State of the resource: Water

A critical analysis

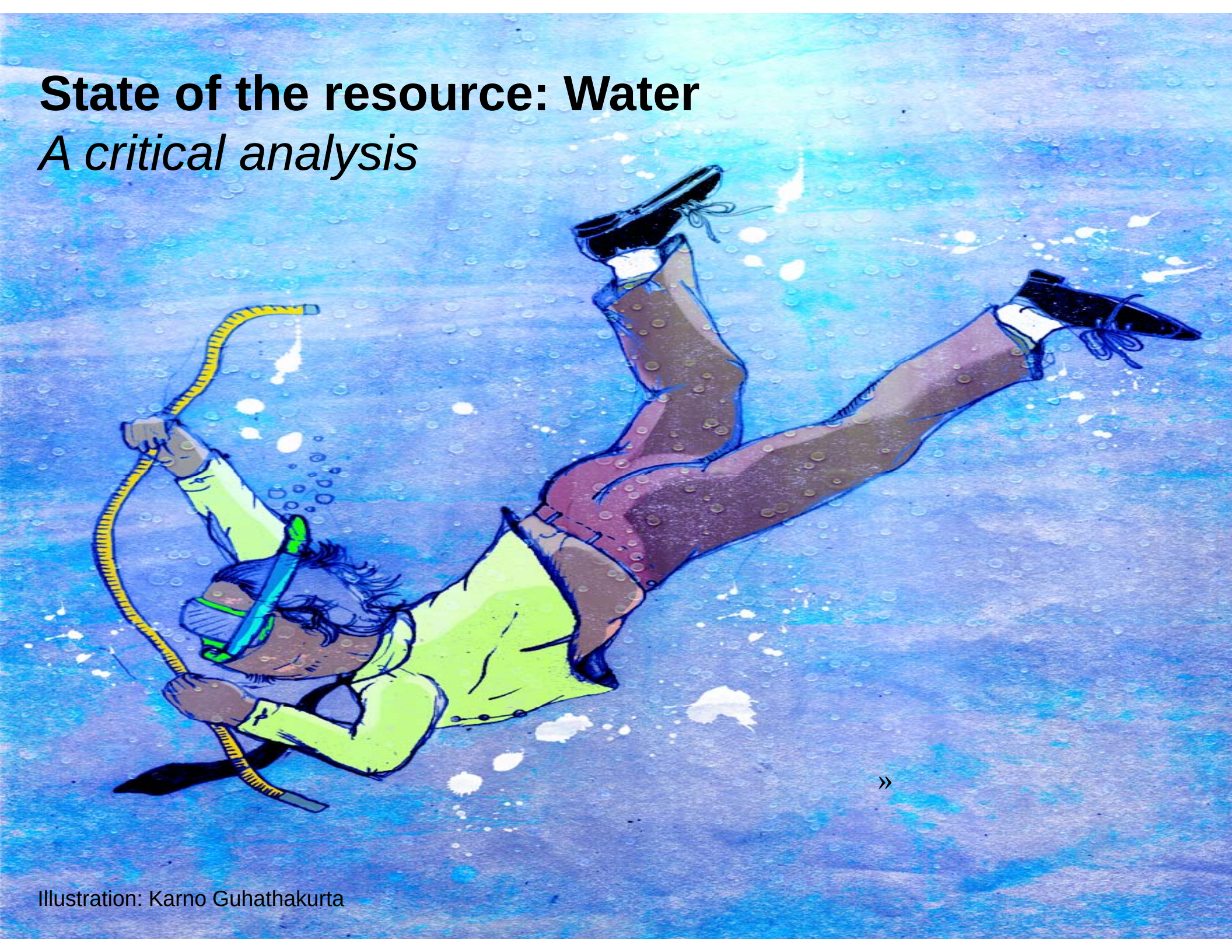
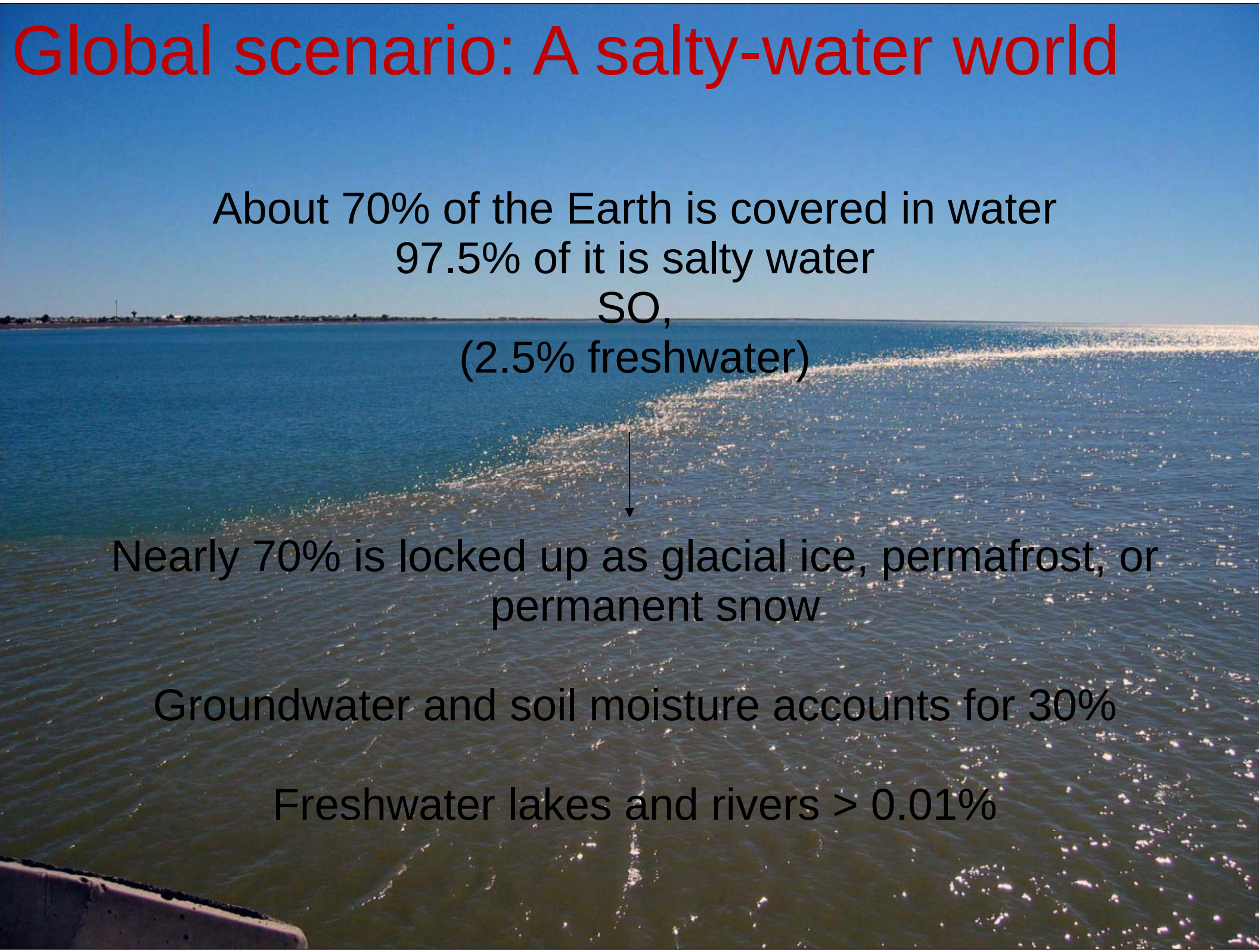


