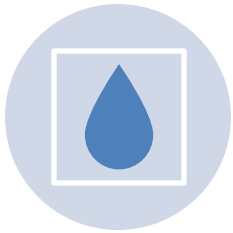


Groundwater Management in Indonesia

- Challenges and Solutions
- Dasapta Erwin Irawan
- Summarized by various sources

Importance of Groundwater



Primary source of
drinking water



Supports agriculture



Maintains
ecosystems



46% of population
relies on
groundwater

Challenges in Groundwater Management



Over-Exploitation

Decrease in groundwater levels



Pollution

Heavy metals

Bacteria



Regulatory Issues

Lack of comprehensive regulations



Fragmentation of Responsibilities

Multiple agencies involved



Impact of Climate Change

Changes in rainfall patterns

Prolonged droughts

Environmental Impacts

Water Crisis

- Severe in Java, Bali, East Nusa Tenggara

Land Subsidence

- Jakarta: areas sunk more than 4 meters
- Bali: subsidence due to tourism

Decreased Groundwater Quality

- Contamination from toilet tanks and waste

Economic Impact

- Projected GDP reduction by 2.5% by 2045

Health Impacts

Waterborne Diseases

- Hepatitis, dysentery

Toxic Metals

- Lead, cadmium, chromium poisoning

Chemical Contaminants

- Pesticides, fertilizers

Microbial Contamination

Strategic Solutions



Reconstructing Regulations

Comprehensive planning, conservation, utilization



Public Access to Information

One Data Policy for real-time information



Community Participation

Open meetings, inclusive decision-making



Public Access to Justice

Equitable access to water resources



Learning from Best Practices

Emulate Australia's participatory frameworks



Addressing Fragmentation of Responsibilities

Improving Data Sharing Among Agencies



National Water Information System Real-time data accessibility



Inter-Agency Coordination Clear mechanisms for data sharing



Regulatory Framework Mandate data sharing regulations



Technology Integration Invest in integrated databases and cloud-based platforms



Capacity Building Training for effective data management