



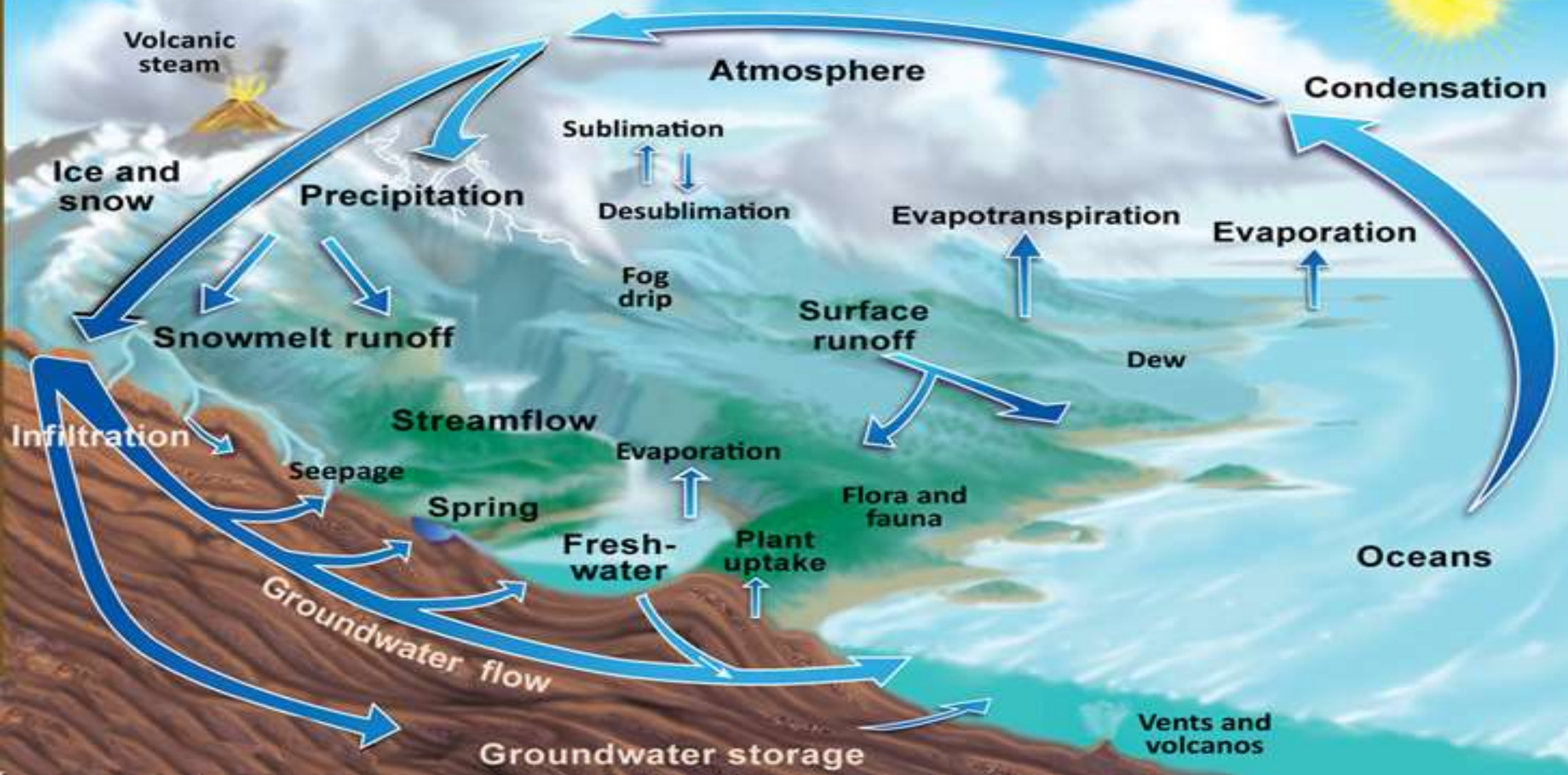
Water Governance -for **Water Security, Safety & Sustainability**

