
Life
Begins
With
Clean
Water

Development of Piped Water Supply in Indonesia: Problems and Solution

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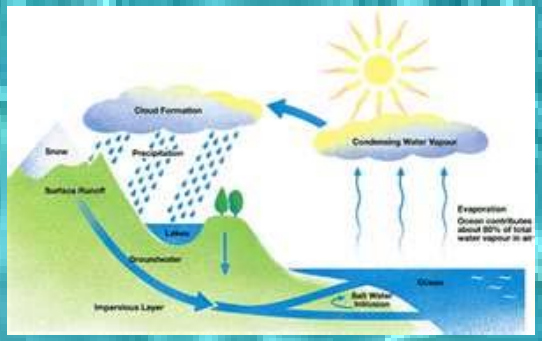
Outline of Presentation

1) Water Resources of Indonesia
2) Water Resource Use and Management
3) Water Utilities in Indonesia and their Performance
4) Jakarta Water Utilities
   - ❖ PAM Jaya Problems and Performance
   - ❖ PAM Jaya Privatization: Process, Performance and Problems
   - ❖ The Root of the Problems
5) Is Privatization Bad?
6) Conclusions

Water Resources of Indonesia



- With 2,700 mm/year of rainfall, Indonesia is endowed with plenty of water
- Potential of Renewable Water is 2,287 km^3/year (FAO, 2010)
- It consists of:
  - Surface water 1,829.61 km^3/year (80%)
  - Groundwater 457.42 km^3/year (20%)

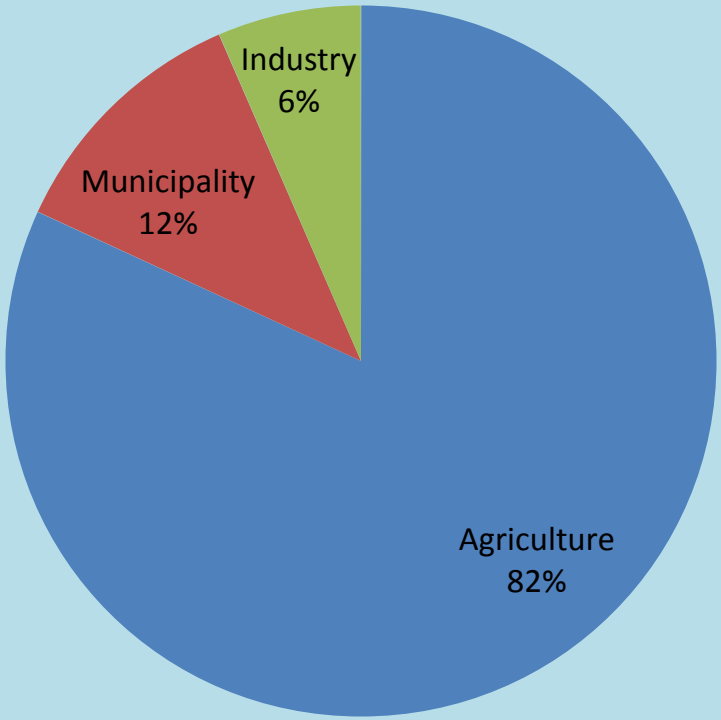
Table 1. Potential Surface and Ground Water, and Total Population by Island

