MINISTRY OF NATURAL RECOURCES AND ENVIRONMENT
Vietnam Environment Administration

WATER UTILIZATION AND EFFICIENCY IN VIETNAM, THE CHALLENGES AND SOLLUTIONS

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BACKGROUND

1. Demographic and geographic data:

According to Statistic Data up to 2009,

- Population in Vietnam: 86 mil. persons
- Number of households: 23 - 25 mil. households;
- Working population by industrial sector: 30 - 40%
  (47,41 mil. Labors)

- Total area and land use:

Total area: 331.212 km2, of which:

+ Agricultural land: 249.972 km2
+ Non-agricultural land: 33.860 km2
+ Others: 47.380 km2

2. Hydrological data:

2.1 Available water resources:

- Hydrological data shown plentiful reserves of surface water for Vietnam, its around 255 bil. m3 per year. However, water utilization is at low level, its about 53 bil. m3 per year, the reasons are:

  + Lack of equipment, human and financial resources

  + Although water reserves are plentiful, but it are inequitable allocated, leads to lack of utilized water in many areas.

- Groundwater are also plentiful, total potential reserves from all layers are estimated 60 bil. m3 per year. Whole nation have near by 5% exploited reserves with inequitable allocation, lead to depression, soil erosion and slide, salinization (e.g in Mekong River Basin).

2.2 Water distribution to each sector (Industry, Agriculture and Domestic)

- Water use for industries: 6.5% of total water quantity; increasing rate 7% per year.

- Water use for domestic: 9% increasing rate per year.

- Water use for agriculture: highest ratio, more than 80%, increasing rate 3,4% per year, but only responds for 80% of cultivated land.

-Only 70% population in Vietnam are provided with clean water. Government intends to increase this rate to 95% to 2010 (?)

- Other purposes like aquaculture, industry and services are contributing water demand increase in territory.

Urban Water Supply and Sanitation

Over last 2 decades: About USD 2 bio. has been invested for water supply and sanitation.

- 760 cities and towns (2010)
- 420 centralized WTPs, total design capacity 4.7 mio. m3/day.
- Actual capacity: 3.2 mio. m3/day (68%).
- In big urban centers: Hanoi, HCMC, Hai Phong, Hue, Viet Tri, ... : 90 – 105 % design capacity.
- 200 from 700 small towns are equipped with centralized water supply systems with capacity 500 – 3000 m3/day.
- Different management schemes
- Only 40 - 70% urban population are served with sanitation service
- Treated urban wastewater: < 10% only !

Rural Water supply and Sanitation

- Water Supply and Sanitation in rural areas is still very crucial, especially in the low-income far and remote areas.
  - 1998: 30% rural population is served by clean water.
  - 2008: 70%.
- 2007: 1,800 centralized and 260,000 decentralized/ household scale rural water supply systems.
  - 1,000 systems failed or are not functioning adequately!
- Privatization, equitization process started.
- Adequate sanitation coverage in rural areas: 60%
- MOH and UNICEF, 2007: Only 18% toilets are considered hygienic!

2.3 Dependency on external water resources (which originates out of the territory)

- In total, Vietnam has 3.317 rivers which included in 11 major river systems with area of 10.000 km2, 10 of these are international systems. Hong river and Mekong river are two important river.

- Total basin's area (both inside and outside territory) is around 1 mil. km2.

- Total flow: 835 bil. m3, of which quantity of water which are generated inside is 325 bil. m3.

In the dry season (from Otober to April), flow is only 15 – 30% of total, it is serious of water shortage