Dr.M.Ariz Ahammed IAS

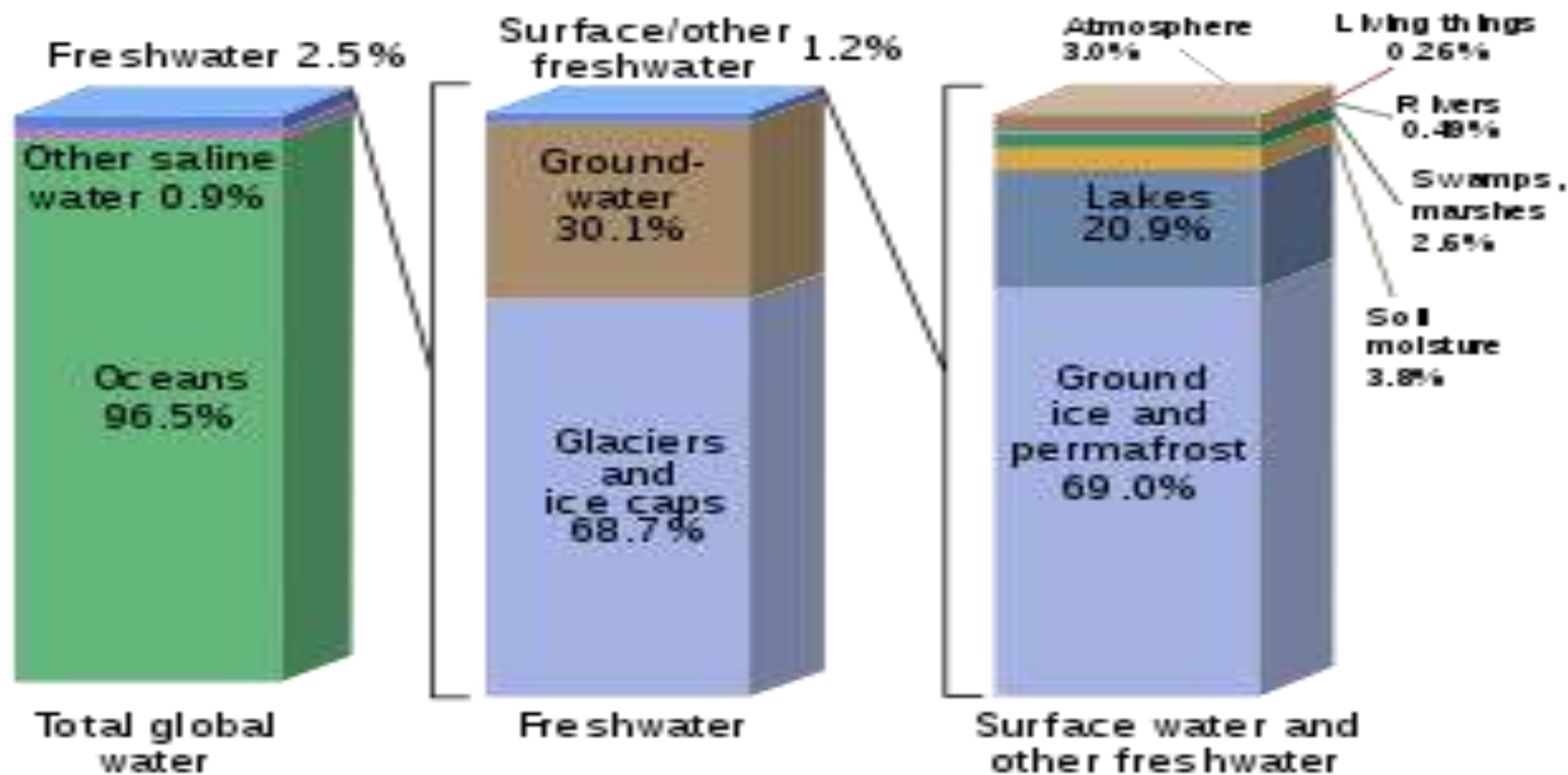
National Water Mission

Ministry of Water Resources, River Development & Ganga Rejuvenation

The Water Cycle



Where is Earth's Water?





Water Governance-National Perspective

State List- entry 17 of List-II subject to the provision of Entry 56 of List-I i.e. Union List.