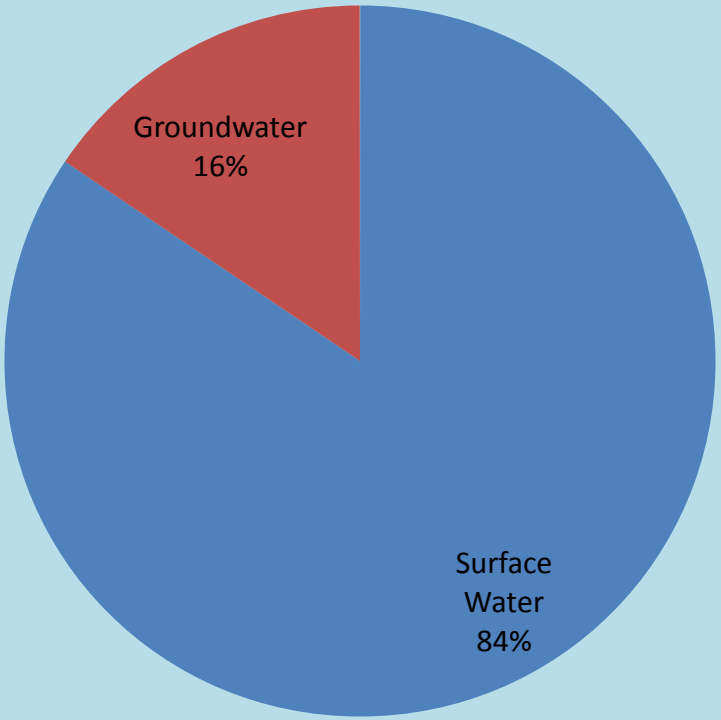
Island	Potential Water in 2000 (%)*			Total Population **
	Surface Water	Groundwater	Total	
Sumatera	24.6	18.8	23.4	21.3
Java	**6.4**	**5.6**	**6.3**	**57.5**
Bali and Nusa Tenggara	**2.0**	**0.3**	**1.7**	**5.5**
Kalimantan	30.4	27.3	29.8	5.8
Sulawesi	9.4	3.6	8.3	7.3
Maluku	3.4	1.3	3.0	1.1
Papua	23.8	43.1	27.6	1.5
Total	100.0	100.0	100.0	100.0
Total Values (Km3/year)	**1,829.61**	**457.42**	**2,287.04**	237,661,327

Source: * FAO (2010), ** BPS (2011) – Year 2010

Water Withdrawal by Sector and Sources

Total 113.29 km^3 in 2000





Source: FAO (2010)

Table 2. Total Water Availability, Withdrawal, and Balance of Indonesia, 2000 (km^3/year)

Island	Availability	Withdrawal	Balance
Sumatera	475.61	19.80	455.81
Java	**125.61**	**64.84**	**60.77**
Bali and Nusa Tenggara	**37.06**	**6.53**	**30.53**
Kalimantan	594.22	5.18	589.05
Sulawesi	177.06	16.29	160.77
Maluku	63.54	0.27	63.28
Papua	493.74	0.39	493.34
Total	**1,966.84**	**113.29**	**1,853.55**

Source: FAO (2010)

Water Issues & Problems

- Increase competition in water use:
  - Increase scarcity of fresh water
  - Increase water demand over time
- Water conservation & efficient use of water
- Social & environmental considerations
- Quantity & quality issue
- Seasonal water characteristics and climate change
- Postpone in water infrastructure development due to funding problems
- Institutional response to better management
- Water pricing dilemma: a consequent of water as an economic good

- These lead to **WATER CRISIS**

Water Use & Management

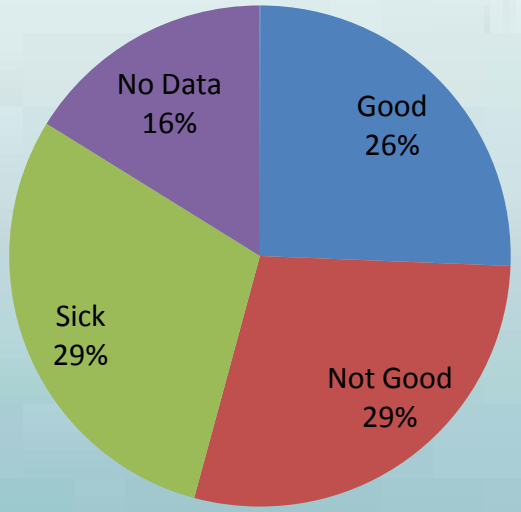
- Most of water users (households, commercials and industries) consume both surface water (piped water) and groundwater **conjunctively**
- However, those water resources are managed separately across some Ministries and a number of lower level institutions
  - Surface water management is a shared responsibility among various ministries and agencies (main actor: Ministry of Public Works)
  - Groundwater management is under the Ministry of Mining and Energy
- **Current institutional arrangements**: no space in integrated management between surface and ground water resources→ problems in water development