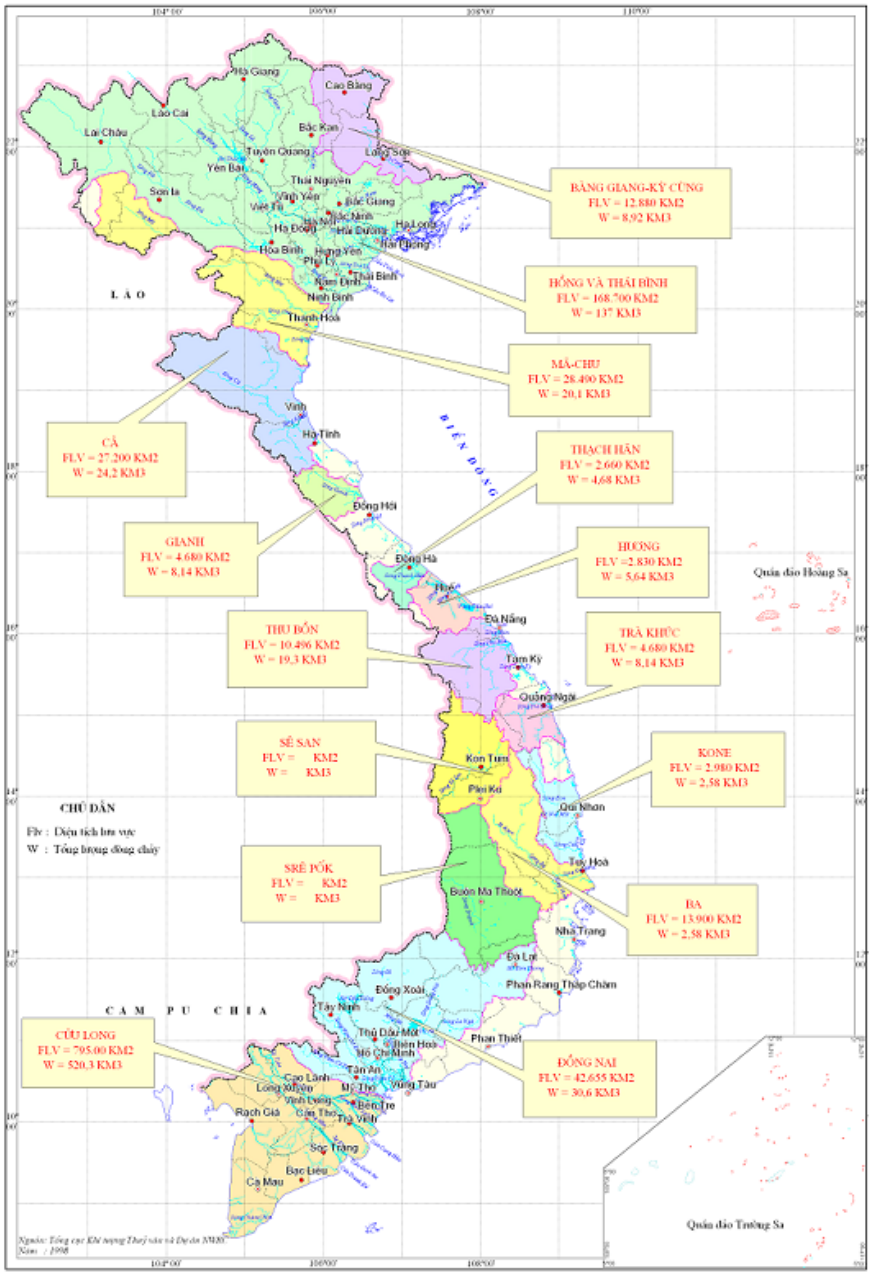
River Basin	Areas		Capacity		
	Total area inside of Vietnam (km^2)	% inside of Vietnam	Total (bil. cm)	Total capacity inside of Vietnam (Bil. cm)	% inside of Vietnam
Ky Cung-Bang Giang	11,220	94	8,9	7,3	82
Hong - Thai Binh	155,000	55	137	80,3	59
Ma-Chu	28,400	62	20,2	16,5	82
Ca	27,200	65	27,5	24,5	89
Thu Bon	10,350	100	17,9	17,9	100
Ba	13,900	100	13,8	13,8	100
Đong Nai	44,100	85	36,6	32,6	89
MeKong	795,000	8	508	55	11