Entry 17 of List II (State List): “Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to provisions of entry 56 of List I.”

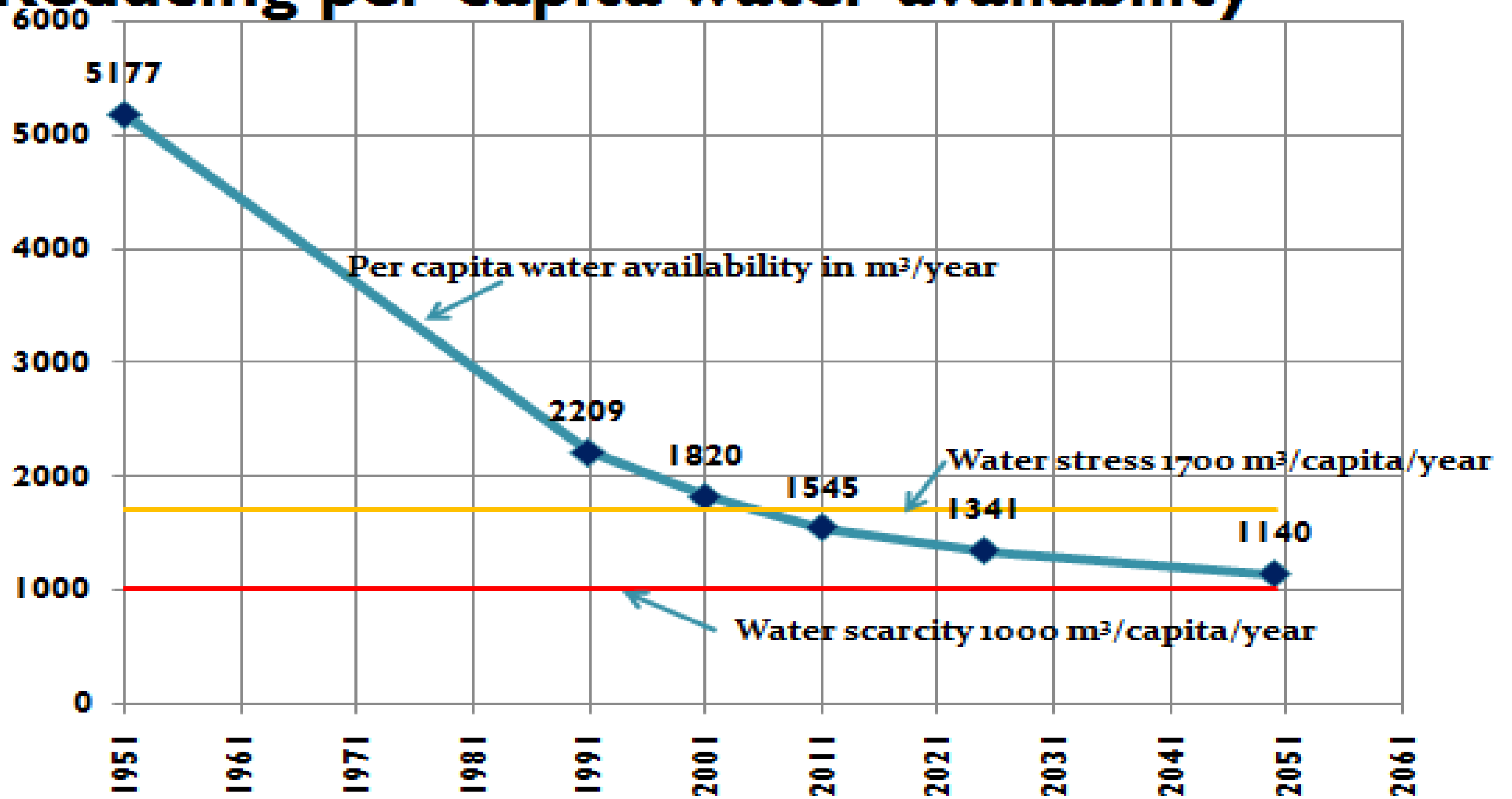
Entry 56 of List I (Union List): “**Regulation and development of inter-state rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest.**”

