

Water Resources Development and Management in India - An Overview

A presentation

by

U. N. Panjiar

*Secretary to the Government of India
Ministry of Water Resources*

This presentation...

- # Water resources scenario in India
- # Water governance in India
- # Achievements in water sector
- # Challenges in water sector
- # Reform initiatives
- # Way forward

Water availability

(billion cubic metre)

Total precipitation : 4000

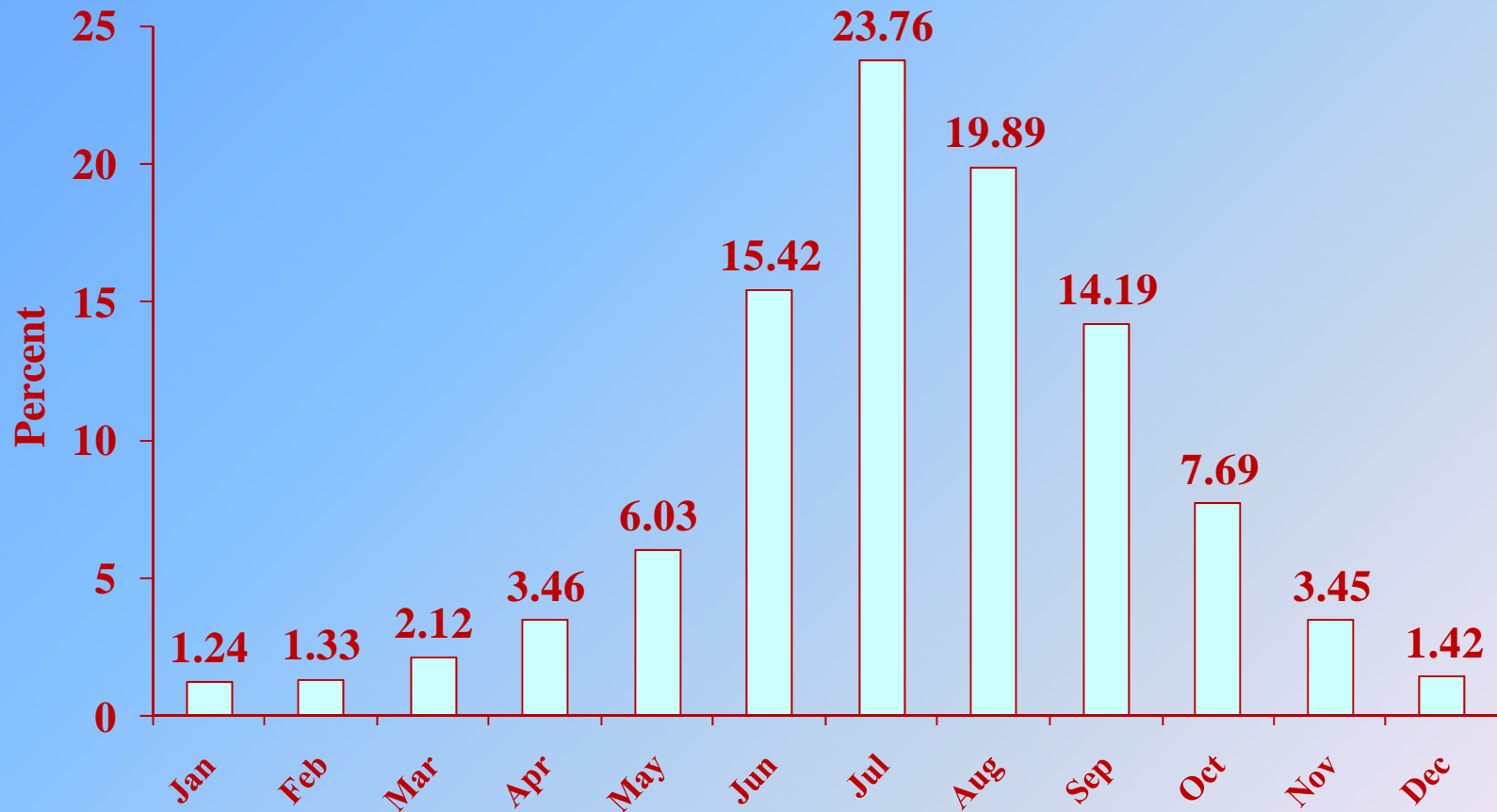