Illustration: Karno Guhathakurta

Global scenario: A salty-water world



About 70% of the Earth is covered in water
97.5% of it is salty water
SO,
(2.5% freshwater)

↓

Nearly 70% is locked up as glacial ice, permafrost, or permanent snow

Groundwater and soil moisture accounts for 30%

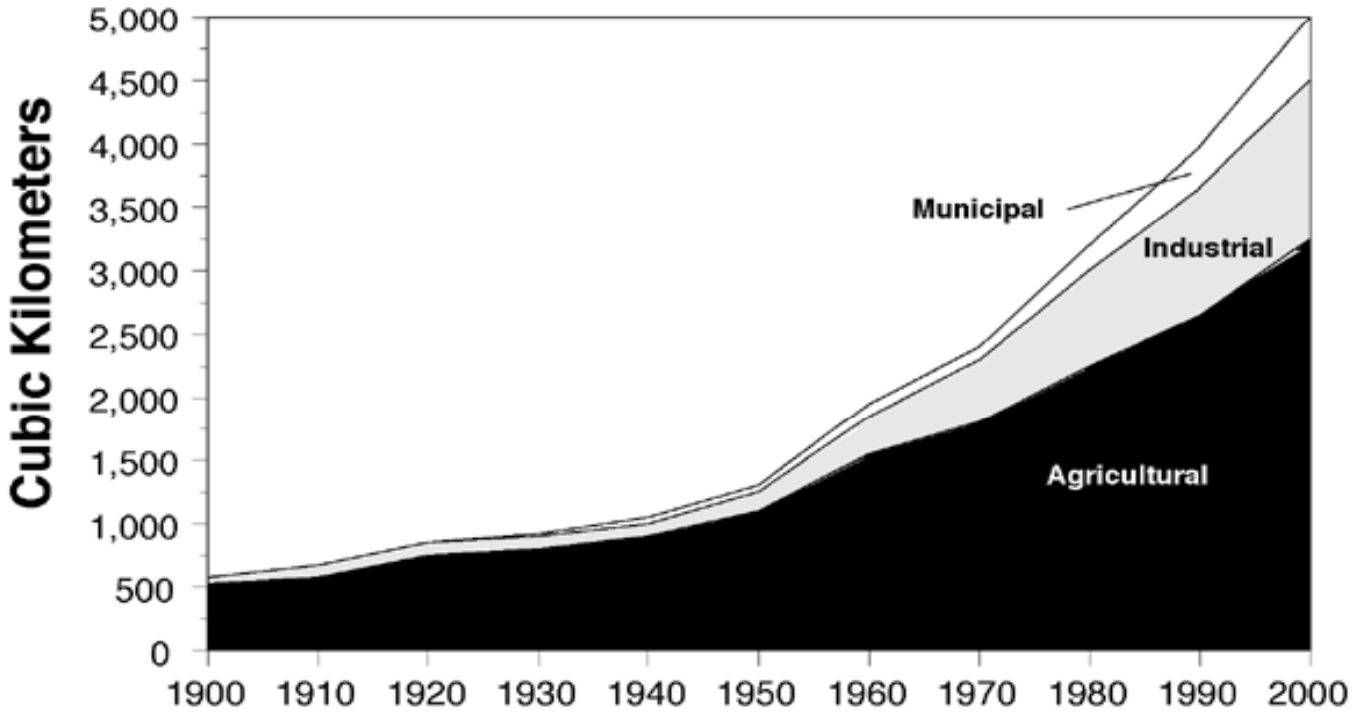
Freshwater lakes and rivers > 0.01%

Global scenario: A water guzzling world

- In hundred years world population tripled
  .. But human use of water increased six times

Figure 4. Rising Water Use

Global Annual Water Withdrawal by Sector, 1900–2000



Source: Abramovitz 1996 (1)

Global scenario: A water inequitous world

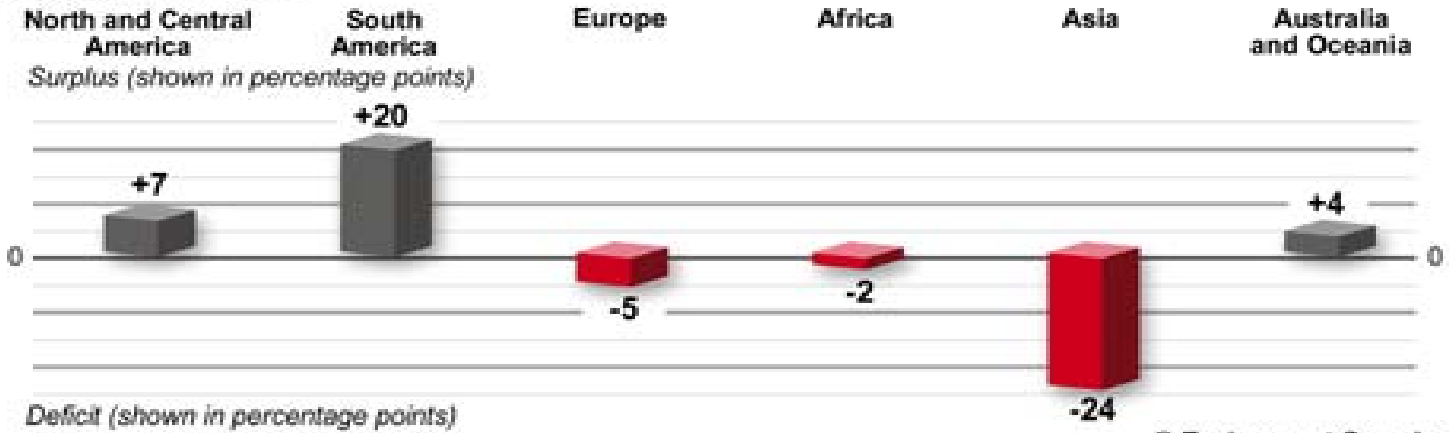
Water availability versus population

Although 60% of the world's population live in Asia, the continent has only 36% of the world's water resources. Here's how Asia compares to other regions.

Water/Population distribution

Water/Population balance

A region's water/population balance is determined by the difference between its proportion of the world's available water and its proportion of the world's population. A surplus indicates that its proportion of the world's available water is greater than its proportion of the world's population. A deficit indicates the reverse situation.

