



VIETNAM IN BRIEF

Area (Km²): 331,150.4

Population (2018): ~ 94 Million people

Population Density: 284 people/Km²

Urban population: 30%

Rural population: 70%

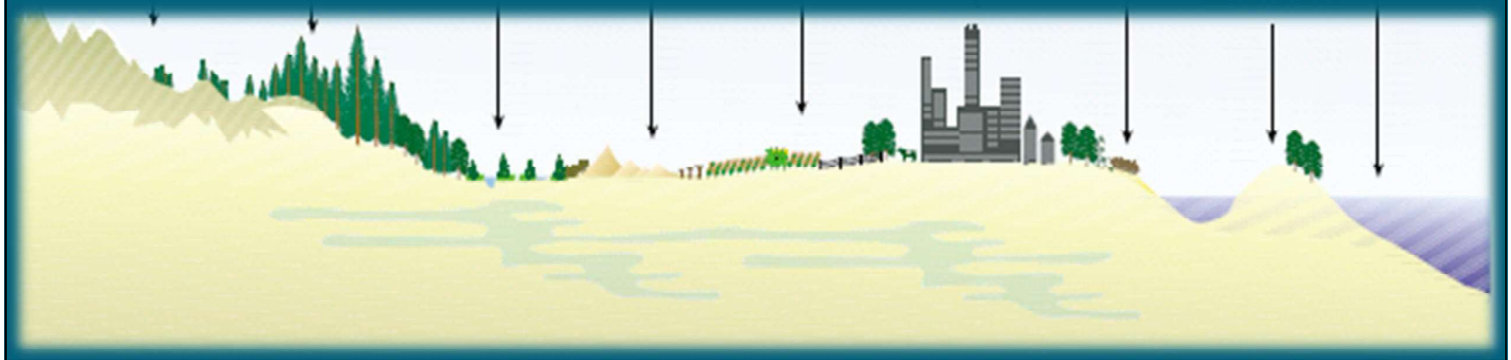
Agricultural Land: 29%

Natural area: 2/3 slopping land

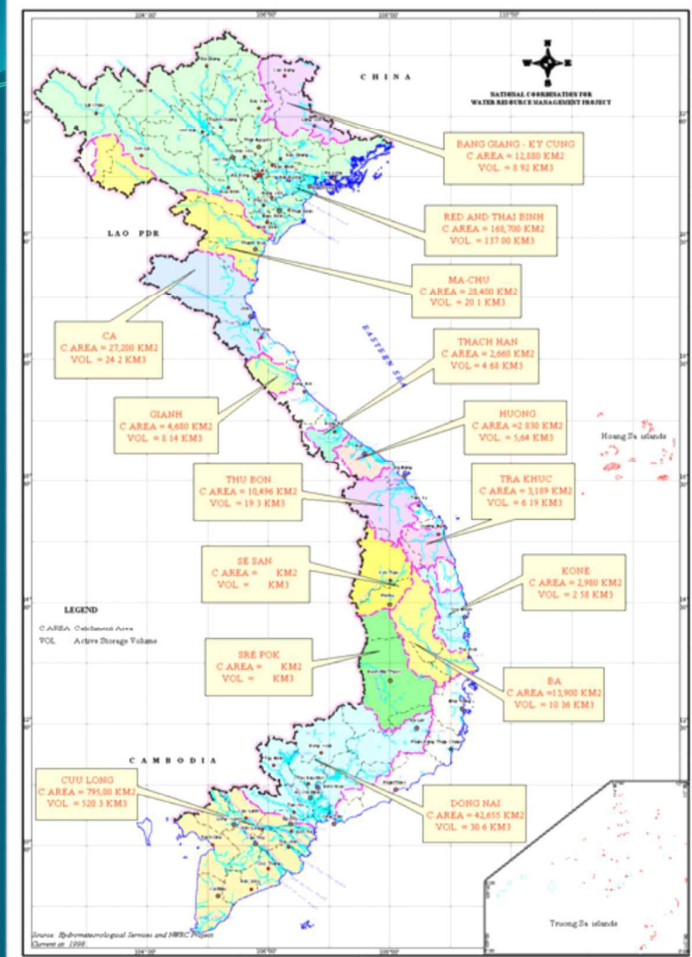
GDP per Capita (2012): ~1,500 USD/capita
(2018): ~ 2600 USD/capita

Vietnam has experienced successful economic growth in recent years, transforming from one of the poorest countries in the world into a lower middle-income country by 2010.