3. Economic data:

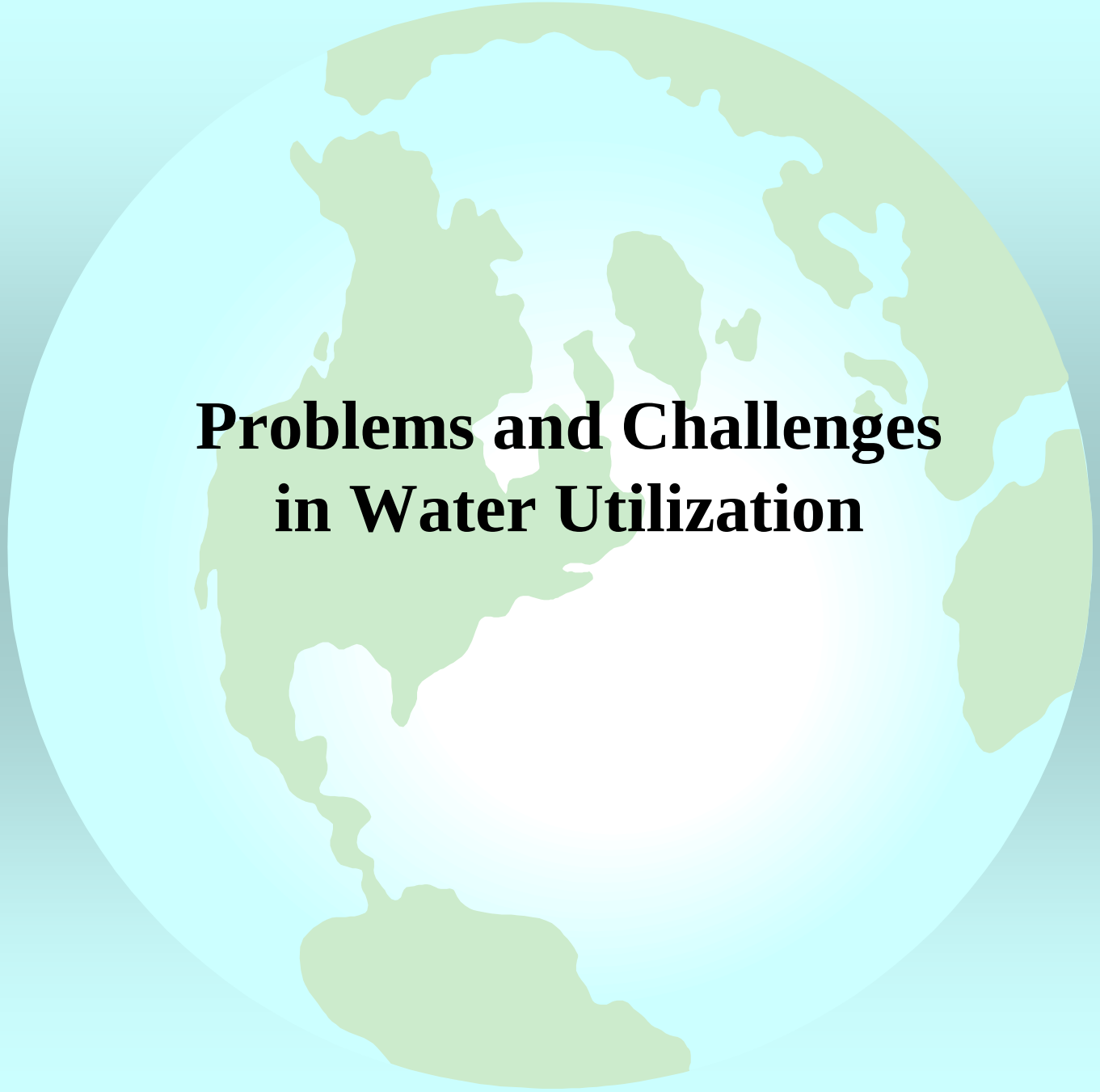
According to the National Report on Socio-economic development year of 2009:

- National GDP are estimated 91 bil. USD, of which GDP per person is 1,055 USD.
- GDP growth rate: 5.32% and intent to increase 6.5% in 2010.
- The rate of agricultural/industrial/trade-services in GDP are 20,66% - 40,24% - 39,1%.
- National import and distribution of goods: Estimated number is 68,8 bil. USD, decrease 14,7% compare with 2008. The import products making up high rate: petrol, oil, plastic, textile, steel, computer and electronic products, cars, trucks, etc.
- National export and distribution of goods: Estimated number is 56,6 bil. USD, decrease 9,7% compare with 2008. The export products making up high rate: aquacultural products, crude oil, textile products, shoes, precious metals and stones, etc.

