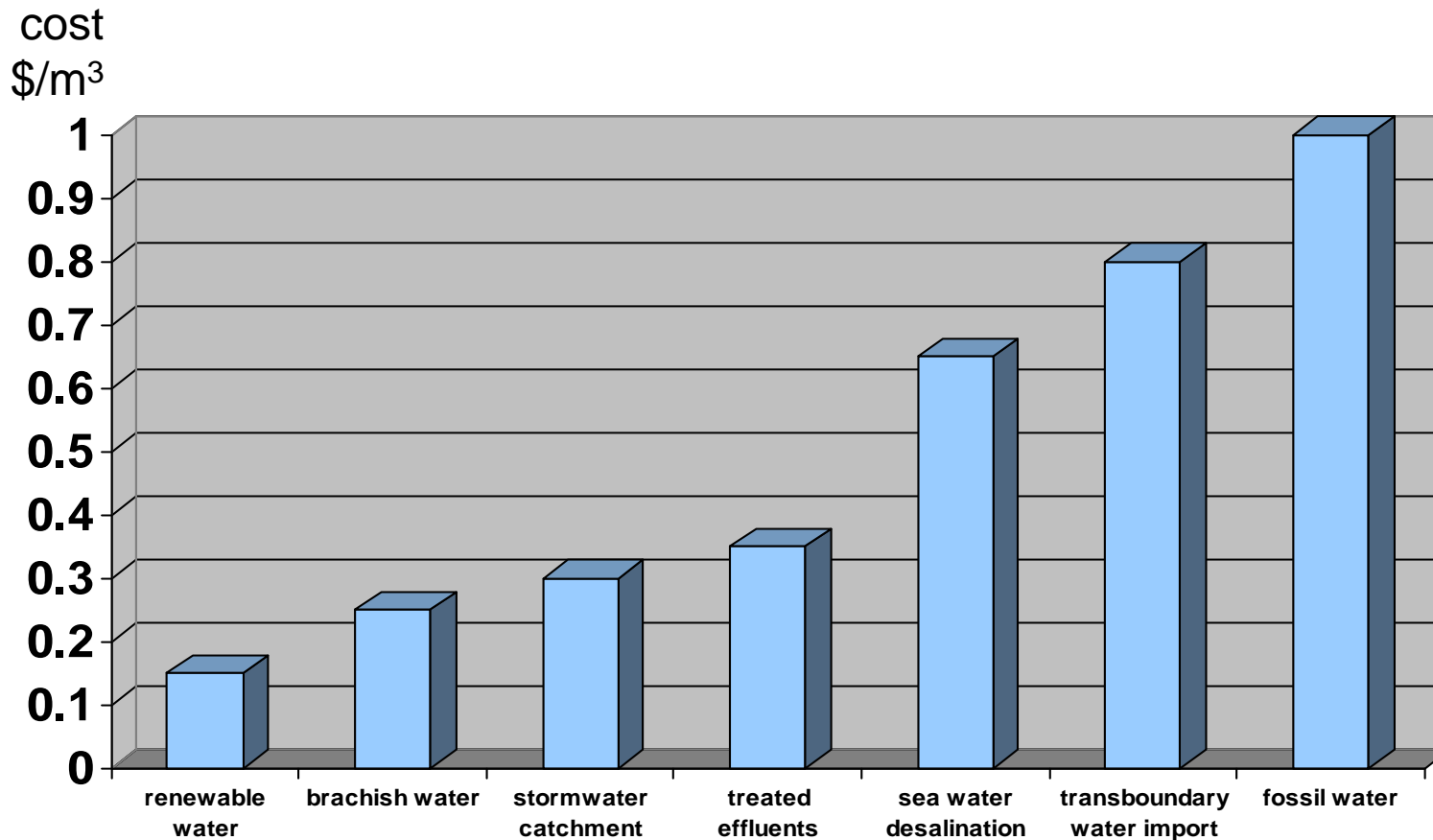




a few things to share....

Ranking water supply alternatives by marginal cost



Irreversibility, prevention, future generations

- **Irreversible damage** to ground water and to surface water (e.g., pollution, hydrological management).
- **Prevent NOW** instead of costly rehabilitation in the future.
- **Value of water to reflect next generations' needs**

$$\text{Water Tariff} = \text{water production cost} + \text{transportation cost} + \text{user's cost (scarcity rent)}$$

Resource availability vs. Demand

- Bringing people to water or water to people?

Are we willing to pay the price?

(e.g., reallocation of people, loss of social & cultural value vs. high water prices, keep equitable pricing)

Identify, coordinate, cooperate

- **Identify, coordinate and cooperate** with other sectors of the economy and other ministries:
 - Energy (current needs + desalination)
 - Agriculture (water quotas and increasing block tariff pricing, proximity to urban areas with large quantities of effluents, seasonal needs)
 - Urban (needs, reliability, pricing, water saving)
 - Industry & Mining (pollution prevention, quotas, pricing)
 - Environment (ecological needs, pollution prevention, monitoring)
 - Health (drinking water standards, communication wrt epidemics, emergency room arrivals)
 - Education (k-12, Universities, technical training)
 - Foreign Affairs (trans-boundary water)
 - Transportation/Agriculture (drainage)
 - Science/ Industry (advance technology, R&D commitment)

Behavioral change...start enrolling the public today!!!

- Public awareness to water shortages, pollution, climate change, value of water start a NATIONAL CAMPAIGN.
- Educate & train (how each individual household, farmer, firm can contribute).
- Knowledgeable public might be willing to accept price increase, quotas, etc. smoothly.

Prioritizing recommendations: Water Supply Issues

AIM Recommendation	SHORT TERM (2013) One year	MID TERM (2020)two years	LONG TERM (2040)three years
Ground water exploration		x	
Utilization of surface water	x		
Rain water harvesting		x	
Conjunctive management	x		
Sewage treatment		x	
Brackish water desalination		x	
Sea water desalination		x	
Transboundary water (pollution, quantity)			x
Water quality & monitoring			x

Prioritizing recommendations: Water Demand Issues

<div>AIM</div> <div>Recommendation</div>	<div>SHORT TERM</div> <div>(2013)</div> <div>.... One year</div>	<div>MID TERM</div> <div>(2020)</div> <div>....two years</div>	<div>LONG TERM</div> <div>(2040)</div> <div>.....three years</div>
water quotas & IBT for irrigation		x	
IBT for residential use		x	
Quotas for industry		x	
Leakage detection & fixing!!!!!!!	x		
water saving – national, campaign, education	x		
Training farmers in increasing water use efficiency	x		
Water metering/unlawful water use	x		

Prioritizing recommendations: Capacity Building

Term Recommendation	SHORT TERM (2013) One year	MID TERM (2020)two years	LONG TERM (2040)three years
Training/skills (low level & high level)	x		
Legal department/ contracts/bids – for BOOT, BOT, Turnkey Projects		x	
Leadership programs	x		
Gender participation	x		
Updating institutional needs		x	
Updating laws, standards, regulations			x
Enforcement of regulations			x
Data collection & analysis	x		

Public Private Partnership

- Identify areas for PPI
- Build economic mechanism and incentives for PPI



Thank you!