Total water availability : 1869

Total utilizable water : 1123

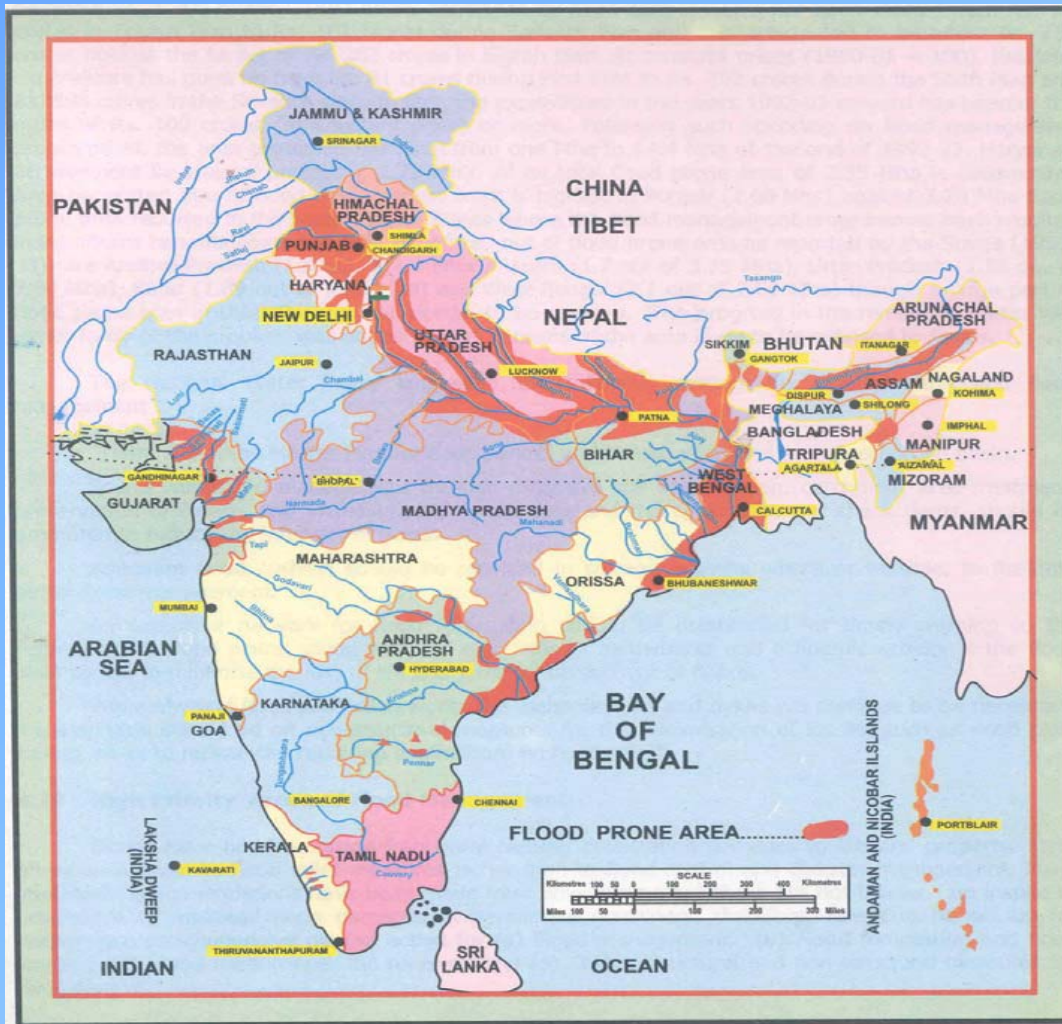
Surface water : 690

Ground water : 433

Temporal variation of rainfall



Floods



Flood Prone Area –
45.36 Mha

Drought



- # About 22.7% of geographical area covered under DPAP

Constitutional provision

Entry 17 of List II (State List) of the 7th Schedule

“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) of the 7th Schedule

“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.”