River Boards Act, 1956 (Under Art.246, List 1, Entry 56)

Art.262. Adjudication of disputes relating to waters of inter-State rivers or river valleys

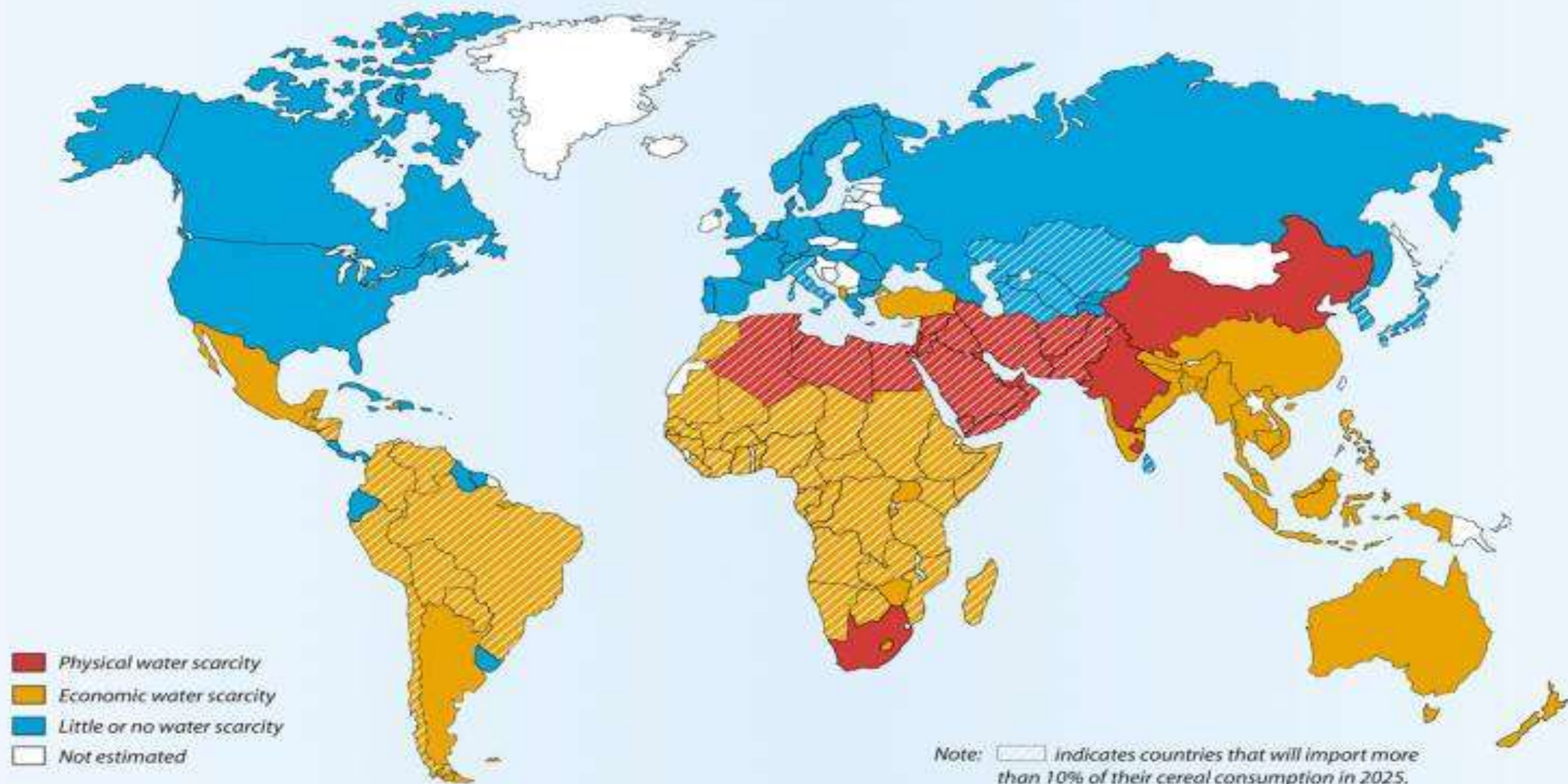
Inter State Water Disputes Act, 1956 –provides for setting up of Tribunals