Drinking (Piped) Water Supply

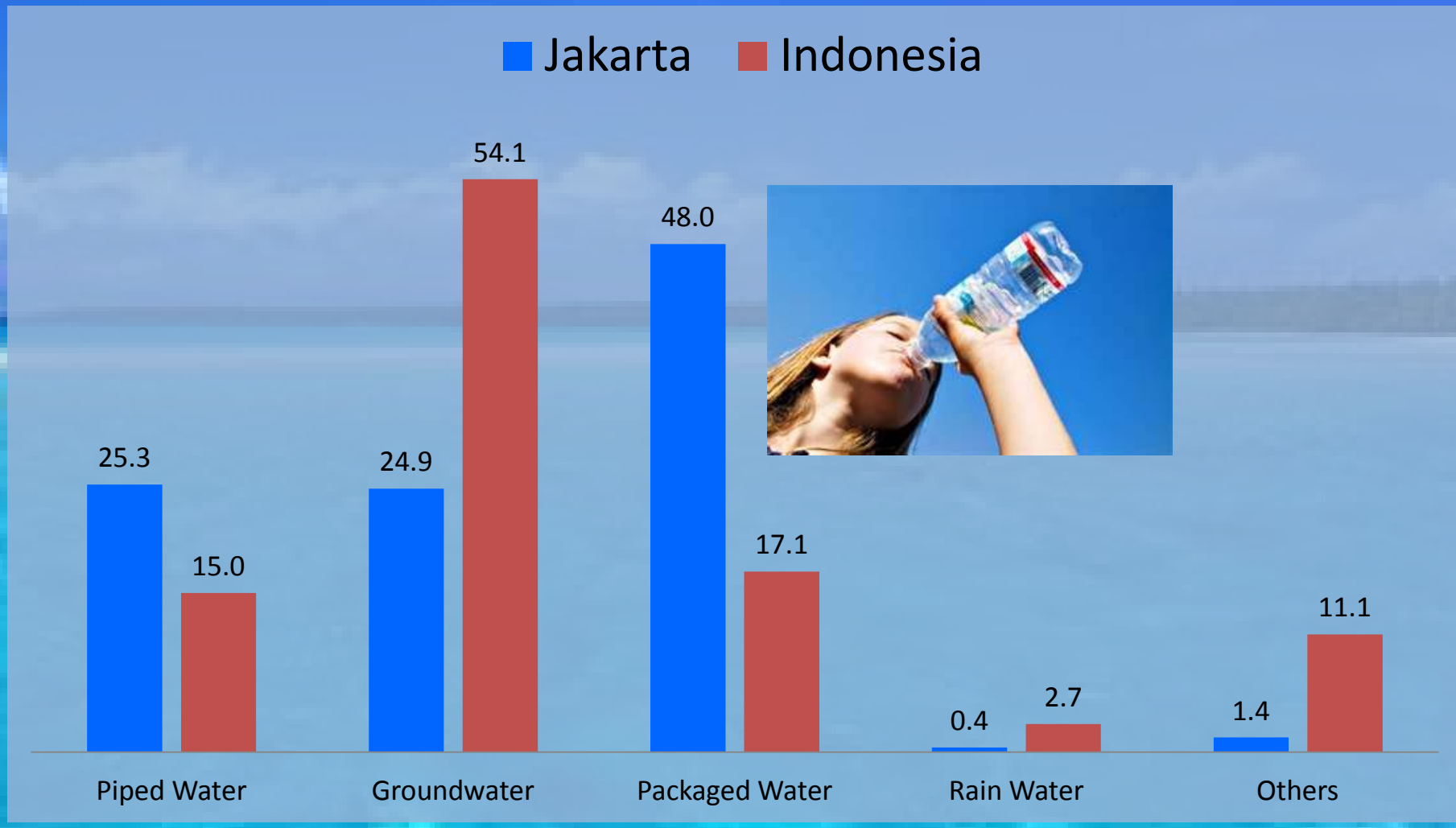
- Provision of drinking water in a city/district is conducted by **Regional Water Utilities** (PDAM)
- PERPAMSI (Indonesian Water Supply Association) (2010): there are **394** Regional Piped Water Utilities in Indonesia
  - **31** Large PDAM (> 50,000 customers)
  - **53** Medium PDAM (20,000 - 50,000 customers)
  - **310** Small PDAM (< 20,000 customers)
- National Service Coverage: **24%**
  - Urban **47%**
  - Rural **11%**
- Total number of national customers: **8,628,822**