Constitutional provision (contd.)

Article 262

Disputes relating to Water - Adjudication of disputes relating to waters of inter-State rivers or river valleys

1. Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley.
2. Notwithstanding anything in this Constitution, Parliament may by law provide that neither the Supreme Court nor any other court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause (1)

Water quality management

Acts

- **Water (Prevention and Control of Pollution) Act 1974**
- **Environmental Protection Act 1986**

Authorities

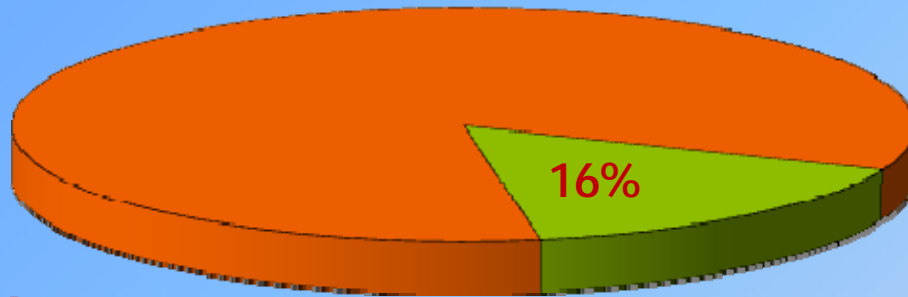
- **Central Pollution Control Board**
- **Central Ground Water Authority**
- **Water Quality Assessment Authority**

Major role of Union Ministry

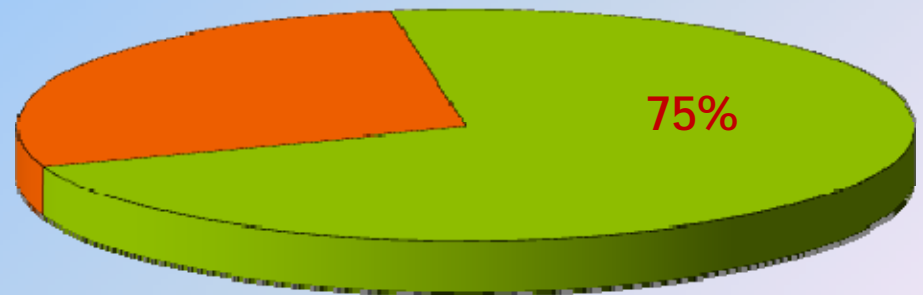
- # Overall policy and planning
- # Technical support
- # Appraisal of project proposals
- # Monitoring of important projects
- # International co-operation

Water resources development

Potential Created as % of Ultimate Irrigation Potential
(about 140 Mha)

