



# MANAGING WATER RISKS & TRADEOFFS: A POLICY FRAMEWORK FOR WATER SECURITY

OECD-FICCI-ADB-2030WRG: Joint Seminar on Water Risks and Stewardship in  
India

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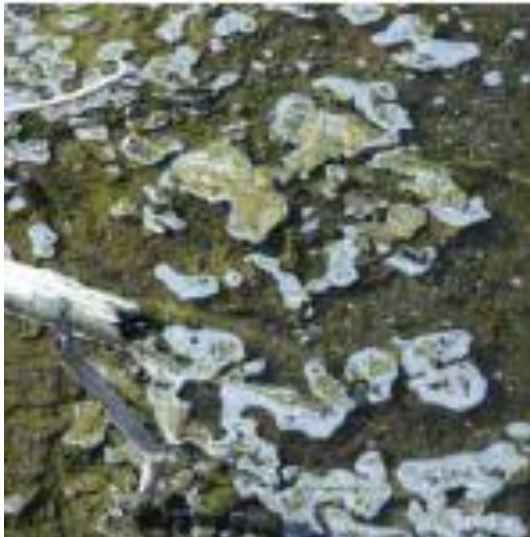
# Water security risks



**“too little”**



**“too much”**



**“too  
polluted”**

**“disruption of  
resilience of  
freshwater  
systems”**





# A risk-based approach to water security

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- **Focus on *impacts* of water insecurity.**
  - Lives and livelihoods, economic, environmental
  - Links to broader economic and development objectives
- **Asks “who bears the risk” ?**
  - Identify vulnerable populations and assets. Distributional impacts of risks.
- **Encourages *proportional* responses**
  - Balance between economic, social and environmental consequences and likelihood of water risks with the cost of risk reduction.
- **Promotes thinking systematically about uncertainty**
  - Economic and demographic trajectories, climate change



# Cost of water *in*security: droughts and floods

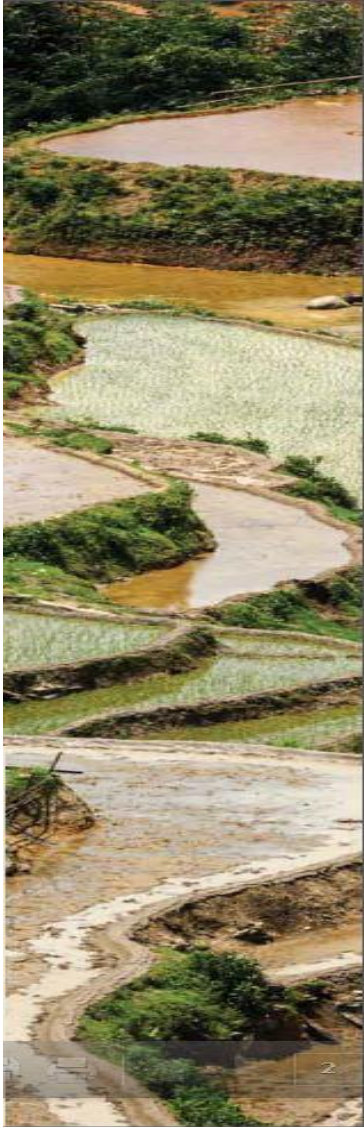


- « **Drought-like** » conditions, weak monsoon (June rainfall among the lowest in a century). **Inflation** in India shot up unexpectedly this summer, driven by a sharp rise in food prices.
- Heavy **flooding** last year caused by torrential rains and glacial leaks in the Himalayas resulted in devastating impacts, **heavy loss of life**.

Sources: Kazmin, A., (2014); Sally, M. (2014); Shankar, M. (2013).



# Cost of water *in*security – groundwater overdraft



- Groundwater irrigation contributes **up to 10% of India's GDP**.
- In Karnataka, 20% of the 1.2 million wells go dry each year, representing USD 520 million of lost equipment. **Cost of drilling new wells** estimated at INR 8.6 billion (USD 190 million) a year.
- In Gujarat, the **foregone revenues** from farming as a result of salty irrigation water due to groundwater overdraft was estimated at INR 72 221 (USD 1 550) per acre.