Drinking (Piped) Water Supply

- There are others water entities, in addition to Regional Piped Water Utilities (PDAM):
  - Private Companies
  - Companies under the Ministry of Public Works
- Therefore, there are 402 water utility companies (PERPAMSI, 2009):
- **Performance:**
  - Good 103 companies
  - Not Good 115 companies
  - Sick 119 companies
  - No Data 65 companies



Sources of Drinking Water to the Households in Jakarta and Indonesia, 2009 (in %)



Source: BPS 2009

PAM JAYA: Jakarta Water Authority

- Formally developed in 1922. However, the name of PAM Jaya has been used since 1977
- **Before Privatization (1997) conditions:**
  - PAM Jaya operates 14 water treatment plants, with 18.23 m3/second water intake capacity (1997)
    - 6 large WTPs with a total capacity 17.4 m3/sec.
    - 8 small WTPs with a total capacity 0.83 m3/sec.
  - Most of raw water comes from West Tarum Canal (Citarum River): 16.1 m3/second (80% of the total)
  - Clean water production: 454.9 million m3/year
  - Non Revenue Water: 55.7%
  - Total customers: 450,000
- Most of the users use piped water and groundwater conjunctively

PAM Jaya Performance: Pre-Privatization

Year	Volume of raw water pumped	Volume of clean water produced	Volume of recorded clean water	Volume of billed clean water	In-plant losses	Un-accounted for water	Non-revenue water
	1	2	3	4	5=(1-2)/1	6=(2-3)/2	7=(2-4)/2
	million cubic meters per year				percent of clean water produced		
1993	374.34	339.18	178.26	159.94	9.35	47.44	52.83
1994	383.84	344.23	184.87	168.31	10.31	44.81	51.09
1995	374.56	346.14	186.97	166.46	7.6	45.99	51.81
1996	445.36	409.42	221.89	176.44	8.06	45.79	56.9
1997	**483.59**	**454.91**	**233.77**	**201.73**	**5.92**	**48.6**	**55.7**
Average	412.34	378.78	202.16	174.79	8.25	46.53	53.66

Source: Syaukat (2000)

