

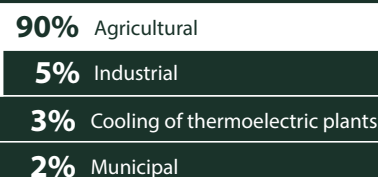
Total population (UN Population Division)	89.73 million inhabitants	year 2012
Total area	330 957 km ²	
Population density	271 inhabitants/km ²	2012
Human Development Index (UNDP) (between 0 and 1; 1 is highest)	0.617	
Country rank (total 186 countries; 1 is highest)	127	2012
Gender Inequality Index (0 is equality between women and men; 1 is least equality)	0.299	
Water, sanitation and hygiene-related deaths % of total deaths (WHO)	2.8 %	2004
Long-term average annual precipitation (CRU CL 2.0)	1 821 mm/year	
Long-term average actual renewable water resources (FAO AQUASTAT)	884 100 million m ³ /year	
Actual annual renewable water resources per capita (FAO AQUASTAT)	9 852 m ³ /inhabitant	2012
% of total actual renewable freshwater resources withdrawn (MDG Water Indicator) (FAO AQUASTAT)	9.3 %	2005
Groundwater withdrawal as % of total freshwater withdrawal (FAO AQUASTAT)	1.7 %	2005
Total area equipped for irrigation (FAO FAOSTAT and AQUASTAT)	4 600 000 ha	2011
% of the cultivated area equipped for irrigation (FAO FAOSTAT and AQUASTAT)	45 %	2011
% of irrigation potential equipped for irrigation (FAO AQUASTAT)	49 %	2011
Ramsar sites (Ramsar)	5 sites 84 982 hectares	2013

UN WATER

Viet Nam

UN-Water Country Brief

Water withdrawals by sector
(total 103 423 million m³ in 2009)



The Money Stream

During 2002 to 2011, the government invested US\$ 1 140.57 million (in constant 2010 US\$) on average per year on water-related infrastructure and programmes. Over half of the government expenditure priority was channeled into hydroelectric power plants (50.6 percent). Agricultural water resources (17.3 percent) and water supply and sanitation followed in government expenditure priority (27.8 percent).

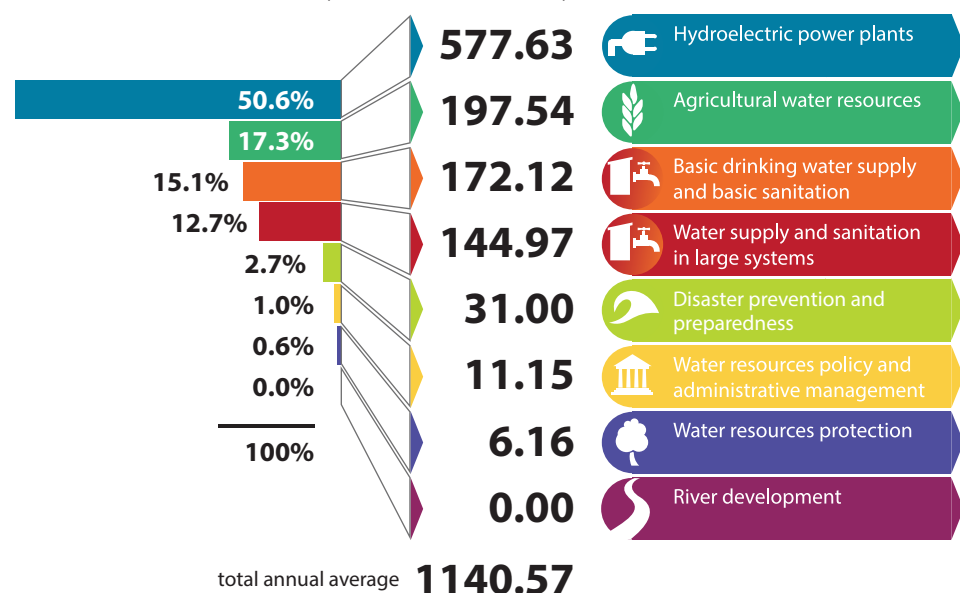
During the same period, official development assistance (ODA) gross disbursements amounted to US\$ 240.52 million on average per year. Close to half of ODA disbursements went to water supply and sanitation (46.8 percent).