Sources: Shah (2007); Shah and Scott (2004); Sathyapalan and Iyengar, n.d.



# High vulnerability to impacts of groundwater overdraft

## Features of groundwater irrigated agriculture in major groundwater abstraction economies

Farming system	Farming in arid areas	Intensive farming	Family farming	Extensive pastoralism
Countries	Algeria, Egypt, Iraq, Iran, Libya, Morocco, Tunisia, Turkey	Australia, Brazil, Cuba, Italy, Mexico, Spain, United States	Afghanistan, Bangladesh, North China, India, Nepal, Pakistan	Botswana, Burkina Faso, Chad, South Africa, Tanzania, Zambia
Contribution to GDP	2-3%	Less than 0.5%	5-20%	5-20%
Contribution to national welfare <sup>1</sup>	Low to moderate	Low to very low	Very high	Low
Contribution to poverty reduction	Moderate	Very low	Very high	Low but essential
Gross output value (USD billion)	6-8	100-120	100-110	2-3

1. As expressed by the share of rural population and of food production relying on groundwater.



## Cost of water *in*security – water pollution

- In India, the **health costs** (excluding productivity loss) of **water pollution** have been estimated at between USD 3 and 8.3 billion annually.

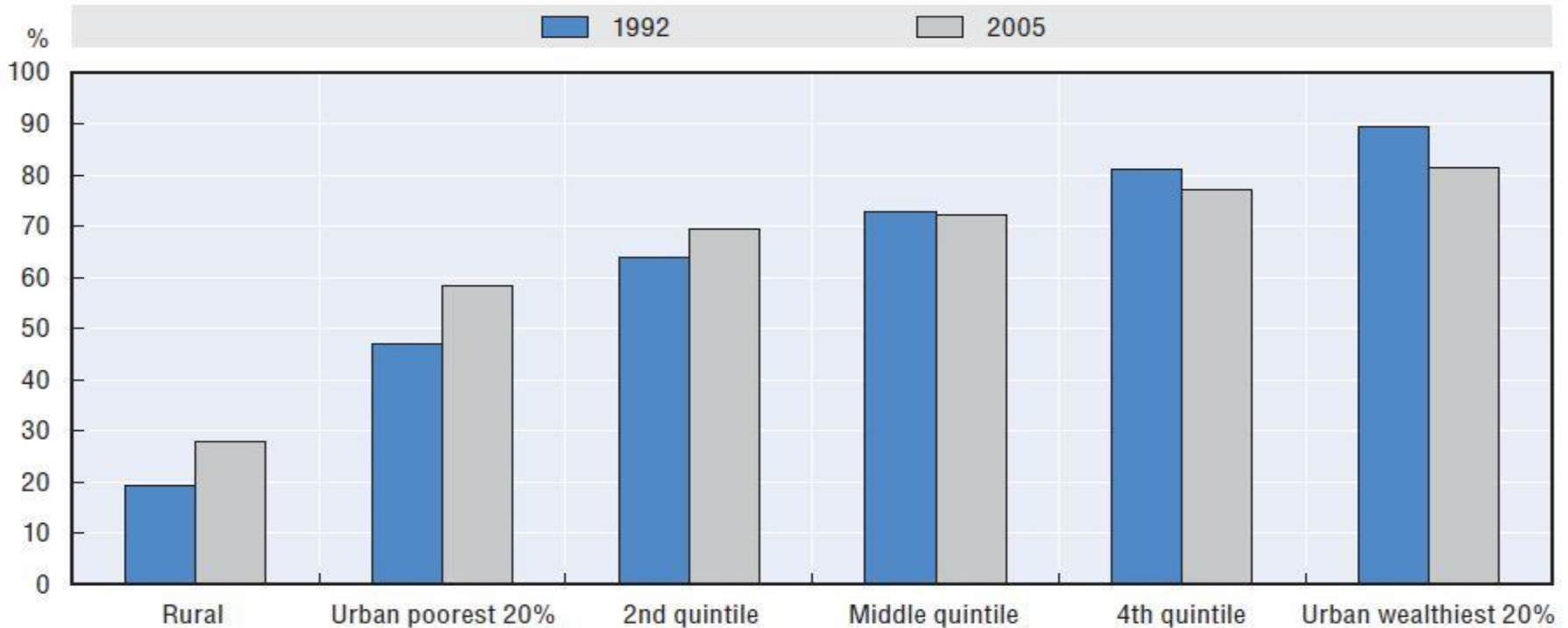


Source: Brandon and Homman, cited in Maria, A. (2003).



# Distributional impacts of water *in*security

## Access to safe water in India



Note: % of households using a piped drinking water source.

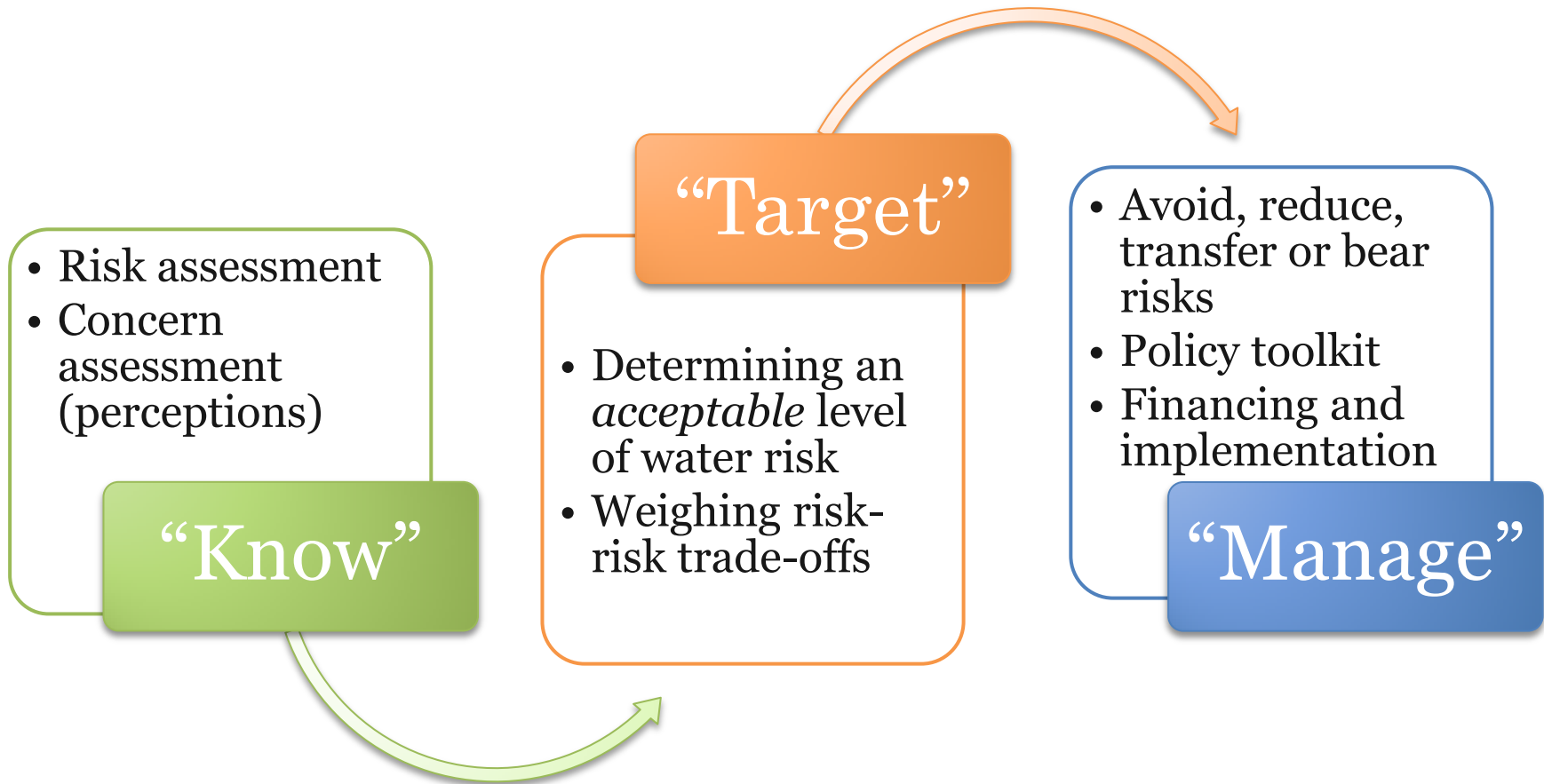
- 72% of India's population (more than 800 million people) lacks access to improved sanitation.