PAM Jaya Privatization

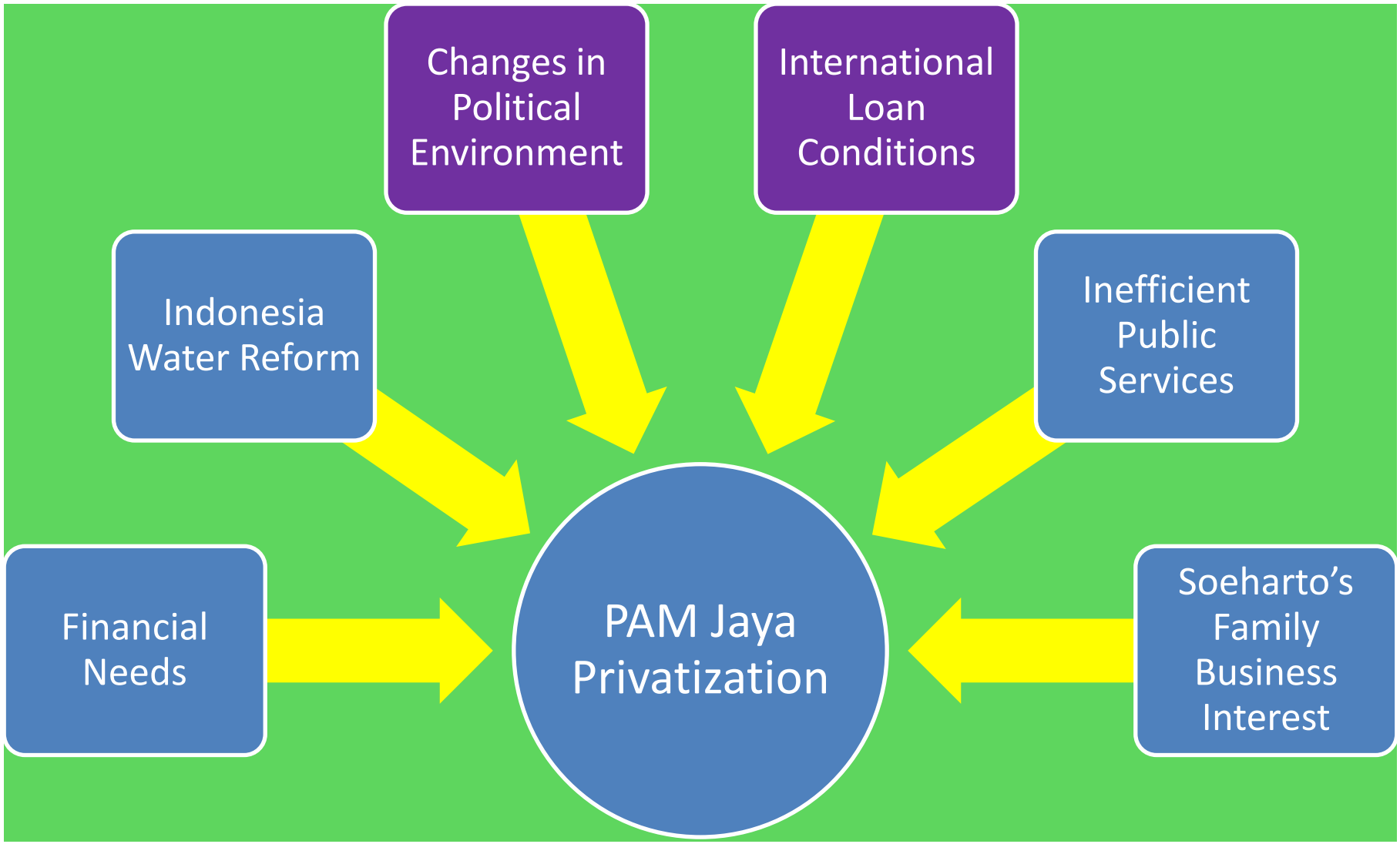
- PAM Jaya, the Government of Jakarta Water Company, was privatized in **1998** into two private companies:
  - Thames Water Overseas (partnership with PT Kekar Pola Airindo) → Thames PAM Jaya - Western Area
  - Suez Lyonnaise des Eaux (partnership with PT. Garuda Dipta Semesta). → PAM Lyonnaise Jaya – Eastern Area
- These companies were awarded contracts for 25 years to run the water supply system in Jakarta.

Privatization: Service Areas

Reasons for Privatizations: Theory

Push Factors	Pull Factors
Characteristics of SOE: 1) Suffer from excessive political intervention 2) Vague, ambiguous and conflicting objectives 3) SOE are not as efficient as privately owned and managed enterprises 4) SOE incurred substantial losses 5) Many develop and developing countries are facing the problems of growing fiscal deficits and slower economic growth, thus SOE become an unsustainable burden 6) Lack of performance-related rewards and other factors	Expectation that could be achieved with privatization: 1) Increase economic efficiency 2) Improvement in economic performance 3) Promotion of wider share-ownership 4) Introduction of competition in the economy 5) Political consideration ➧ These objectives may, and often do, conflict

Reasons for PAM Jaya Privatization



Methods of Privatization

Divestiture Method	Private Sector Participation Method
1) Direct sale 2) Public stock offering 3) Joint venture 4) Liquidation and asset sale 5) Voucher privatization 6) Management/ employment buy-out	1) Service contracts 2) Management contracts 3) Concession contracts 4) Lease contracts 5) Build, own, operate and transfer