BẢN ĐỒ LƯU VỰC SÔNG



Map of major river systems in Vietnam



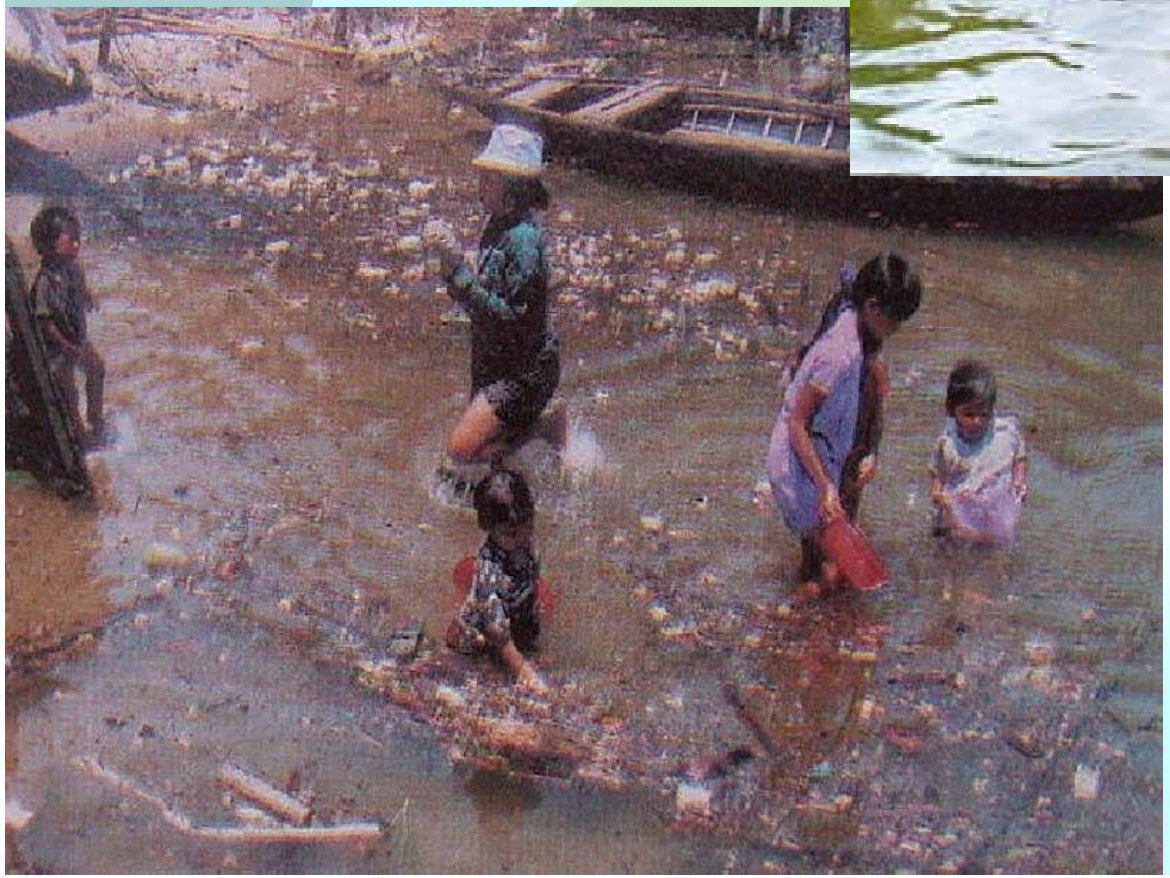
Problems and Challenges in Water Utilization

Trans-boundary pollution and hazardous wastes in the river basins

Environmental pollution in the river basins, therefore ecosystem degradation and seriously affects to public health, quality and quantity of surface water and environment

Untreated domestic, industrial wastewater (or treatment but doesnt' meet the standards) and solid waste directly discharged into the sources caused surface water pollution. Groundwater pollution occurs leading to declining of water quality and quantity.

Used unsafely water caused potential diseases for population, especially in poor areas.



Lack of clean water
Redundant of wastewater

Pollution in the sea and coastal zones

Flooding often happens causing water pollution and affecting to human health

Challenges:

- Urbanization and industrialization in one hand, are contributing economic development, but in the other hand, it generating pollution for environment and also water resources.

- Produced technology in manufactures are still change, however older technologies making up high rate, so that is one of reasons to reduce efficient of water use.

- Although the clean new technologies has transferred, however the capacity strengthen for operators should be carried out.

- Besides, although Vietnam' Government promulgates many regulations to adjusts the situation of water shortage, water pollution, however the regulation enforcement is one of challenges which should be solved as soon as possible.

Let’s act before too late!

Solutions for efficient water utilization

- Vietnam' Government has promulgated laws, regulations for water utilization, water protection or water use efficiency (Law on Water Resources and the guiding regulations, Law on Environmental Protection and regulations, National Strategies: Water Resources, Urban Water Supply, Urban Drainage, etc.).

- Organization and Mechanism are strengthened and upgraded, so that human resources for water protection and utilization are stronger.

- Investment for infrastructure of water utilization increases year by year, the water use becomes more efficient and stable.

- Many projects are operating between regions, provinces for water transferring according to the utilized purposes so that minimize water shortage in dry season. Some other projects for controlling of water pollution, ensuring clean water for uses., etc.

Orientations

1. Reinforce institutions and policies for water resources management and sharing, monitoring and controlling of water pollution to achieve sustainable water utilization and efficiency.
2. Open and multiple of investment for water resources management and infrastructure.
3. Strengthen the regulation complying and enforcement of water management, protection and utilization.
4. Carry out the international and national projects of sustainable water utilization, harmonization of water resources for industrial sectors to avoid wastewater treatment and save natural resources.
5. Promote economic component and public participation in term of water resources sharing, monitoring and pollution control.

New proposed approach/tools

- To develop appropriate, integrated water planning (exploitation, utilization, recharging, etc.) for the whole country with consideration of local, regional, sectoral and trans-boundary issues
- To conduct **water footprint study** in Vietnam
- Study results would bring ground-breaking information to all stakeholders, including
  - Policy makers
  - Water planners
  - Water users
  - Academics
  - Others

Thank you for your attention!