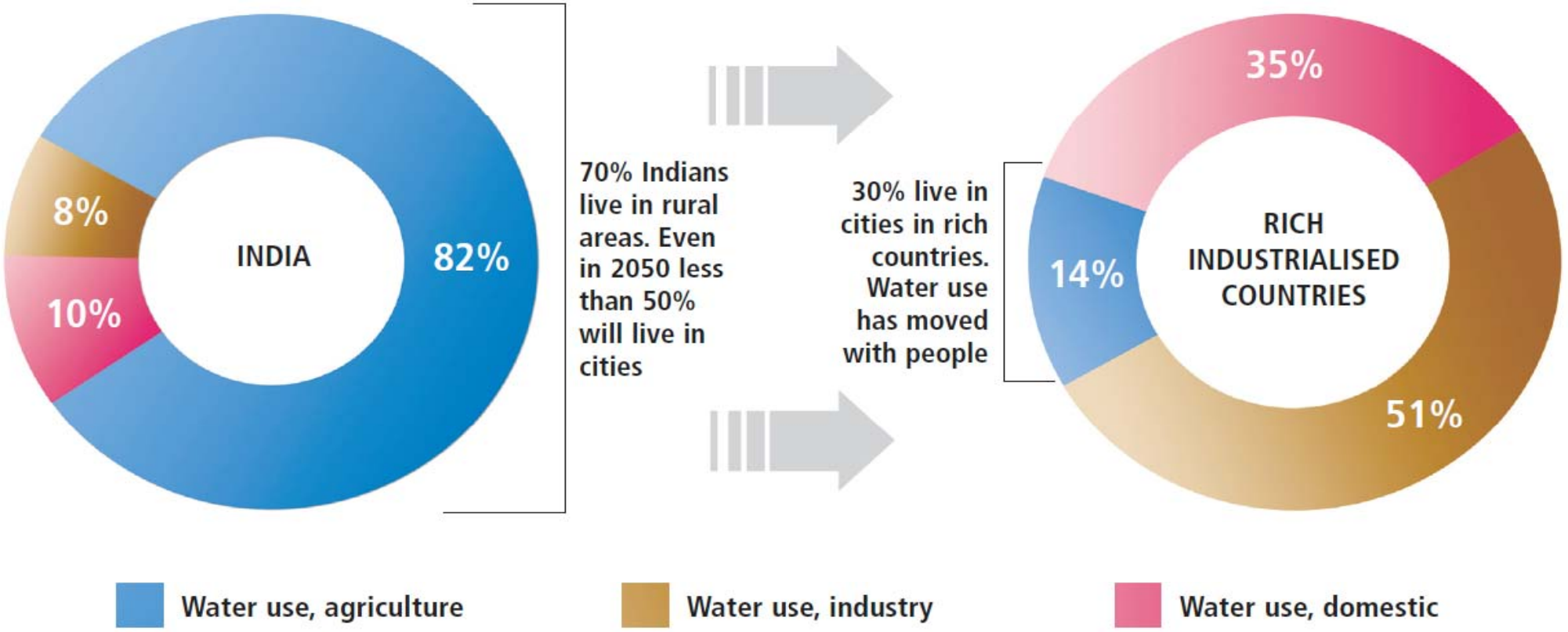


Water for growth?