- PSP method is common in infrastructure development and operation
- Concession is the most popular method for water sector

Impacts of Privatization (1)

- **Increase Tariff:**
  - The operators have increased water tariff significantly: affecting poor, lower and middle class households.
  - However, water services are poor; they have to buy alternative water for safer drinking water
- **Poor Performance:**
  - Number of Connection
  - Volume of Water Production
  - Unaccounted for Water
  - Non-Revenue Water

Water Tariff: A Comparison (USD/m^3) in 2007

Opinions…

A resident in Manggarai Utara, South Jakarta

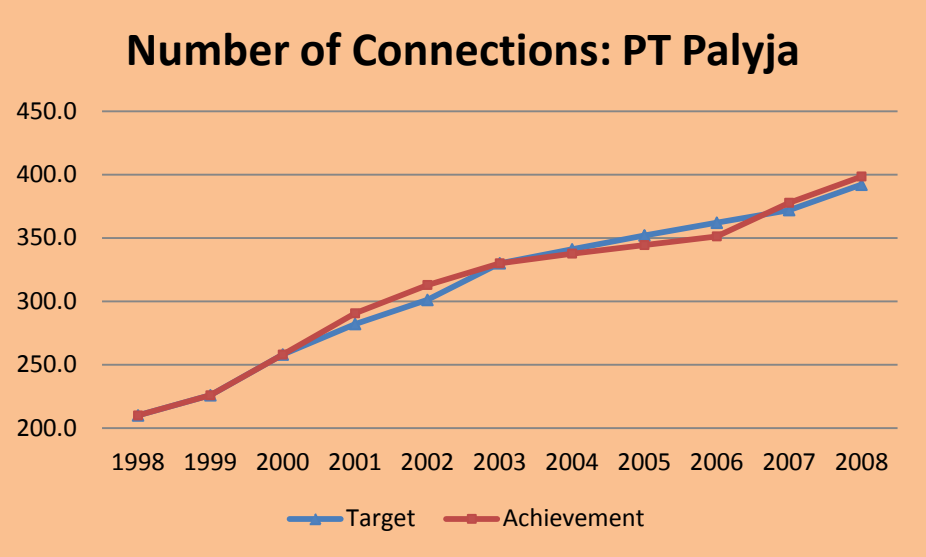
"I actually subscribed pipe water, but now I turn to use ground water. It is because the water from pipe did not flow, but I still had to pay about 20 USD per month."

A resident in Penjaringan, North Jakarta

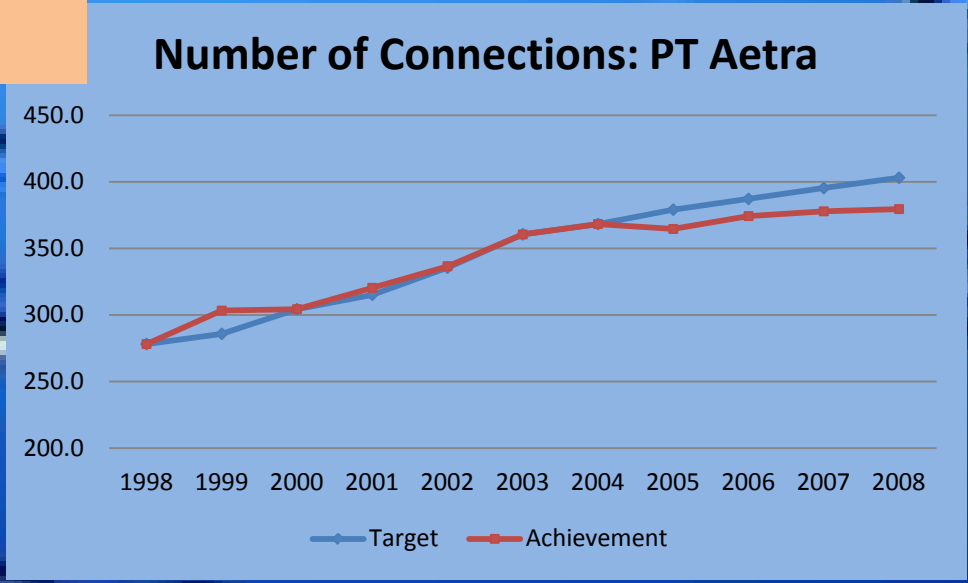
"I don't subscribe pipe water. It's initial connection fee is way too expensive. So I buy jerry cans water each day, and I can spend up to 60 USD per month."