Reducing per capita water availability



* As per Falkenmark Water Stress Indicator

Projected Water Scarcity in 2025

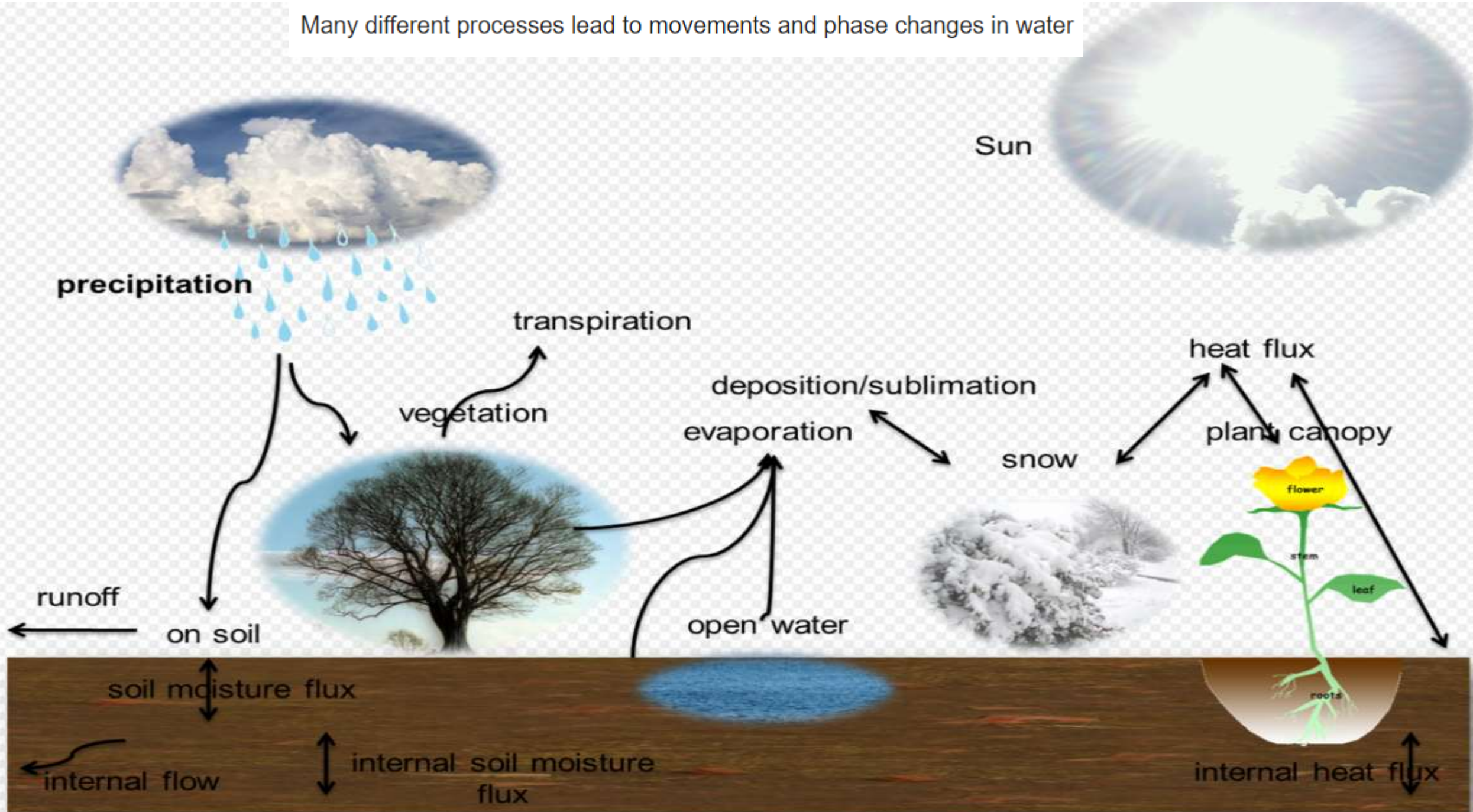


DTP Unit, IWMI-January, 2000

State / UT Specific Action Plan on Water

1. State Water Budgeting- Annual exercise
2. Preparation of interim report on:
 1. Impact of Climate change on State.
 2. Alternative Interventions required to address each of the issues/concerns identified in Status Report and Interim Report.
3. SSAP- Water 2050