Sources: WHO (n.d.); WHO/UNICEF, (2008).





# Risk-based framework





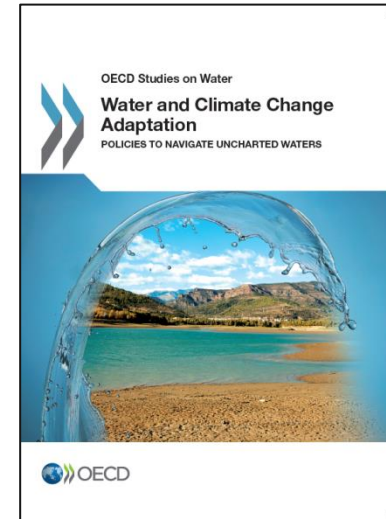
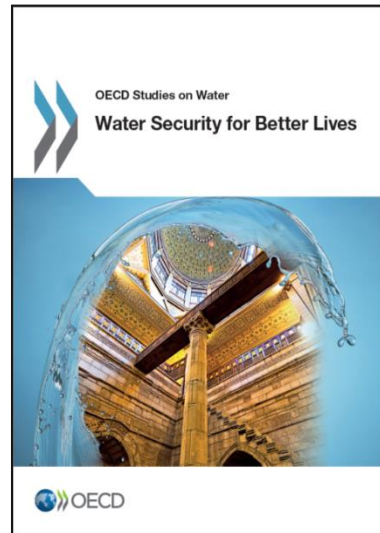
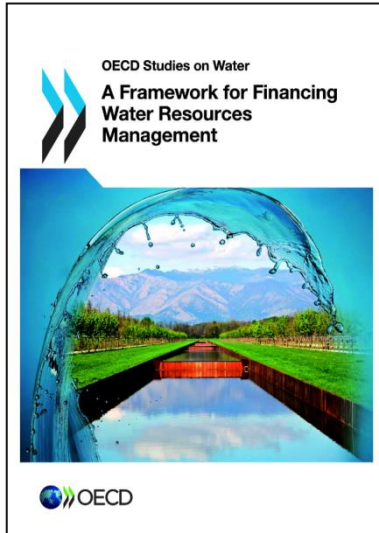
# Policy options to manage water risks

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- **Improve information, data. Build common understanding.**
  - Better “knowing” the risks, including perceptions.
- **Improve incentives for managing risk**
  - Remove environmentally-harmful subsidies (e.g. under pricing water, production-linked agricultural subsidies)
  - Water pricing, abstraction charges, pollution charges, insurance schemes
- **Ensure sustainable financing and adequate governance**
  - Sources of financing for water supply and sanitation: 3 T’s (tariffs, taxes, transfers)
  - Principles: beneficiary pays, polluter pays, equity and coherence
- **Making water reform happen**
  - National Policy Dialogues and Knowledge Sharing among countries on equal footing.



# Thank you



[www.oecd.org/water](http://www.oecd.org/water)

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