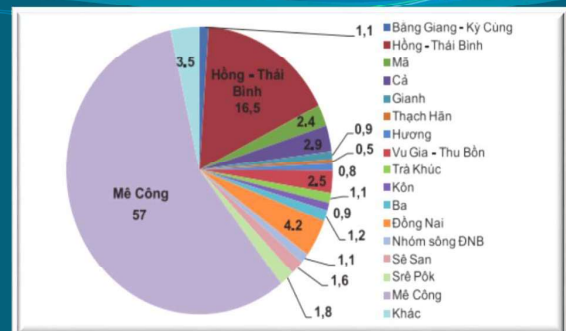
WATER RESOURCES IN VIETNAM



MAJOR RIVER BASINS



Water Resources

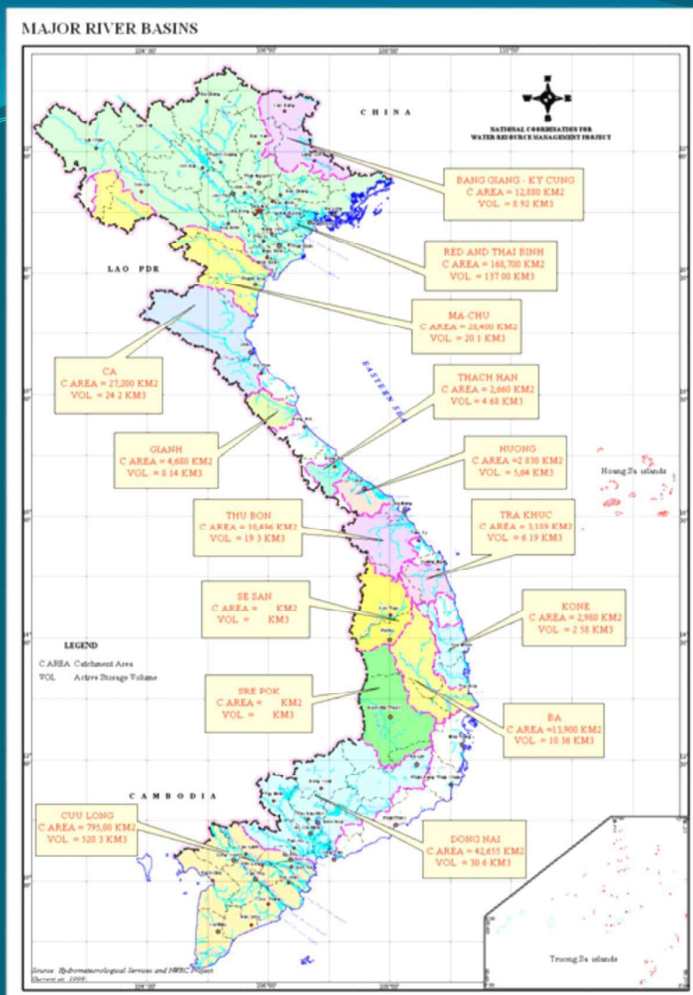


✓River system: 3,450 rivers with length > 10 km; 108 river basins; 9 river basins with area > 10,000 km²

Groundwater

The total potential availability of water in all aquifers within the country, excluding sea island areas, is around 2,000 m³/s - equal to 63 billion m³/year

Water Resources



Surface water:

Total annual volume of surface water availability in our country's territory is around $830 \times 10^9 \text{ m}^3$. Of this, $310\text{-}315 \times 10^9 \text{ m}^3$ per year is generated within the territory of Viet Nam, and accounts for 37%. More than 60% of Vietnam's surface water is generated outside the country.