Cities-industries need water for growth

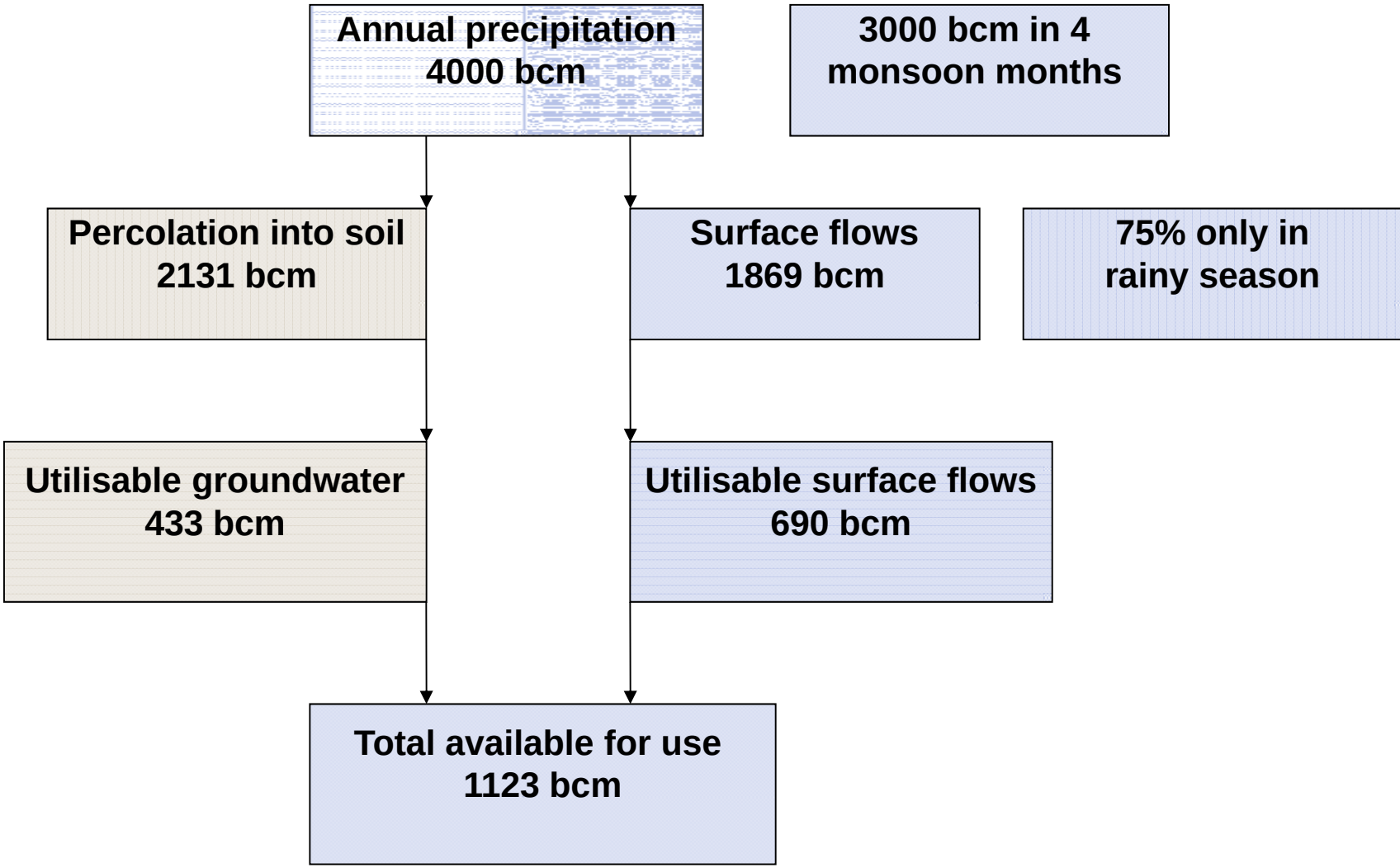
WATER TRANSITION THAT WILL NOT HAPPEN

Urban-industrial growth needs water but in India, even as this sector will grow, people will continue to live in rural areas and depend on agriculture



Source: Anon 2009, *Water in a Changing World*, Third UN World Water Development Report, UNESCO, Paris

India: How much water?

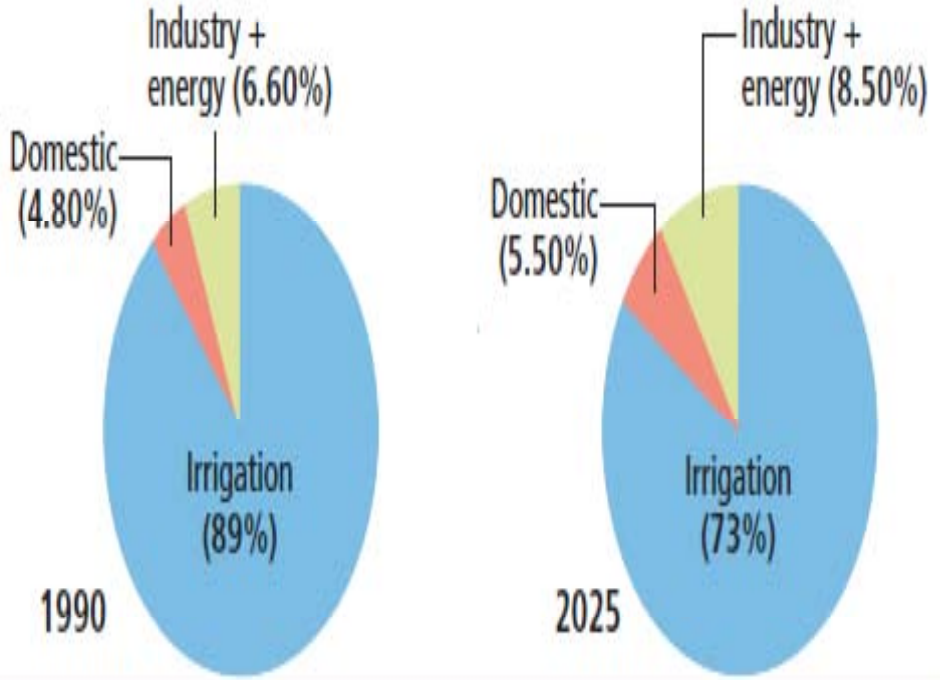


One of the highest annual rainfall in the world - 1170 mm (vs 715 mm)

