



# **AN OVERVIEW OF VIETNAM WATER SUPPLY AND DRAINAGE SYSTEM**

*Vũ Kim Quyến*

*CEO of SEAWUN*

*Vice Chair of VWSA*

Speech from the Round-table Conference on environmental matters,  
Meeting between Vietnam and Spain on projects funded by the  
Multilateral Fund

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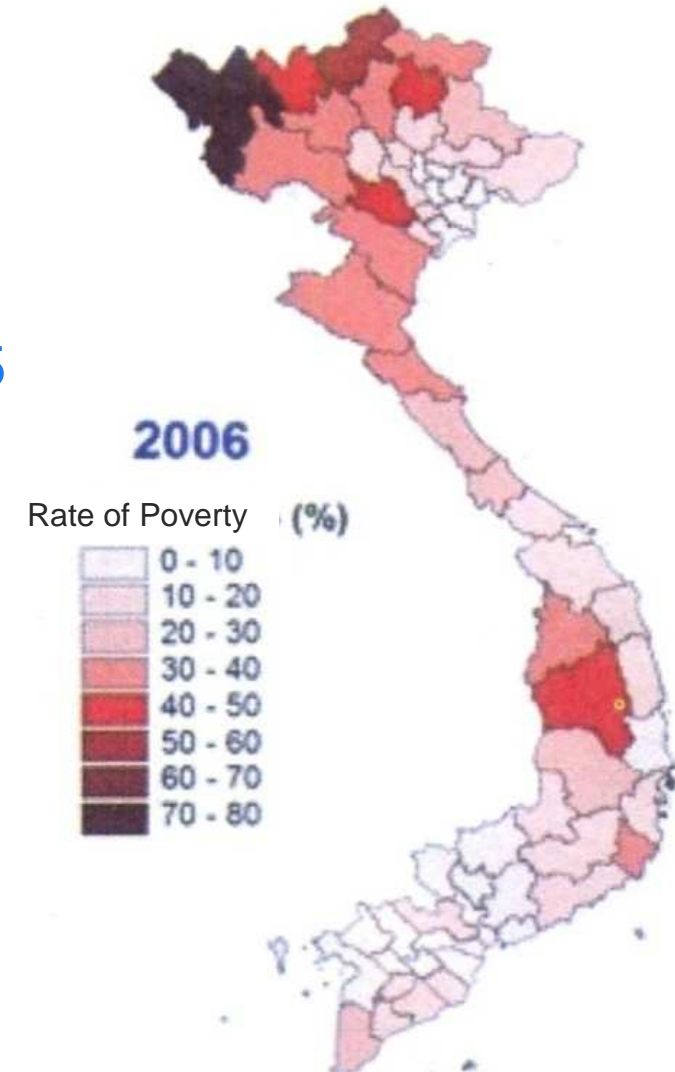
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# An Overview of Vietnam

- Area: 331.212 km<sup>2</sup>
- Population: 85.8 millions(2009) in which  
25.3 millions – 29.5% live in urban ; 60.5 millions – 70.5% lives in rural areas
- Urban: 5 Directly-Governed Cities, 88 provincial cities and 614 county-controlled cities
- Rate of poverty: 16%, vary between areas