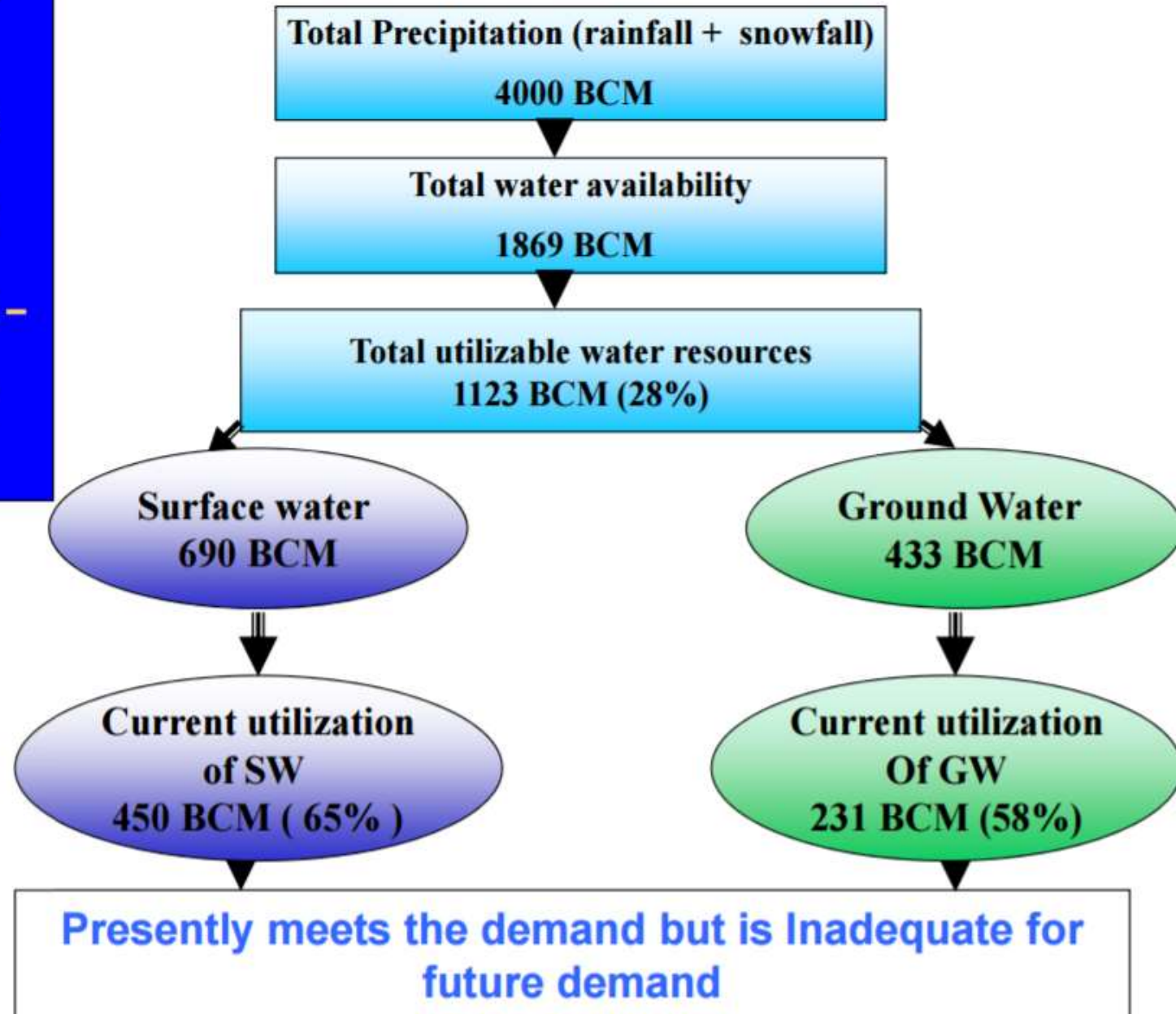
Many different processes lead to movements and phase changes in water



