EVOLUTION OF NATIONAL WATER POLICY

- **1985 : 1st meeting of National Water Resources Council – considered paper on "Towards a National Water Policy : Issues for consideration"**

- **1985-87 : Working Group of Union Ministers/ Chief Ministers prepared National Water Policy Document.**

  - ❖ **Adopted for the first time in 1987**
  - ❖ **Revised and updated in April 2002**

Increasing demand of water, Climate variability, Depleting Groundwater, Deteriorating water quality, etc.

Review of National Water Policy

CONSULTATION PROCESS FOR DRAFT NATIONAL WATER POLICY, 2012

- **With parliamentarians on 28.7.2010**
- **With academia, experts and professionals on 26.10.2010**
- **With non governmental organizations on 11-12.01.2011**
- **With corporate sector on 21.03.2011**
- **With representatives of Panchayati Raj institutions**

  - From southern states at Hyderabad on 16.06.2011
  - From north eastern states at Shillong on 30.06.2011
  - From northern states at Jaipur on 14.07.2011
  - From western states at Pune on 02.11.2011

DRAFTING COMMITTEE

1. **Dr. S.R. Hashim, former Chairman, UPSC & former Member, Planning Commission,**
2. **Dr. Subhash Chander, former Professor of IIT Delhi,**
3. **Shri A.D. Mohile, former Chairman, CWC, and**
4. **Shri S.C. Jain, an NGO**

SUPPORTING TEAM OF OFFICERS FFROM:

1. **Shri G. Mohan Kumar, Special Secretary (WR)**
2. **Shri M.E. Haque, Member (WP&P), CWC (now retd.)**
3. **Shri S.C. Dhiman, Chairman, CGWB (now retd.)**
4. **Dr. K.D. Sharma, Advisor, NRAA**
5. **Shri Avinash Mishra, Jt. Advisor (WR), Planning Commission**
6. **Shri M.K. Sinha, Sr. Jt. Commissioner (PP), MoWR**

NATIONAL WATER POLICY (2012)

1. PREAMBLE

➢ **Identified key concerns (17 in no.)**

- ❑ **Water stress - water security**
- ❑ **Climate change – increased frequency of extreme events**
- ❑ **Inadequate access to safe water for drinking**
- ❑ **Inadequate sanitation polluting water sources**
- ❑ **Over-exploitation of groundwater – taken as private property**
- ❑ **Inadequate maintenance of water resources infrastructure**
- ❑ **Lack of inter-disciplinary and holistic approach**
- ❑ **Increasing inter-state, intra-state, inter-sectoral disputes**
- ❑ **Encroachment & diversion of water bodies & drainage channels**
- ❑ **Low consciousness leading to wasteful & inefficient use**

Evolved basic principles (10 in no.)

- Integrated perspective considering local, regional, state & national contexts
- Equity and social justice must inform use and allocation of water
- Meaningful, intensive participation, transparency and accountability should guide decision making and regulation of water
- Water as common pool community resources held by the state under public trust doctrine
- Safe drinking water, sanitation needs defined as pre-emptive need for water; high priority allocation for other domestic needs (including needs of animals), achieving food security, supporting sustenance agriculture and minimum eco-system needs; thereafter water as an economic good to promote its conservation and efficient use.
- More emphasis on demand management through maximum efficiency in use of water and avoiding wastages
- Water quality and quantity inter-related.
- Climate change need to be factored into water management related decisions.