- About 60% in the Cuu Long (Delta) river basin
- More than 16% in the Red- Thai Binh basin

Uneven distribution (temporal - most of annual rainfall occurs during 4-5 months in rainy season, account for 75-85% of the annual rainfall volume and spatial - 600 mm to more than 5000 mm);



BỘ TÀI NGUYÊN VÀ MÔI TRƯỜNG

Opportunities of water resources (1)

- Water is a key factor in ensuring food and energy securities and the industrialization and modernization progress of the country
- **Water for agriculture:**
 - Water plays a key role in the achievement of rice and other industrial crops production in Viet Nam. VN exports about 6 mil tonnes of rice in 2018, earning almost 3 bil USD.
 - The Mekong Delta and the Red River Delta, accounting for 70% of total water use.
- **Water for Energy:**
 - Water has an important role in ensuring the energy security of Viet Nam in the context of constantly increasing demand for energy
 - Viet Nam's hydropower potential is quite large (mostly in Red river, the Dong Nai river and the river basins in Central region and Central Highlands), accounting for about 30% of the national total electricity production.
 - Projection: 2025- 24600 MW (20.5% of national electricity) and 2030 – 27800 MW (15,5% national electricity)

Opportunities of water resources (2)

Water for living:

- 300/635 towns have centralized water **supply systems**.
- The total design capacity of water in urban areas is about 5.4 million m³/day, 70% of which is met
- The water supply for 30 million people and business operations, services, environmental sanitation in urban areas will require about 8 to 10 million m³/day.
- In rural area about 70% of the population have access to hygienic water supply, but considering national clean water standards, this rate is only about 40%.
- The important contribution of water to the strong growth of **aquaculture production** in recent years with the average growth rate of over 12% per year, a significant contribution for the state budget, while creating employment opportunities for workers.
- Water has also contributed in the development of **the manufacturing industry, tourism and services**.

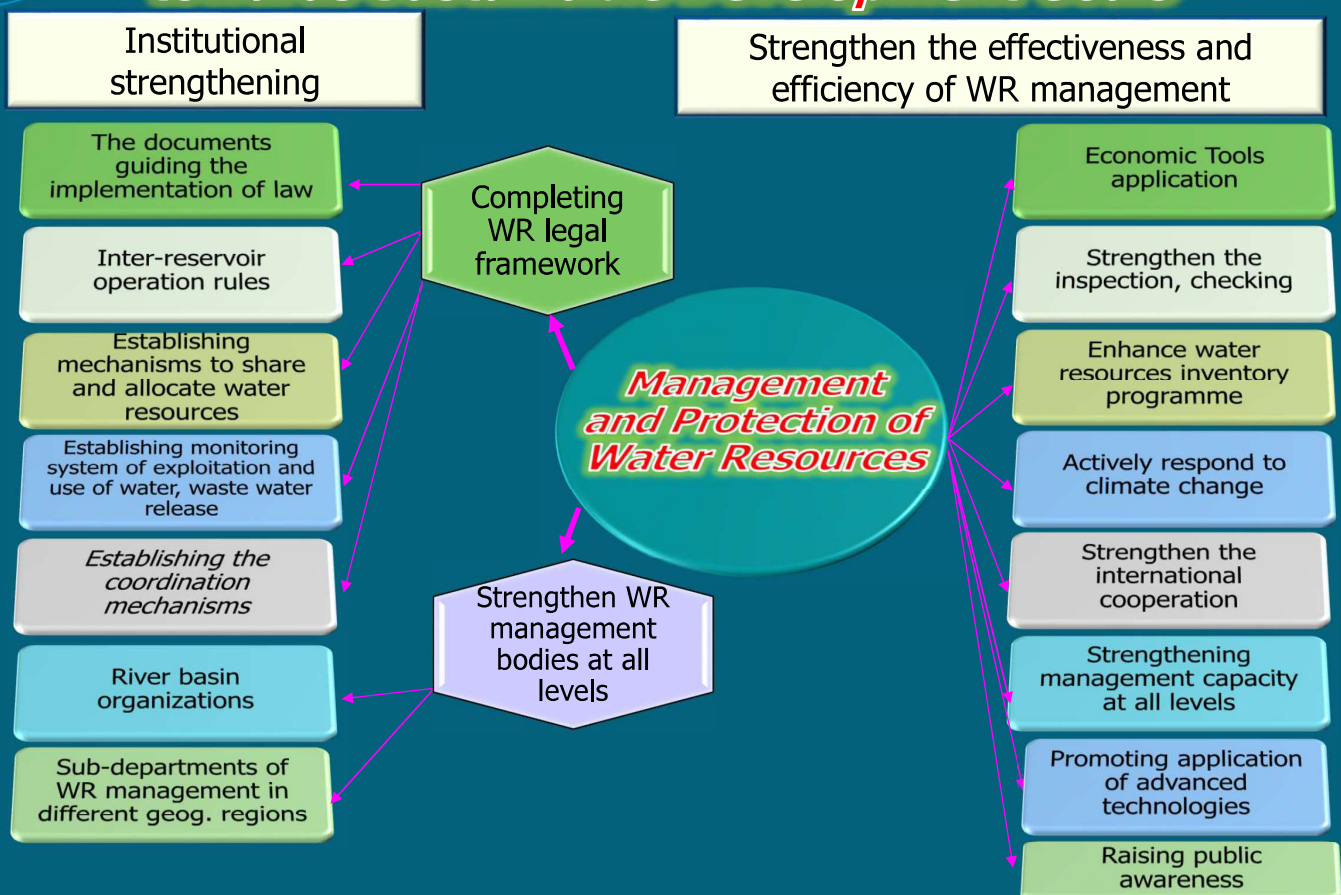
CHALLENGES ON WATER RESOURCES IN VIETNAM