(Chen et. al., 1996, 1997; Chen and Dudhia, 2001; Ek et. al., 2003; Koren et. al., 1999)

Water Resources Scenario - INDIA

- 2.45% of World's Land Area
- 4% of World's Renewable Water Resources
- 17.5% of World's Population
- Water Availability – 1545 cum/person/year
- Scarcity - 1000



Importance of Ground water

Ground water accounts for

- 60 % of irrigation needs
- 85% of rural drinking water needs
- 50% of urban water needs
- Last 40 years – GW contributed more than 80 % in increasing Net Irrigated area
- Contributes about 9 % to GDP
- Since 1975 , Indian Agriculture has emerged as worlds largest user of ground water to grow food and fiber.

Sustainability is major Challenge

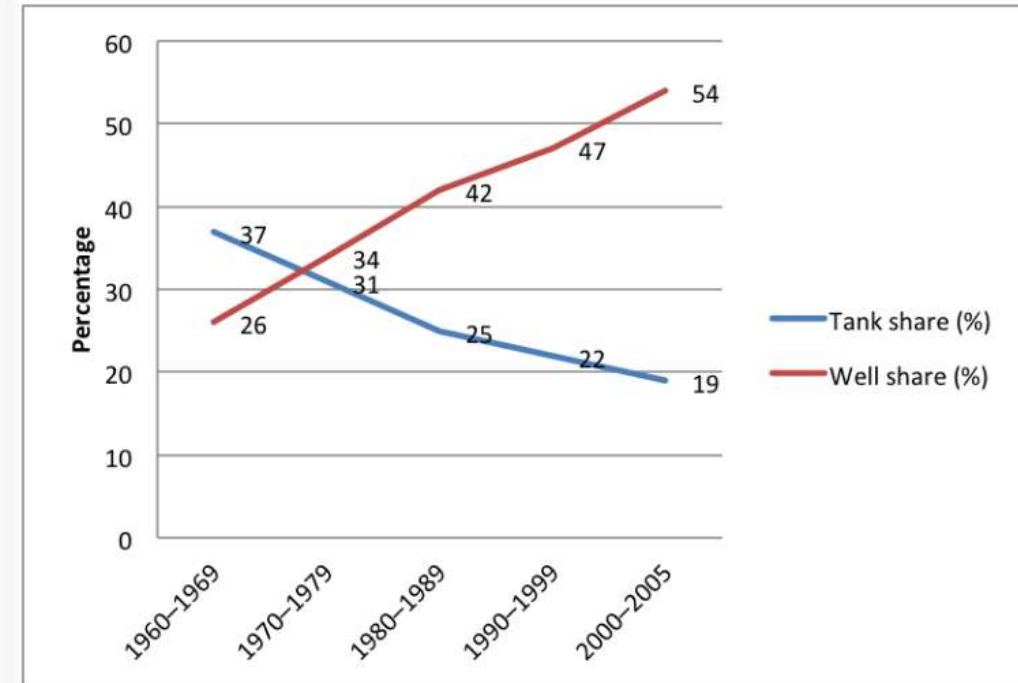


Figure 1: Percentage share of well-irrigated and tank-irrigated area in total irrigated area in Tamil Nadu from 1960 to 2005

An assessment of the replacement of traditional irrigation systems by private wells in Tamil Nadu, India
POSTED ON OCTOBER 30, 2012 IN [DEVELOPMENT, ECONOMICS](#)
Dr. Kei Kajisa, International Rice Research Institute, the Philippines

Can we sustain this level of Utilization of GW Resource...???