Source: Zamzami (2010)

Number of Connections (in Thousands)

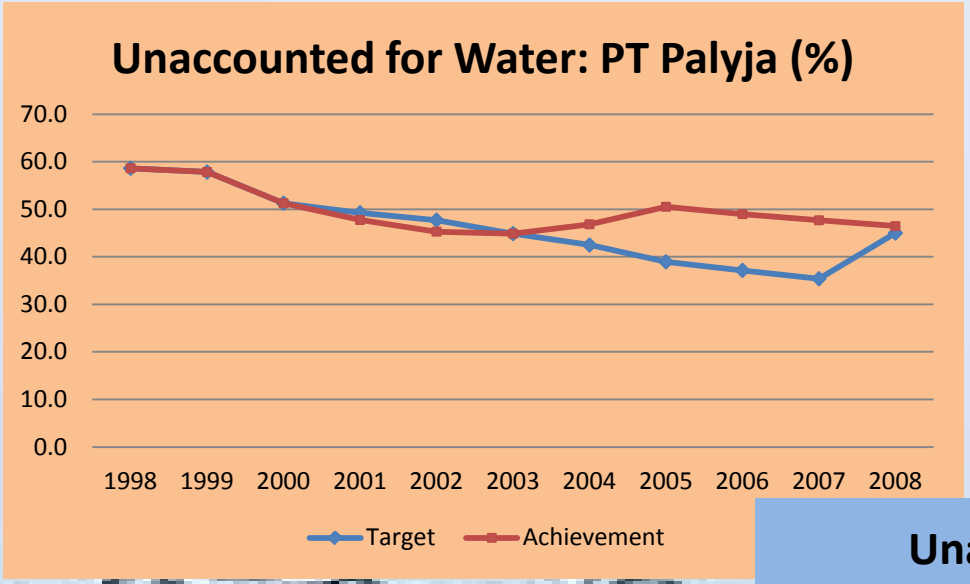


Benchmark (1997):
Total **450,000**



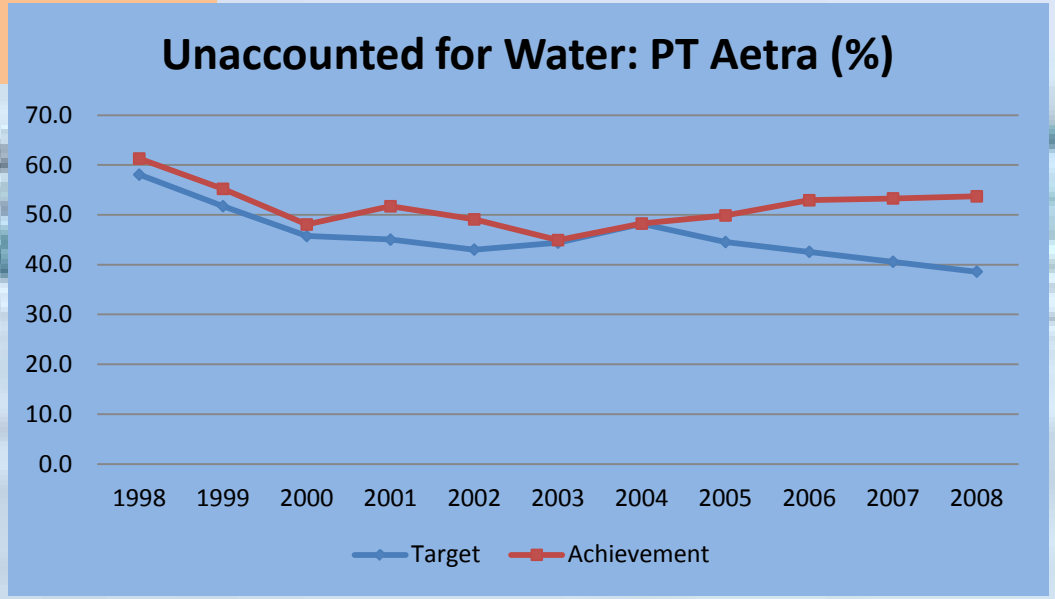
Source: JWSRB (2009)