Vague old water sums

UPDATE REQUIRED: THE LAST TIME INDIA ESTIMATED ITS FUTURE WATER USE WAS IN 1999

Category	1990 (BCM)	2025 (BCM)
Irrigation	460	688
Domestic	25	52
Industry + energy	34	80
Total	519	942



BCM: billion cubic metres

Source: Anon 1999, National Commission on Integrated Water Resources Development, Ministry of Water Resources, Delhi

THE FUTURE IS SALTY?

- The per capita availability in 1951: 5,177cum
- Today: 1,650cum/per person/year

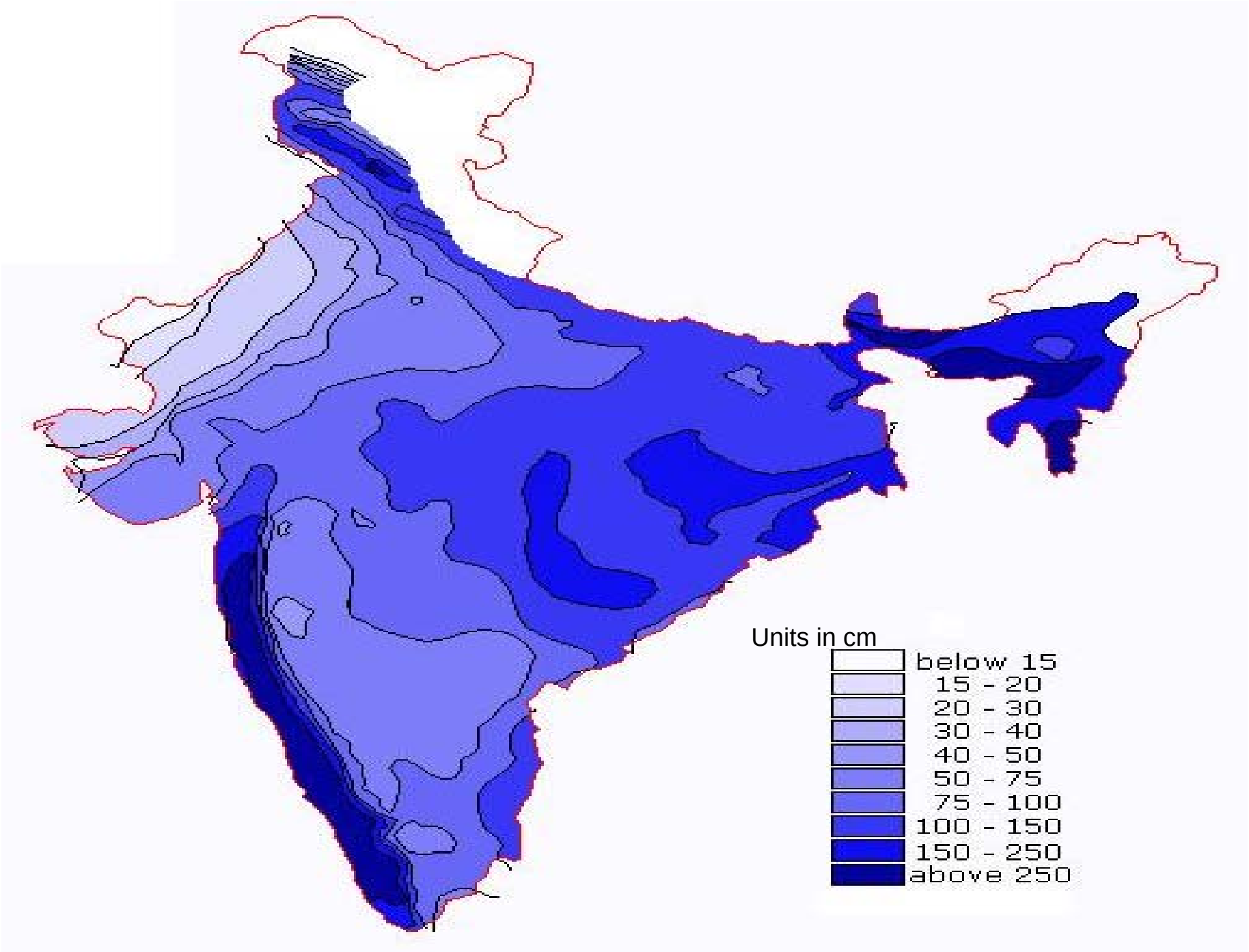
- Projections: 1341 to 1140 by 2025/2050