Over the period 2001 to 2011, the Government of Viet Nam's water-related expenditure, excluding expenditure in hydroelectric power plants, accounted for an estimated 10.2 percent of total government expenditures. Including hydroelectric expenditures, water-related expenditures amounted to 22.9 percent of total government expenditures during this period.

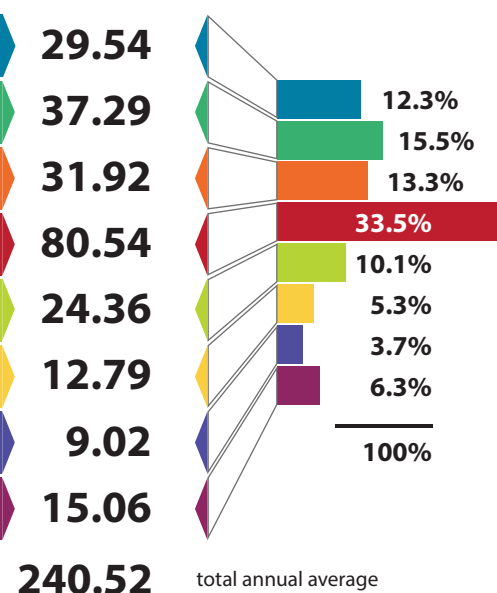
Estimated % of water-related government expenditure to total government expenditure, excluding investments in hydroelectric power plants, 2001-2011*

10.2%

Annual average government expenditure during the period 2002 - 2011 (million constant 2010 US\$)*



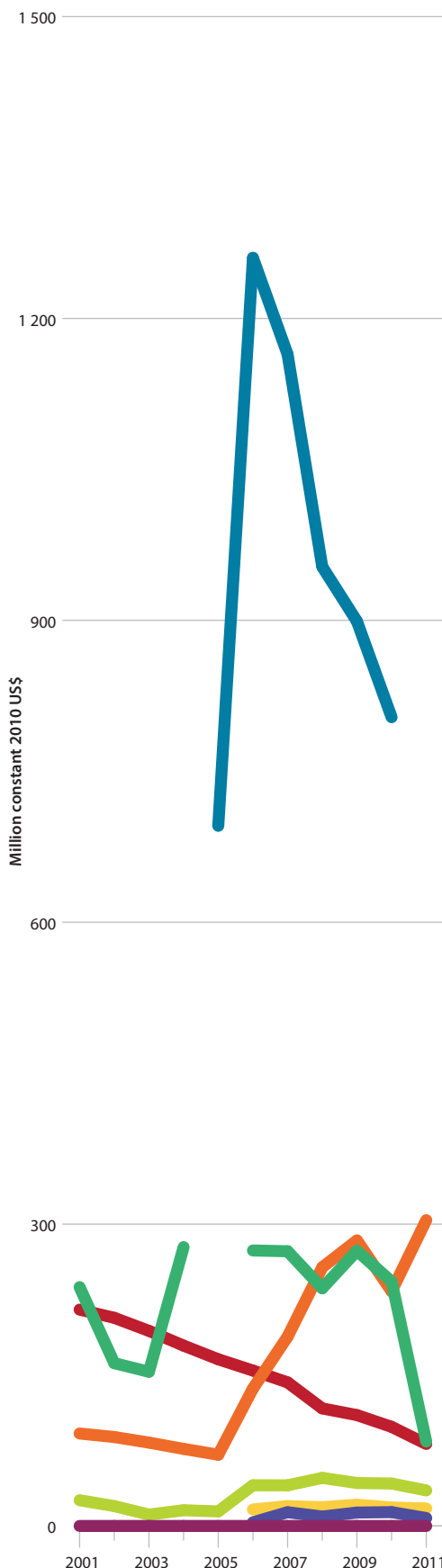
Annual average official development assistance gross disbursements during the period 2002 - 2011 (million constant 2010 US\$)