Unaccounted for Water (%)



Benchmark (1997):

48.6%



Source: JWSRB (2009)

Impacts of Privatization (2)

- **Constrained service provision to the poor**

  Water provision for the poor is considered as *socially feasible but not commercially profitable* thus, they are still excluded

- **Increase groundwater exploitation**

  Since piped water was becoming more expensive after privatization, most population made intensive use of groundwater. This resulted in groundwater pollution, seawater intrusion and land subsidence → increase external costs.

Root of the Problems

- It is due to lack of transparency in determining the concessionaires (Syaukat, 2000):
- *Transparency is essential in every privatization*
- Transparency requires:
  - Competitive bidding procedures
  - Clear selection criteria for evaluating the bids
  - Disclosure of offered price and bidder
  - Well defined institutional responsibilities
  - Adequate monitoring of the programs

Root of the Problems (2)

- Unfortunately, selections of the two concessionaires of PAM Jaya were directly appointed by the President → There is *"no competition for the field"*
- PAM Jaya privatization case has shown that un-transparency, without a transparent and competitive bidding in the selection of the concessionaire, has resulted in a big loss to the utility and its customers

Is Privatization Bad?

- Privatization is **not necessarily bad**. In some areas, it's successful
  - *Evidence in Buenos Aires (Argentina) and Manila (Philippines) shows that the prices of water can be reduced significantly and service coverage can be increased as well*
- **The role of Government as a regulator** is important in ensuring that the concessionaires have adequate funding, capacity, technical, managerial and economical expertise

Options to Improve PAM Jaya Privatization

- First, cancel the current PSP and select the new concessionaires through transparent and competitive biddings

  This option is considered to be "too frontal"

- Second, continue with the current concession, but re-negotiate the conditions of the contract

  New deal with respect to the price of water, investment conditions, service coverage, quality of treated water

General Strategies for Jakarta

1) An integrated surface and ground water management is required to increase the supply of piped water and to conserve groundwater resources.

   Without improvement in piped water infrastructures and services, groundwater resource will quickly depleted and result in higher pumping costs, higher marginal user costs, and some economic problems due to groundwater salinization, pollution and land subsidence

2) Investment to improve both water treatment and distribution facilities (WTF and WDF) is required to increase the capacities of water treatment and reduce water losses

   Investment in WDF is more cost effective than in WTF. Incremental investment in WDF not only will increase volume of water distribution, but also reduce raw water demand

General Strategies for Jakarta (2)

3) Renegotiation of PAM Jaya Privatization is required. Under the current privatization scheme, PAM Jaya was forced by the previous government regime to accept the condition of the contract. The results of this privatization:
   - High water price
   - No improvement in the quality of services
   - Financial losses to PAM Jaya

Conclusions…

Future Water Privatization in Indonesia

- Concession is attractive to both the government and the private sectors
- With a low clean water service coverage, Indonesia needs a lot of funding to develop water treatment and distribution systems in its 400 cities and districts
- However, there are some points to be considered:
  1) Transparency in the bidding process
  2) Transparency in the contracts
  3) The bidding companies should form a joint venture with international operator with at least 60% Indonesia-owned
  4) PDAM will retain ownership of fixed assets, but transfer its operational and investment responsibility to the private companies. At the end of the concession period, the PDAM will assume ownership again.
  5) The role of government as a good regulator

Thank You

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