- About two-thirds of water of Viet Nam's river systems is generated outside the country, **depending heavily on development in other countries**.
- **Uneven temporal and spatial distribution of water**. Rainfall is concentrated in the 4-5 months rainy season (account for 75-85% of total annual rainfall, rainfall in the dry season only 15-25%.)
- Increase of water resources **pollution, degradation and exhaustion**
- Severe **impact of climate change** on water resources; more frequent natural disasters such as storms, floods, drought, salinity intrusion, sea water level rise.
- Pressure of the continuous **economic growth** leads to an increase in water demand of the socio-economic sectors; **Fast population growth** (96 million by 2020) and increase of demand for quality of life ⇒ **More demand for water**
- Conflict and dispute in water use growing; Water resource infrastructure is obsolete and investment for water resources management and protection do not meet the requirements
- Over exploitation of ground water occurs in many areas
- Bank erosion and land subsidence become serious issues in some important regions
- The **legislation system** on water resources is not yet completed and its enforcement is weak.

Achievements of Water Sector

- Step-by-step complete the legal and institutional framework for water sector (First Water Law – 1998, revised in 2012, preparation for 2nd revision in 2020)
- Increasing the issuance of licenses for utilization of water resources and discharge of wastewater to water bodies; regulations on minimum flows (rivers/streams, reservoirs)
- Issuance of 11 inter-reservoir operation rules in main river basins aiming at disaster mitigation, harmonization of needs of different water users and protection of environment.
- Application of user-pay principles through charges to water exploitation rights and discharge of wastewater to water bodies
- Regulations on ground water exploitation restriction
- Vietnam's joining UN Convention on the Law of the non-navigational uses of international watercourse (2014)
- Preparation for establishment of RBOs for promoting IWRM

Management and Protection of Water Resources towards Sustainable Development Goals



National Action Plan for the Implementation of the 2030 Sustainable Development Agenda issued in 2017

- **Goal 6: Ensure availability and sustainable management of water and sanitation for all**

(Implementation led by MONRE, MARD, MOC and MOF)

Targets for Integrated, sustainable and effective management of water resources goal:

- By 2030, ensure sufficient and equitable access to domestic and drinking water for all under their affordability by 2030
- By 2030, improve water quality and successfully control sources of pollution; end the use of hazardous chemicals in agricultural, industrial and aquatic production that pollutes water sources and degrades biodiversity; treat 100% of hazardous waste water; halve untreated urban waste water; increase reuse of water.
- By 2030, substantially increase water use efficiency across all fields/sectors and ensure a sustainable supply of clean water in order to address water scarcity, and substantially reduce the number of people suffering from water scarcity. Ensure that water exploitation does not exceed the exploitation thresholds for rivers and exploitable reserves of water layers
- By 2030, implement integrated water resources management by river basin, including trans-boundary water sources - through international cooperation
- By 2030, protect and restore water-related eco-systems

Research areas need further assistance and focus

- Streamline water-food-energy nexus approach in national thinking, planning, policy making and doing.
- A smart and effective model for integrated river basin management (multisectoral, climate change...)
- Solutions/measures for restoration of degraded rivers
- Effective reservoir management in river basins; solutions for sustainable hydropower development
- Effective planning tools/approach in water resources management
- Financing tools and mechanisms in water resources management