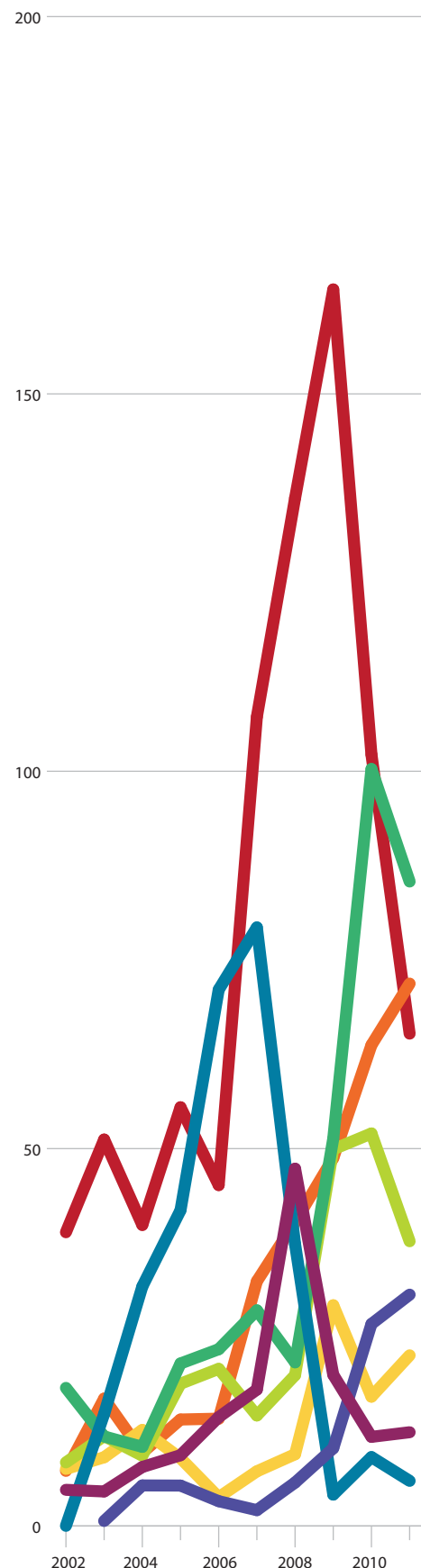
* Government expenditure includes some Official Development Assistance (ODA). It has not been possible to separate funds from government sources and ODA.

Status and Trends

Government expenditure during the period 2001 - 2011
(million constant 2010 US\$)*



Official development assistance gross disbursements during the period 2002 - 2011
(million constant 2010 US\$)



Water-related government expenditure during the period 2001 to 2011:*

- Overall, the government expenditures peaked from 2006 to 2009, driven by the substantive investments in hydroelectric power plants.
- Investments in water supply and sanitation for large systems have progressively declined, while those in basic water drinking supply and basic sanitation have progressively increased.
- There are several years for which data is not available in most of the water-related investment categories.

Water-related official development assistance during the period 2002 to 2011:

- Overall, ODA disbursements have quadrupled, largely driven by large disbursements into water supply and sanitation for large systems in recent years.
- While hydroelectric power plants have dropped in ODA priority, agricultural water resources and basic drinking water supply and basic sanitation have risen.

Actual expenditure refers to the amount spent by the government during a given year. The OECD Creditor Reporting System categories were chosen for the collection of these water-related investments and the data was obtained by the WCB project through in-country research in cooperation with the government (during 2012), while ODA data stems from the OECD Creditor Reporting System (collected December 2012).



Water supply and sanitation in large systems: Water desalination plants; intakes, storage, treatment, pumping stations, conveyance and distribution systems; sewerage; domestic and industrial wastewater treatment plants.

Basic drinking water supply and basic sanitation: Water supply and sanitation through low-cost technologies such as hand-pumps, spring catchment, gravity-fed systems, rainwater collection, storage tanks, small distribution systems; latrines, small-bore sewers, on-site disposal (septic tanks).

Water resources policy and administrative management: Water sector policy, planning and programmes; water legislation and management; institution capacity building and advice; water supply assessments and studies; groundwater, water quality and watershed studies; hydrogeology. Excluding agricultural water resources.