# **Current situation of Water Supply and Drainage Systems in Vietnam**

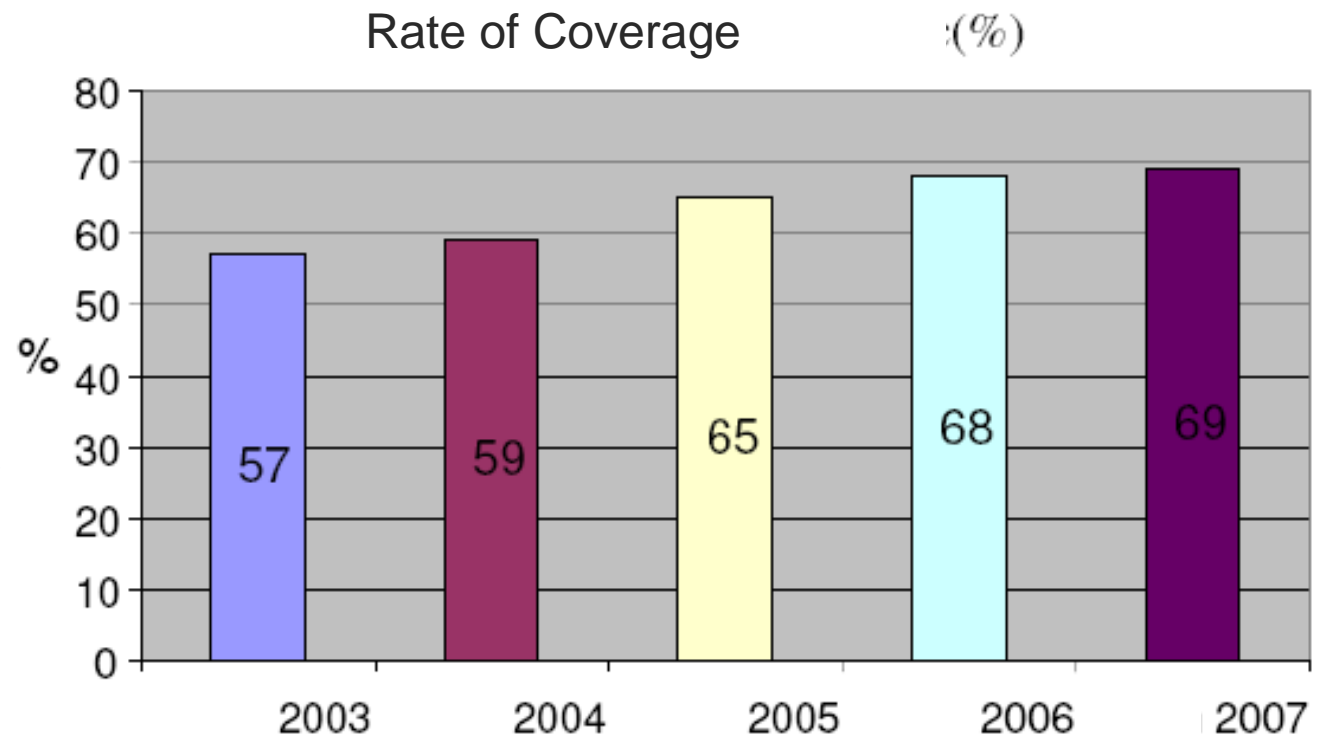
# Urban Water Supply

- All directly governed and provincial cities have centralized water supply
- 242/614 county-controlled cities (40%) don't have centralized water supply.
- 68 companies working in the field of water supply
- Max Capacity: 5.5 Million m<sup>3</sup>/Day
- Supplying 4 million m<sup>3</sup>/day (72%) in which 70% used for civil consumption (standard rate 90 – 100 liter/person/day, 14% for industrial and commercial usage, and 16% for others;
- Investments for urban water supply in the last 10 years: 1997-2007: VND 19.000 billion ~ USD 1,2 billion, USD 100 million/year on average

# Challenges to Urban Water Supply

Low rate coverage: 65-70% ~ 17 mil/25,3 mil

In 5 years, rate of coverage increased 12%, but could not par with population growth, especially due to immigration