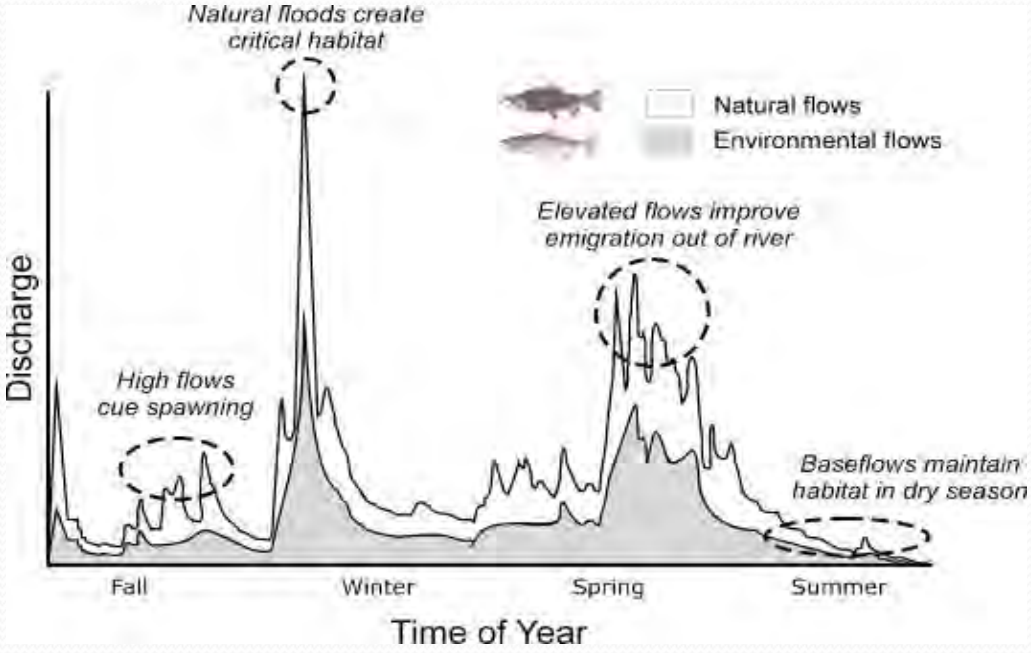
2. WATER FRAMEWORK LAW

- **Recognizes the need for a National Water Framework Law for essential legislation on water governance in every State and devolution of necessary authority to the lower tiers of government to deal with the local water situation**
- **Existing Acts, such as Indian Easements Act, 1882, Irrigation Acts, etc., may have to be modified to align with the policy recommendations**
- **Proposes Comprehensive legislation for optimum development of inter-State rivers and river valleys, etc.**

 Framework law is an umbrella statement of general principles governing the exercise of legislative and/or executive (or devolved) powers by the Centre, the States and the local governing bodies

3. USES OF WATER

- ✓ **The Centre, the States and the local bodies (governance institutions) must ensure access to a minimum quantity of potable water for essential health and hygiene to all its citizens, available within easy reach of the household.**
- ✓ **A portion of river flows should be kept aside to meet ecological needs (not only minimum flow) ensuring that the proportional low and high flow releases correspond in time closely to the natural flow regime.**
- ✓ **Community based water management should be institutionalized and strengthened**



4. ADAPTATION TO CLIMATE CHANGE

- ✓ **There is a need to adapt to climate change scenario in planning and implementation of water resources projects. Coping strategies for designing and management of water resources structures and review of acceptability criteria has been emphasized.**

- ✓ **The adaptation strategies could, inter alia, include increasing water storage in its various forms, namely, soil moisture, ponds, ground water, small and large reservoirs, and their combination**

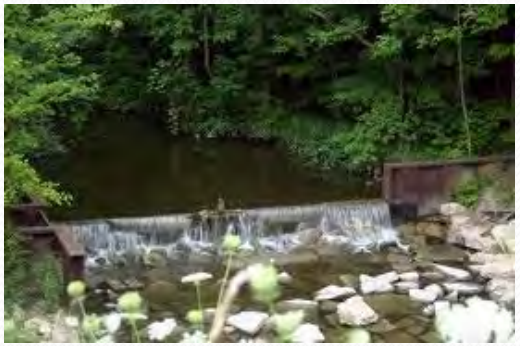
5. ENHANCING WATER AVAILABLE FOR USE

- ✓ **Mapping of the aquifers to know the quantum and quality of ground water resources (replenishable as well as non-replenishable) with periodic up-dation. Proposes involvement of local communities in aquifer management.**

- ✓ **Inter-basin transfers of water should be considered on the basis of merits of each case after evaluating the environmental, economic and social impacts of such transfers.**