Water Dimensions

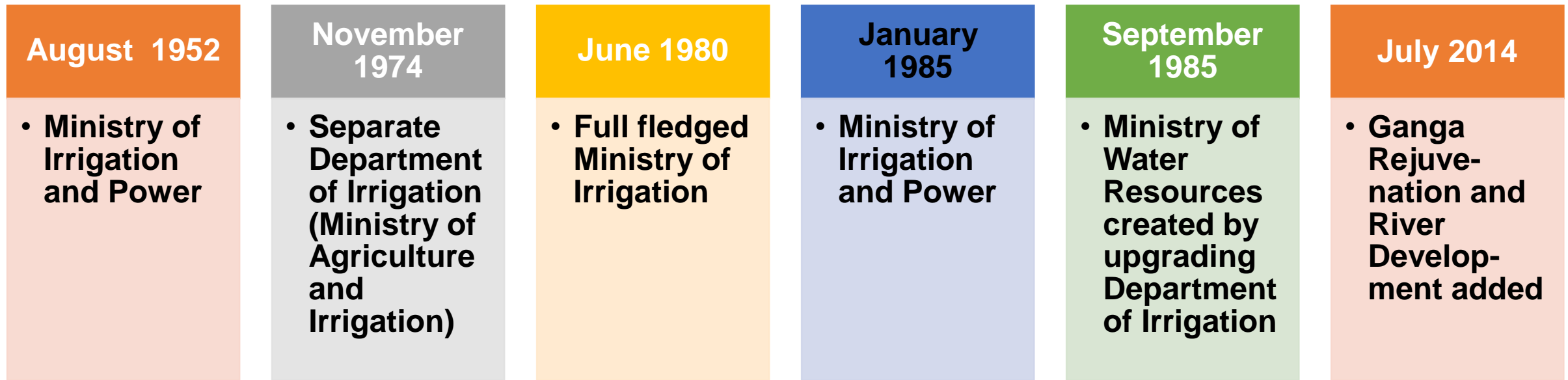


Water governance- Distributed

No single coordination Agency

Supply/Source side	Demand/ Consumption side
1. Climate- Precipitation	1. Forestry & Wildlife
2. Glaciers	2. Farm Sector
3. Springs	a. Agri-Horticulture-Irrigated and Rainfed
4. River Basins	b. Livestock, Birds and others
5. Projects-Storage/ Irrigation/ Multi-purpose	c. Fisheries and others
6. Wetlands	3. Industry and Infrastructure
7. Tanks	a. Thermal Power Plants/
8. Coastal zone	b. Textiles and Jute
9. Ground Water Resources	c. Paper and Pulp
10. Waste Water	d. Iron and Steel
	e. Others
	4. Establishments & Institutions- Education, Health etc.
	5. Drinking Water and Domestic use -Rural & Urban

Evolution of Ministry of Water Resources, River Development & Ganga Rejuvenation



Evolution timeline



Governance

Supply

Water
Sustainability /
GapsChallenges/
Water Budget

Demand

Technology

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STATE / UT WATER BUDGET-ANNUAL EXERCISE

Challenge: Hydrological Unit vs Administrative Unit

State/ UT Water Budget

Income		Expenditure		Gap
Utilisable Water Resources		Allocation of Water Resources		
Source wise		Sector wise		
Surface Water		Rain fed Agriculture		
Irrigation Projects		Irrigated Agriculture		
Water Bodies		Industry		
Lakes				
Ponds / Tanks		Thermal		
Ground Water		Steel		
Other sources		Textiles		
		Others		
		Drinking Water		
Waste water		Other uses		

Pareto principle: 80/20 rule

- For many events, roughly 80% of the effects come from 20% of the causes.
- Pareto noticed that 80% of Italy's land was owned by 20% of the population

**Distribution of world GDP,
1989^[8]**

Quintile of population	Income
Richest 20%	82.70%
Second 20%	11.75%
Third 20%	2.30%
Fourth 20%	1.85%
Poorest 20%	1.40%

Water Sector: Pareto 80/20

What constitutes 80% of each of the Sector/ component ?

Ex: Agriculture- Irrigated 87 M.ha

Rice, Wheat, Sugarcane, Cotton: 60 M.Ha

Way forward: Water Security, Safety & Sustainability

Challenges

- Identification of Stakeholders
- Convergence- Common understanding
- Single Identified Agency for management
- Harmonising –Science (Hydrology/Geology) and Administrative units
- Measurement
- Re-engineering of Governance

Way forward-Institutionalisation

- State Water Budgeting



*Only by together
we can make a difference*