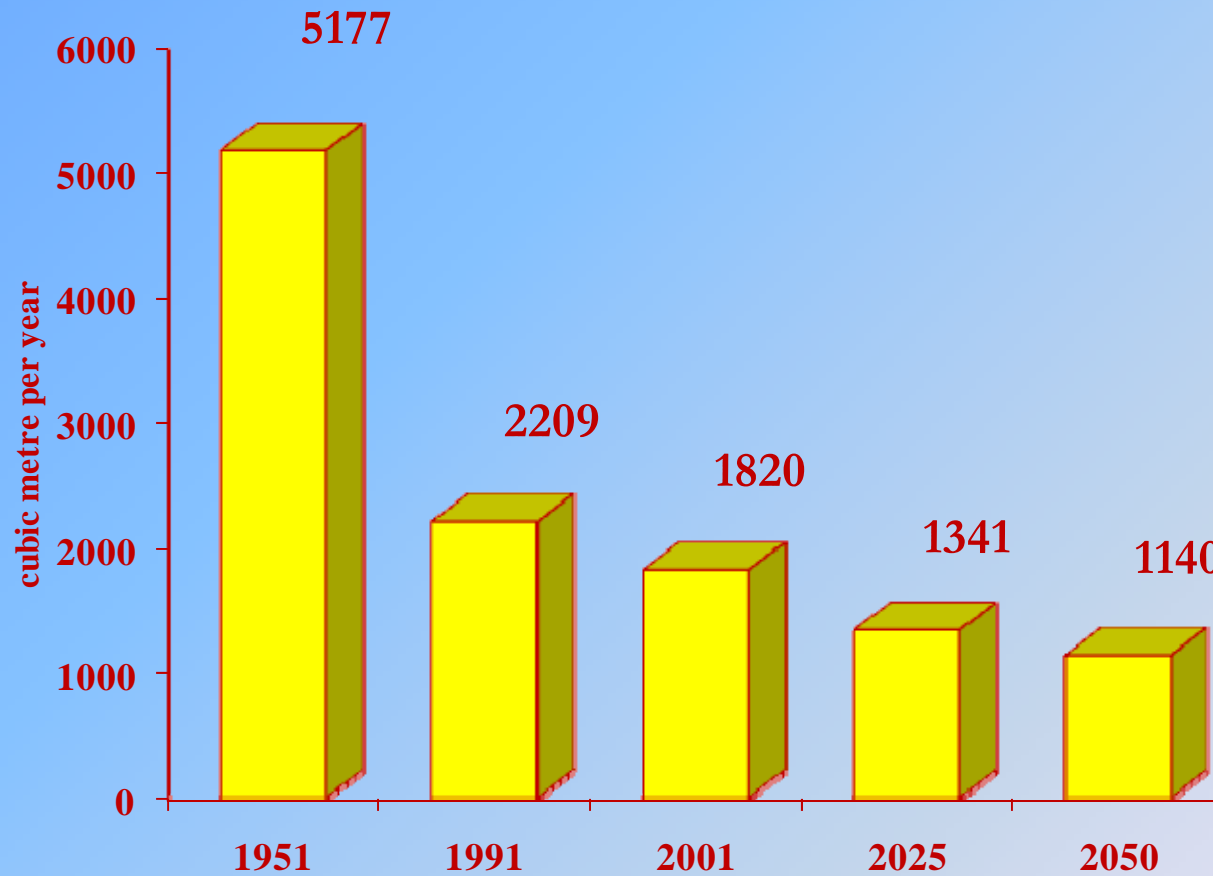


In 1951



In 2008

Per capita water availability