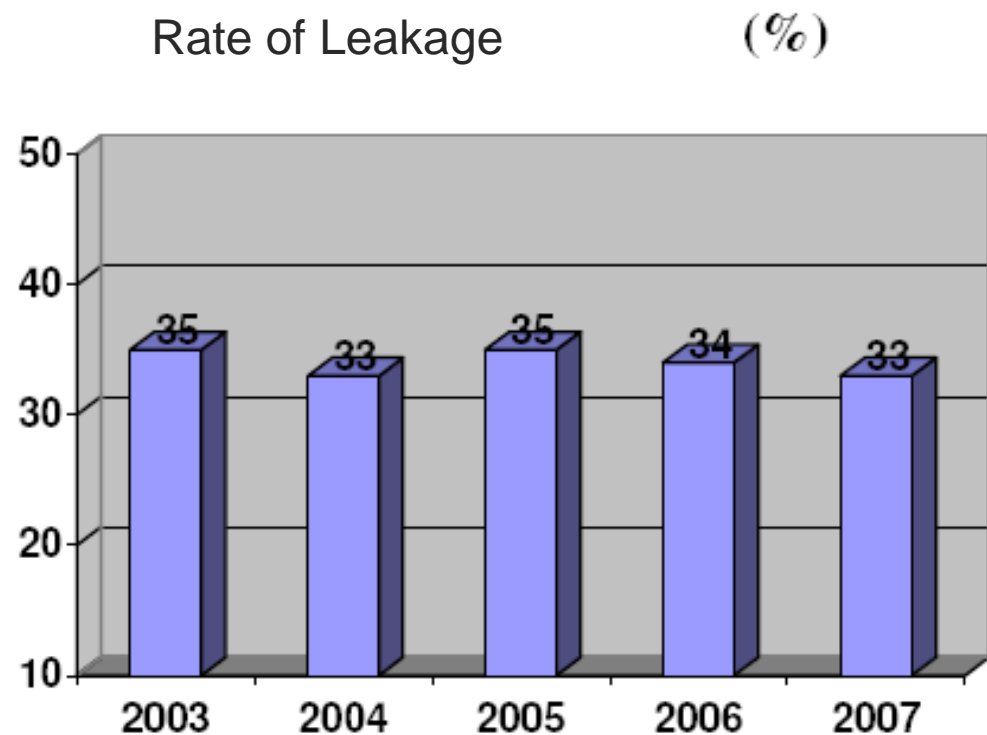
# Challenges to Urban Water Supply

*(cont')*

- High rate of leakage

-Average loss is 33% (1,3 million m<sup>3</sup>/day). In large cities like Hanoi, HCM City, Can Tho: 40-43%

-About 30 small cities have loss rate at < 20%



# Challenges to Urban Water Supply

*(cont')*

- Water price still low

- Water price has not been calculated on all rational expenses : Current price only covers operational cost, and not taking depreciation, loans payment and reconstruction expense into account.

- Average price: 2158 VND/m<sup>3</sup> in which 35% go to salaries, electricity: 24% others (chemicals, spare parts): 41%

- Legal frame for water price: Ministry of finance release frame for water prices; Government decree 117 CP: water price shall be calculated fully and accurately based on market mechanism, Provincial People's Committee approve on water price; most province only approve low price which limited independency of current company, and discourage potential investors.

# Challenges to Urban Water Supply

*(cont')*

- Water sources: 60% from surface water and 40% ground water
- Water sources depleted and polluted due to untreated wastewater from cities and industrial areas, as well as salinity.
- Due to climate change, supplying water to coastal cities become a great challenge

# Urban Drainage System and Water Treatment

- Investment on Drainage System much slower than Water Supply.
- In large cities like Hanoi, HCM City, Hai Phong, “flood” occurs for hours after the rain
- Flooding and landslide occurs in mountain cities