(a) Large dams

(b) Water Bodies



(c) Check dams

6. DEMAND MANAGEMENT AND WATER USE EFFICIENCY

- ✓ **A system to evolve benchmarks for water uses for different purposes, i.e., water footprints, and water auditing should be developed to ensure efficient use of water.**
- ✓ **Recycle and reuse of water, including return flows, should be the general norm**
- ✓ **Project financing added as a tool to incentivize efficient & economic use of water.**

6. DEMAND MANAGEMENT AND WATER USE EFFICIENCY – contd.

- ✓ **Water saving in irrigation use is of paramount importance. Methods like aligning cropping pattern with natural resource endowments, micro irrigation (drip, sprinkler, etc.), automated irrigation operation, evaporation-transpiration reduction, etc., should be encouraged and incentivized.**




7. WATER PRICING

- ✓ **Provision of setting up of Water Regulatory Authority and adequate water pricing on volumetric basis to ensure its efficient use and reward conservation.**

- ✓ **Over and above pre-emptive uses, water should increasingly be subjected to allocation and pricing on economic principles.**

- ✓ **Water Users Associations should be given statutory powers to collect and retain a portion of water charges, manage the volumetric quantum of water allotted to them and maintain the distribution system in their jurisdiction**

- ✓ **The over-drawal of groundwater should be minimized by regulating the use of electricity for its extraction. Separate electric feeders for pumping ground water for agricultural use should be considered.**

8. CONSERVATION OF RIVER CORRIDORS, WATER BODIES AND INFRASTRUCTURE

- ✓ **Encroachment and diversion of water bodies need to be restored with community participation.**
- ✓ **Sources of water and water bodies, particularly groundwater, should not be allowed to get polluted.**
- ✓ **A suitable percentage of the costs of infrastructure development should be set aside to supplement repair and maintenance allocation.**
- ✓ **Contract for construction of projects should have inbuilt provision for longer periods of proper maintenance and handing over back the infrastructure in good condition.**
- ✓ **Appropriate safety measures, including downstream flood management, for each dam should be undertaken on top priority.**

9. PROJECT PLANNING AND IMPLEMENTATION

- ✓ **Integrated water resources management be followed for planning and management of water resources projects.**
- ✓ **Considering the heavy economic loss due to delay in implementation of projects, all clearances, including environmental and investment clearances, be made time bound.**
- ✓ **All components of water resources projects should be planned and executed in a pari-passu manner so that intended benefits start accruing immediately and there is no gap between potential created and potential utilized.**
- ✓ **All water resources projects, including hydro power projects, should be planned to the extent feasible as multi-purpose projects with provision of storage to derive maximum benefit from available topology and water resources.**

10. MANAGEMENT OF FLOOD & DROUGHT

- ✓ **Emphasis on preparedness for flood / drought with coping mechanisms as an option. Frequency based flood inundation maps should be prepared to evolve coping strategies.**

- ✓ **Dam/embankment break studies, as also preparation and periodic updating of emergency action plans / disaster management plans be evolved with periodic monitoring along with instrumentation, etc., after involving affected communities.**

- ✓ **Operating procedures for reservoirs should be evolved and implemented in such a manner to have flood cushion and to reduce trapping of sediment during flood season.**

11. WATER SUPPLY AND SANITATION

- ✓ **Large disparity between stipulations for water supply in urban areas and in rural areas be removed to bring equality between rural and urban people**

- ✓ **Urban water supply and sewage treatment schemes should be integrated and executed simultaneously.**

- ✓ **Industries in water short regions may be allowed to either withdraw only the make up water or should have an obligation to return treated effluent to a specified standard back to the hydrologic system.**

- ✓ **Subsidies and incentives should be implemented to encourage recovery of industrial pollutants and recycling / reuse, which are otherwise capital intensive**

12. INSTITUTIONAL ARRANGEMENTS

- ✓ **Proposes a forum at the national level to deliberate upon issues relating to water and evolve consensus, co-operation and reconciliation amongst States.**

- ✓ **A permanent Water Disputes Tribunal at the Centre be established to resolve the disputes expeditiously in an equitable manner.**

- ✓ **Integrated Water Resources Management (IWRM) taking river basin / sub-basin as a unit, should be the main principle for planning, development and management of water resources. The departments / organizations at Centre / State Governments levels should be restructured and made multi-disciplinary accordingly.**