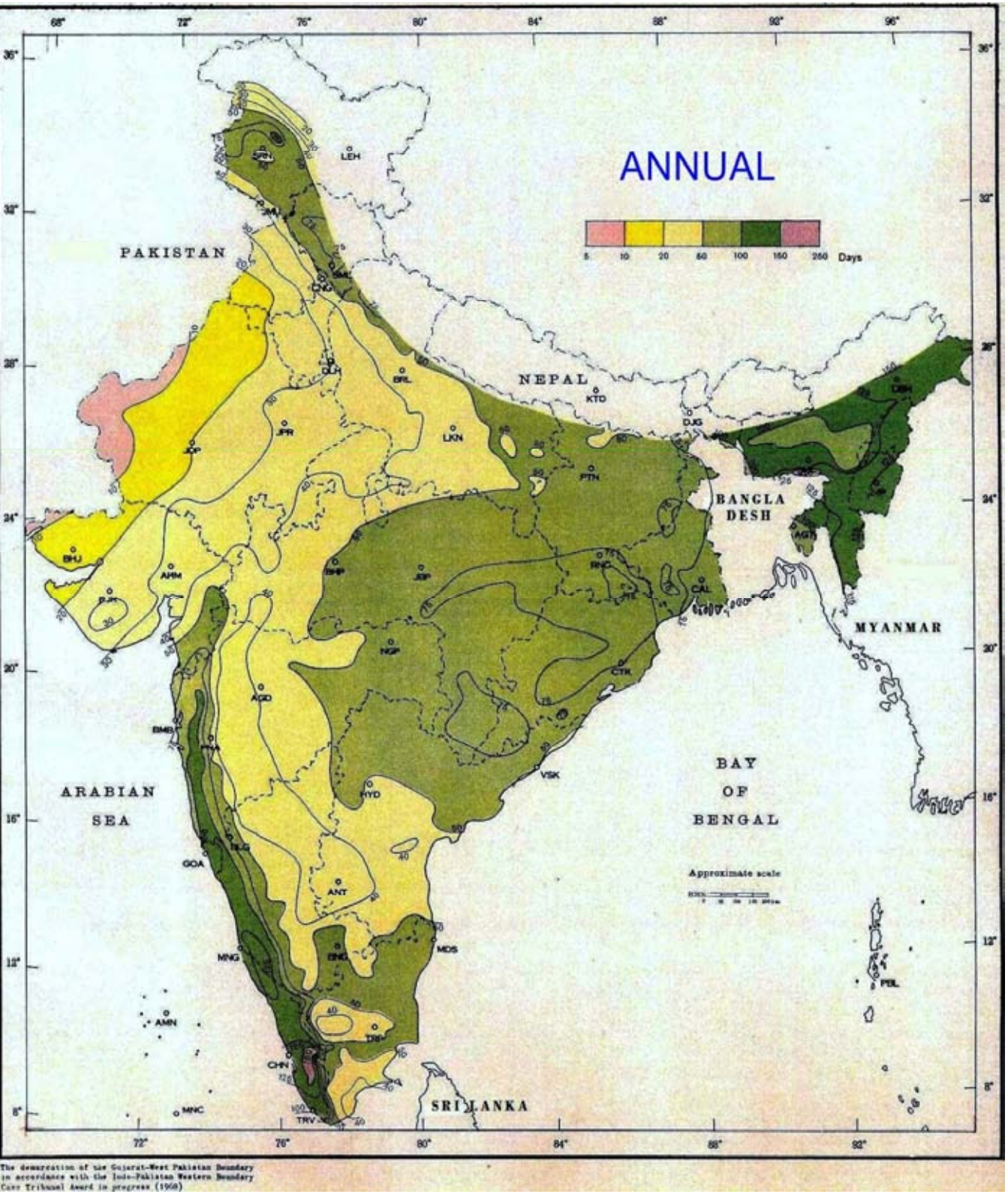
- The overall water demand by 2050 will be 1447 bcm (utilizable water is 1123 bcm)

- Irrigation demand will be 1072 bcm

- Share of India's water pie (82 % to 69%)

Spatial variation of Rainfall





Variations in time

Colour	No of rainy days
Light Pink	0-10
Dark yellow	10-20
Light yellow	20-50
Light green	50-100
Dark green	100-150
Dark pink	150-250