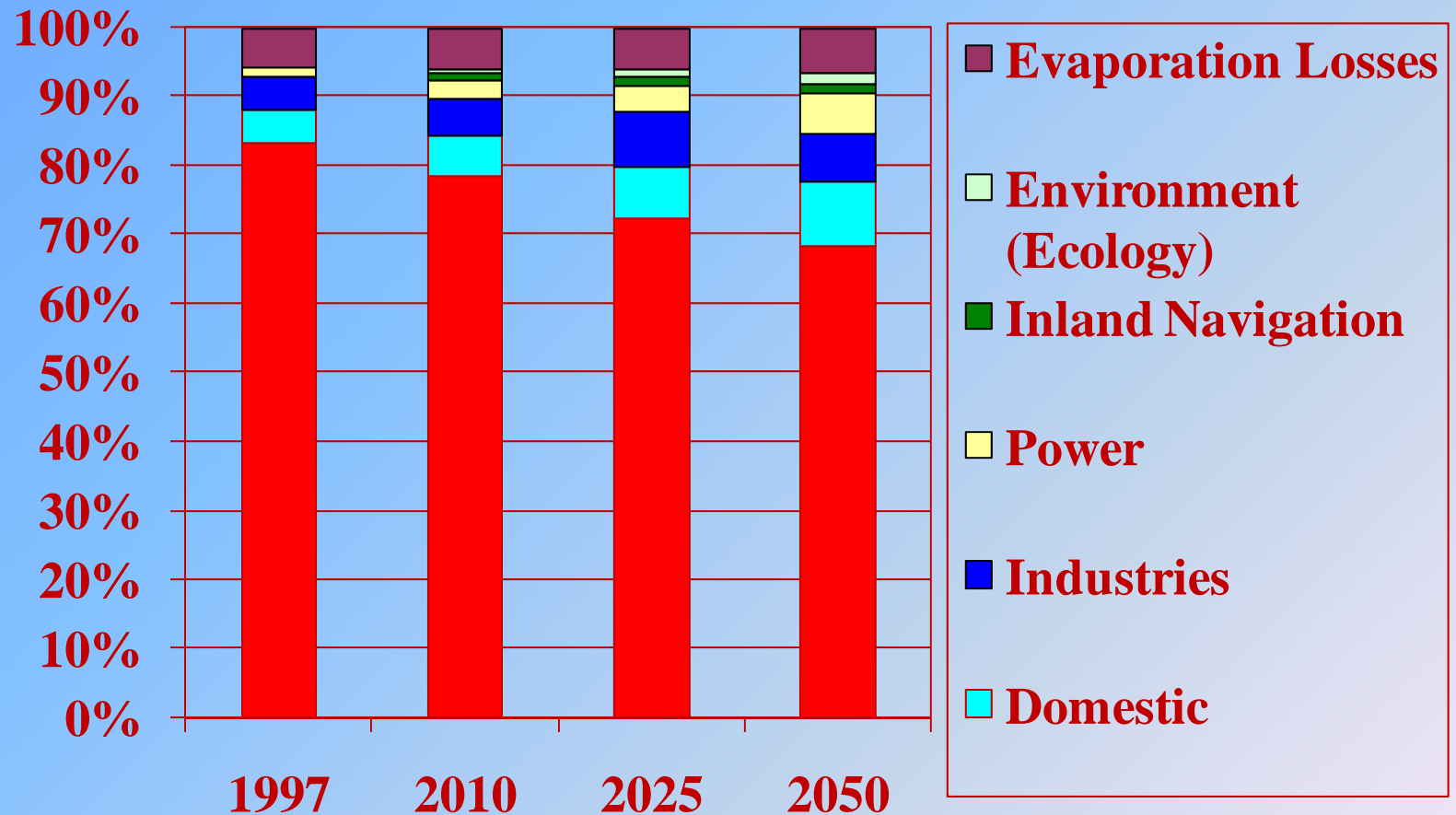
Overall water demand

(billion cubic metre)