- ✓ **States should be encouraged and incentivized to undertake reforms and progressive measures.**

13. TRANS-BOUNDARY RIVERS

- ✓ **Efforts should be made to enter into international agreements with neighbouring countries on bilateral basis for exchange of hydrological data on near real time basis.**

- ✓ **Negotiations about sharing and management of water of international rivers should be done on bilateral basis in consultative association with riparian States keeping paramount the national interests.**

14. DATABASE & INFORMATION SYSTEM

- ✓ **All hydrological data, other than those classified, shall be in public domain. Setting up of a National Water Informatics Center has been proposed.**

15. RESEARCH & TRAINING NEEDS

- ✓ A center for research in water policy should also be established to evolve policy directives for changing scenario of water resources

- ✓ Adequate grants to the States to update technology, design practices, planning and management practices, preparation of annual water balances and accounts for the site and basin, preparation of hydrologic balances for water systems, and benchmarking and performance evaluation.

16. IMPLEMENTATION OF NATIONAL WATER POLICY

- ✓ National Water Board should prepare a plan of action based on the National Water Policy to regularly monitor its implementation. The State Water Policies may need to be drafted/revised .

IWRM and National Water Policy

- The Global Water Partnership's definition of IWRM is widely accepted. It states: 'IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.'
- IWRM is not a scientific theory that needs to be proved or disproved by scholars. Rather it is a set of common-sense suggestions as to what makes up important management aspects.

IWRM : Provisions from National Water Policy

- There are inequities in distribution and lack of a unified perspective in planning, management and use of water resources.
- Water resources projects, though multi-disciplinary with multiple stakeholders, are being planned and implemented in a fragmented manner without giving due consideration to optimum utilization, environment sustainability and holistic benefit to the people.
- Planning, development and management of water resources need to be governed by common integrated perspective considering local, regional, State and national context, having an environmentally sound basis, keeping in view the human, social and economic needs.

IWRM : Provisions from National Water Policy

- All the elements of the water cycle, i.e., evapo-transpiration, precipitation, runoff, river, lakes, soil moisture, and ground water, sea, etc., are interdependent and the basic hydrological unit is the river basin, which should be considered as the basic hydrological unit for planning.
- Water quality and quantity are interlinked and need to be managed in an integrated manner, consistent with broader environmental management approaches inter-alia including the use of economic incentives and penalties to reduce pollution and wastage.
- There is a need for comprehensive legislation for optimum development of inter- State rivers and river valleys to facilitate inter-State coordination ensuring scientific planning of land and water resources taking basin/sub-basin as unit with unified perspectives of water in all its forms (including precipitation, soil moisture, ground and surface water) and ensuring holistic and balanced development of both the catchment and the command areas.

IWRM : Provisions from National Water Policy

- Water is required for domestic, agricultural, hydro-power, thermal power, navigation, recreation, etc. Utilization in all these diverse uses of water should be optimized and an awareness of water as a scarce resource should be fostered.
- Being inter-disciplinary in nature, water resources projects should be planned considering social and environmental aspects also in addition to techno-economic considerations in consultation with project affected and beneficiary families. The integrated water resources management with emphasis on finding reasonable and generally acceptable solutions for most of the stakeholders should be followed for planning and management of water resources projects.

IWRM : Provisions from National Water Policy

- Integrated Water Resources Management (IWRM) taking river basin / sub-basin as a unit should be the main principle for planning, development and management of water resources. The departments / organizations at Centre / State Governments levels should be restructured and made multi-disciplinary accordingly.

IWRM : Draft National Water Framework law

It is a Bill to establish a framework with governing principles for protection, conservation and regulation of waters and for matters connected therewith and incidental thereto

- **It proposes that all water resources projects shall conform to the River Basin Master Plan to be prepared, applicable efficiency benchmarks and shall take into account all social and environmental aspects in addition to techno-economic considerations.**
- **It mandates each River Basin Authority to prepare a River Basin Master Plan for the inter-State river basin under its jurisdiction on the principles of Integrated Water Resources Management.**

Thanks