Old bodies, New functions

Old bodies, New functions

* Water bodies have new usages

* They are competitive; so conflicts

* First flash point: old bodies being used differently

* Second, wetlands are being reclaimed

Reservoirs of conflicts

* 81 major reservoirs; only five had industrial uses originally

* Now 70 of them give water to industries

* Siltation rate is 12-30%; storage is coming down

* Irrigation water being diverted in face of less water storage

* Conflicts intense; 50 reservoirs have conflicts

Wetlands, dried out

4.63%

15 million people

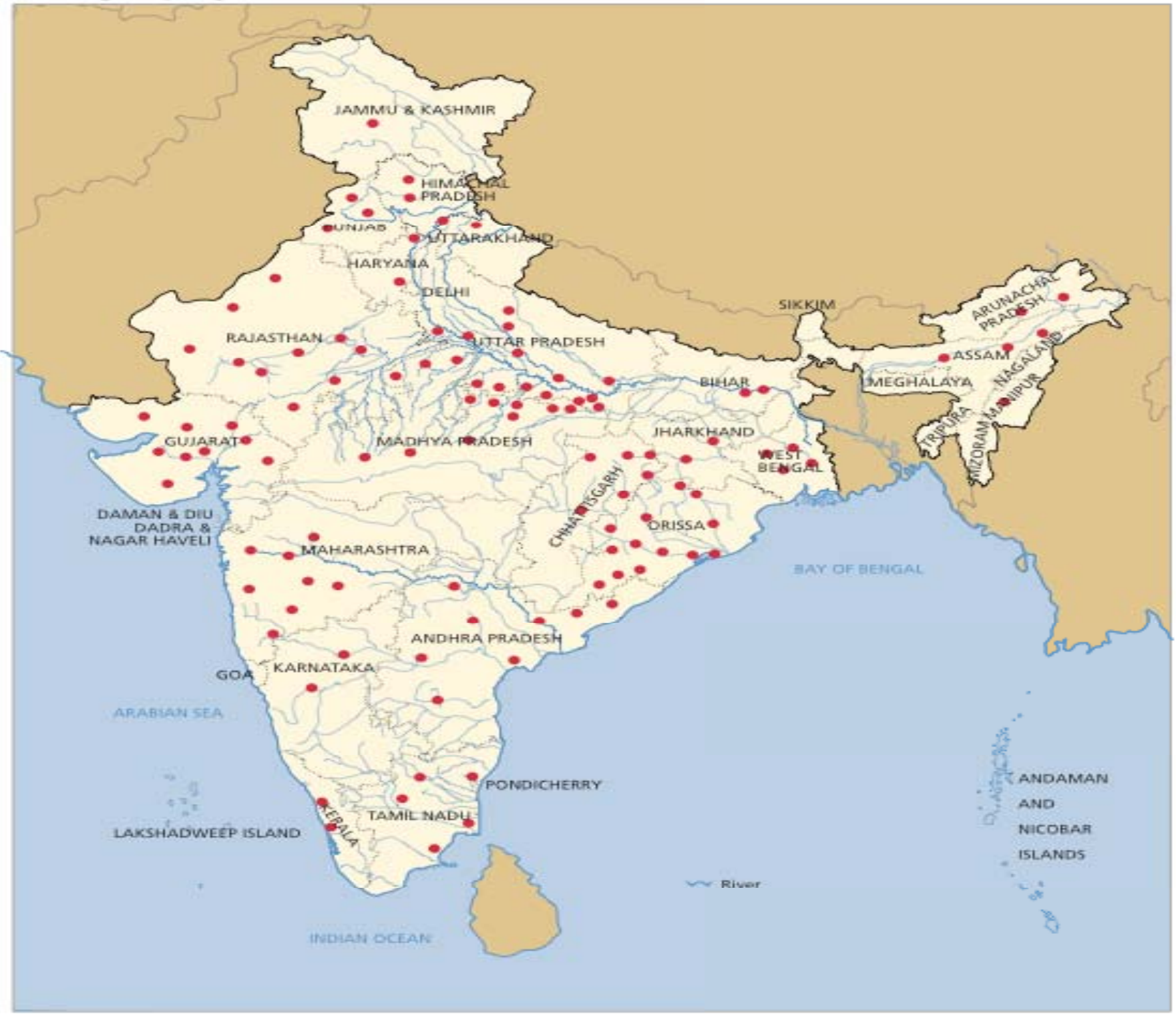
38% lost

industrialisation

New areas

water and livelihoods

Geography of conflict — 2011



Geography of conflict — 1991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