# Urban Drainage System and Water Treatment (cont')

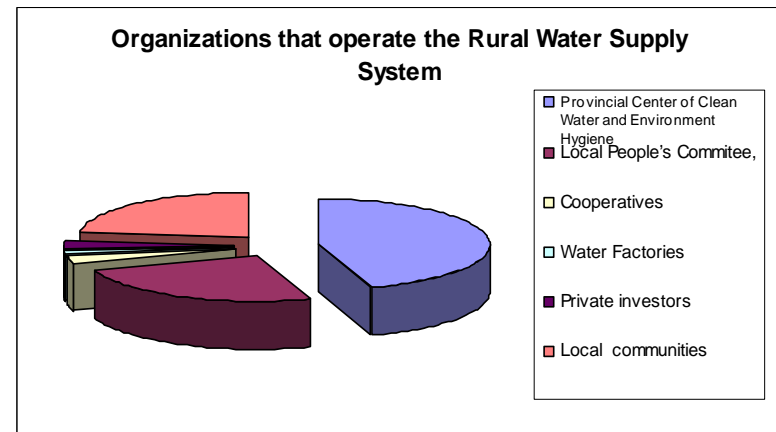
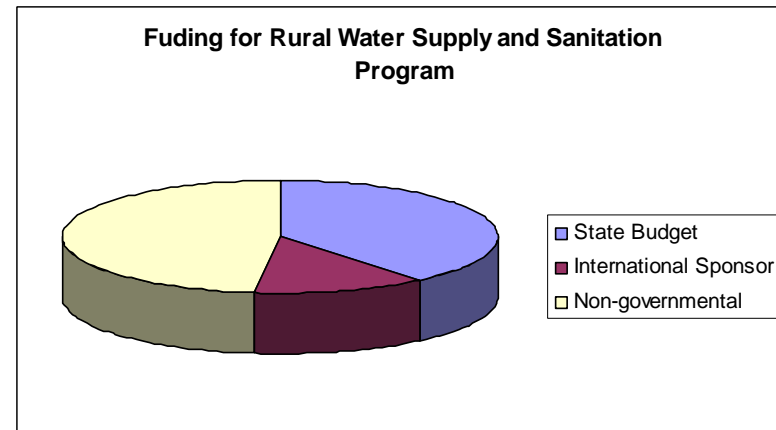
- Most cities don't have treatment facilities for civil water. Wastewater go directly to canals and ponds, and pollute surrounding environment as well as natural water sources.
- Some already have water treatment system like Dalat, Ban Me Thuot, Ha Long, Da Nang,... but had not been developed on a systemic approach, thus lack of collecting system and worked ineffectively
- Many of the cities have projects and are calling for investments.
- Others have systems under construction, for instance Hai Duong, Bac Ninh, Can Tho, Vinh... and going to operation in 2015.

# Urban Drainage System and Water Treatment - Challenges

- Insufficient of investment on drainage system and water treatment while other economics sectors have not been encouraged to join, especially from the private and foreign sectors.
- Guidelines on socialization and equitization of water supply and treatment enterprises is slow to implement
- Lack of guiding circulars for the Government's 117 and 88 Decrees.

# Rural Water Supply and Sanitation

- **Funding:** State budget from “Rural Water Supply and Sanitation Program”, international sponsor and local contributions
- **Suppliers** Provincial Center of Clean Water and Environment Hygiene, Local People’s Committee, Cooperatives, Water Factory, private investor and local communities
- 75% percent of rural population have clean water, 40% of which meet the specification by Ministry of Health



# Rural Water Supply and Sanitation

*(Cont')*

- Sanitation in many rural areas is still very rudimentary
- By the end of 2008, 51% rural household have lavatory
- The sanitation of the rural households built and operated by families.
- Suppliers to Rural Sanitation: private enterprises, self deployed sanitary groups, cooperatives of sanitation

# **Rural Water Supply and Sanitation - Challenges**

- **The Market for Rural Water Supply and Sanitation has not been defined**
- **Technologies for water treatment, treatment for collective wastewater, especially in trade villages, become a hot issues.**

# The Road Ahead

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## Urban Water Supply:

- Target for 2020: 100% population have clean water at 120 liter/person/day with drainage and sanitation facilities
- Urban population: ~ 43 million
- Designed Capacity: 10 million m<sup>3</sup>/day
- Operational Capacity: 8 million m<sup>3</sup>/day
- Leakage rate: 15%
- Continual supply 24/24h
- Investment: USD 4,6 billion – USD 460 million/year (from 1998-2009:USD 120 million/year)