In 2010	:	710
In 2025	:	843
In 2050	:	1180

Source : National Commission for Integrated Water Resource
Development Plan

Demands of various sectors

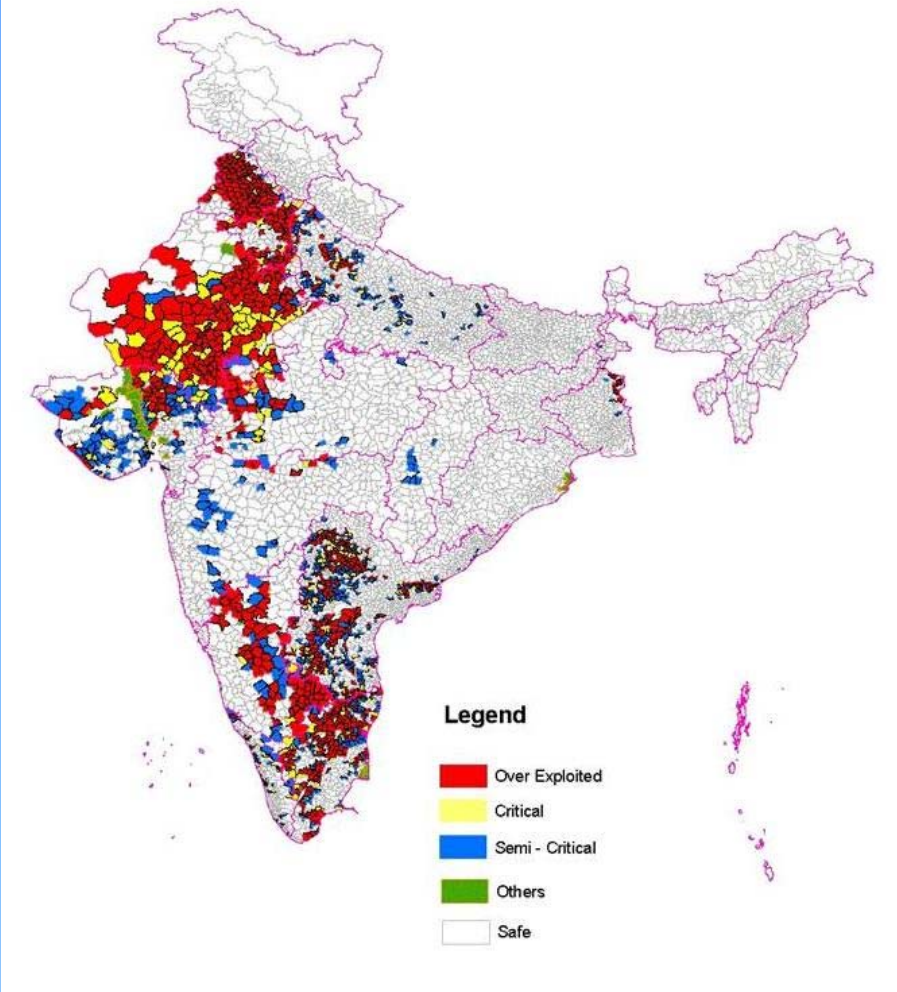


Water quality

- # Deterioration of surface water quality due to river pollution
- # Deterioration of ground water quality due to -
 - Over exploitation
 - Excessive use of fertilizers, pesticides etc.

Ground water exploitation

Map Showing Categorization of Blocks/ Mandals/ Taluks
As on March 2004



▪ Total units	5723
▪ Safe	4078
▪ Semi critical	550
▪ Critical	226
▪ Overexploited	839

Climate change – likely impacts

- # Effect on glaciers and snowfields
- # Intensification of extremal events i.e., floods and droughts
- # Effect on ground water quality in alluvial aquifers
- # Influence on groundwater recharge
- # Increased saline water intrusion in coastal and island aquifers due to rising sea levels

Way forward

- # Sustainable development, and
- # Efficient management

through

- # Integrated basin level planning, and
- # Participatory approach

Sustainable development

- # Ensuring physical and financial sustainability
- # Special efforts in over-exploited areas
 - Rainwater harvesting and groundwater recharge
 - Legislative measures
- # Public awareness
- # Appropriate regulatory mechanism

Efficient management

- # Improvement in water use efficiency
- # Efficiency of irrigation system relatively low
 - Surface water : 35 – 40 %
 - Ground water : 65 – 70%
- # Scope for further improvement
 - Surface water : up to 60%
 - Ground water : up to 75%

Integrated planning

- # Integrated development and management
- # Basin / sub-basin approach to planning
- # Water Users' Associations (WUAs) for management at local level

National Water Policy

- # First priority for drinking water
- # Emphasis on physical and financial sustainability
- # Rationalization of water charges
- # Well targeted and transparent subsidy on water rates for disadvantaged and poorer section
- # Encouragement for private sector participation

National Water Mission

Objective

“Conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources management”

Goals

- # Comprehensive water data base in public domain and assessment of the impact of climate change on water resources
- # Promotion of citizen and State actions for water conservation, augmentation and preservation
- # Focused attention to over-exploited areas
- # Increasing water use efficiency at least by 20%
- # Promotion of basin level integrated water resources management

Thanks