# The Road Ahead

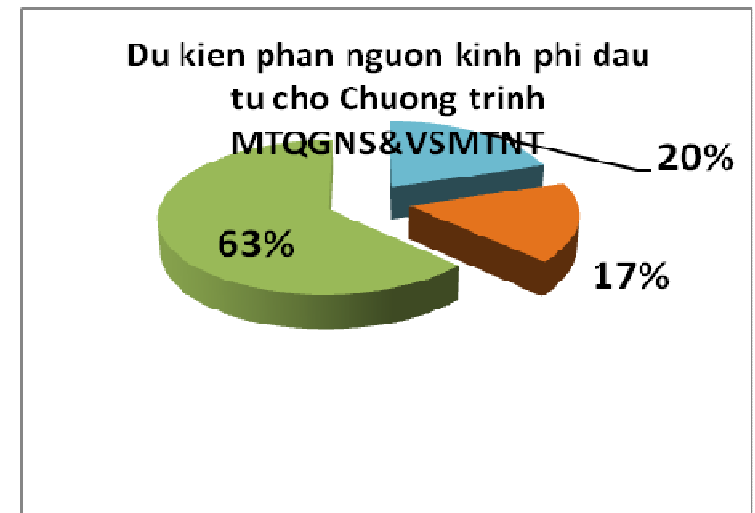
## Urban Drainage System

- No “flood” for rain level < 400mm
- Qualified treatment for Wastewater
- Investment for water treatment at 2-3 times for water supply, USD 8-13 billion ~ USD 1 – 1,3 billion /year.

# The Road Ahead

## Rural Water Supply and Sanitation

- 100% rural population have clean water till 2020
- Funding: Create variation in source of fund
- Develop rural water supply market by forming suppliers – buyer – director relationship, gradually remove all domestic subsidies in clean water
- Focus in training and developing human resources, enhance operational efficiency.



*Projected fund for national program on clean water and rural environmental hygiene till 2020: VND 50.000 billion*

# The Road Ahead

## Solution

- Act follow the policy that take clean water as trading goods, Water price must be calculated fully and accurately
- Favorable Policy for the Poor
- Supply of Clean Water not limited by Administrative Boundaries
- 100% equitization
- Decrease in ODA, preferential loans → commercial loans
- PPP is a feasible solution.
- Opportunities from private sector
- Encouragement for BOT, BTO, BT, state budget < 49%.

# Examples of private investment in Water Supply

Project	Capacity (m <sup>3</sup> /day)	Investment (Billion USD)		Status	Notes
		Government	Privat		
<b>Hochiminh City</b>					
Bình An Water Factory (BOT)	100,000	0	25	10 years in operation	
Thủ Đức Water Factory (BOO)	300,000	0	86	Running at 100,000 m <sup>3</sup> /day (1/3 max capacity)	Full capacity in 11, 2009,
Kinh Đông Water Factory (BOO)	200,000	0	60	Start 2010	
<b>Long An Province</b>					
Hoà Khánh Tây Water Project	80,000	60 (Korean ODA)	8	2012 operating at 1 <sup>st</sup> stage 40.000 m <sup>3</sup> /day	Phú Mỹ Vinh Joint Stock Company as primary Investor
Đức Hoà 3 Water Factory	30,000	0	9	9/2009 operating at 1 <sup>st</sup> stage 5.000 m <sup>3</sup> /day	Phú Mỹ Vinh Joint Stock Company as primary Investor
<b>Tiền Giang Province</b>					
Đồng Tâm Water System (BOO)	90,000	0	55	2015 operating at 1 <sup>st</sup> stage 45.000 m <sup>3</sup> /day	BOO Đồng Tâm Joint Stock Company
<b>Hanoi</b>					
Yên Sở Water Treatment Factory			230		
<b>Total</b>	<b>800,000</b>	<b>60,000</b>	<b>473</b>		



**Thank you**