Disaster prevention and preparedness/Flood protection and control: Disaster risk reduction activities such as developing knowledge, natural risks cartography, legal norms for construction; early warning systems; emergency contingency stocks and contingency planning including preparations for forced displacement. Floods from rivers or the sea; including sea water intrusion control and sea level rise related activities.

Agricultural water resources: Irrigation, reservoirs, hydraulic structures, groundwater exploitation for agricultural use.

Hydroelectric power plants: Including power-generating river barrages.

Water resources protection: Inland surface waters (rivers, lakes, etc.); conservation and rehabilitation of groundwater; prevention of water contamination from agrochemicals, industrial effluents.

River development: Integrated river basin projects; river flow control; dams and reservoirs. Excluding dams primarily for irrigation and hydropower and activities related to river transport.

* Government expenditure includes some Official Development Assistance (ODA). It has not been possible to separate funds from government sources and ODA.

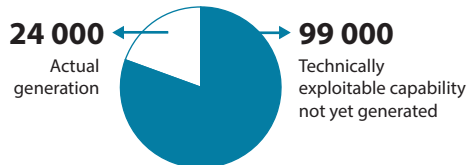


Energy for Water, Water for Energy

Impact for development

With an installed capacity of 5 500 MW, Viet Nam generated 24 000 GWh in 2008, which represents around 20 percent of the nation's hydropower technically exploitable capability.

Hydropower capacity and generation, 2008, in GWh/year (World Energy Council)

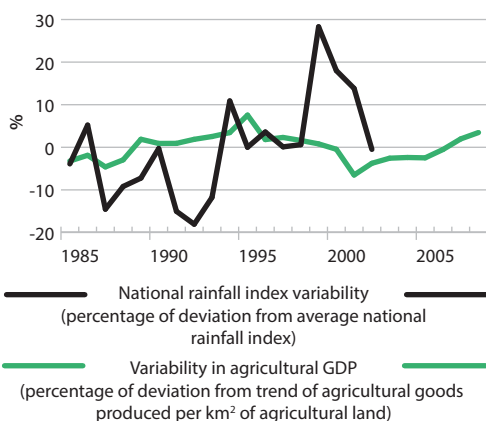


Irrigated Agriculture

Impact for development

Irrigated agriculture plays a very important role in the socio-economic development of the country for poverty reduction, food security, gender equity improvement in rural areas, and the improvement of cropping patterns and the environment. Viet Nam has become one of the top three countries in the world for rice exports. In 2011, agriculture accounted for 22 percent of gross domestic product. In 2012, women accounted for 49 percent of the economically active population in agriculture.

Rainfall variability and agricultural GDP (FAO AQUASTAT, World Bank)



Due to relatively significant reliance on irrigation, Viet Nam is able to mitigate changes in rainfall patterns and to produce a relatively stable agricultural output in spite of rainfall variability.



Environment and Ecosystem Health

Impact for development

Water quality in Viet Nam varies depending on wastewater discharges from industrial and municipal users. Due to the degradation of water quality in certain river basins such as, Dong Nai in the South and Cau, Nhue-Day in the North, aquatic ecosystems therein are significantly threatened.

Water quality index 2010
(UNEP-GEMS/Water)



A score of 100 indicates that water quality targets are met for all five parameters (DO, pH, conductivity, total nitrogen, and total phosphorus).

There was an overall increase of 38 percent from 1990 to 2010 in the population using an improved drinking water source (57 percent to 95 percent of the population), particularly in rural areas (from 49 percent to 93 percent). With respect to improved sanitation facilities, there have been similar trends of improvement, representing a 39 percent increase overall during this period. The relative improvements have been greatest in rural areas although a substantial gap remains (from 30 percent in 1990 to 68 percent in 2010). Close to a quarter of the total population still lacks access to an improved sanitation facility.



Drinking Water Supply and Sanitation

Impact for development

Viet Nam has made good progress towards the Millennium Development Goal target, though sanitation coverage remains a significant challenge. A 2011 Water and Sanitation Program study estimated the overall economic costs of poor sanitation in Viet Nam to be US\$ 780 million per year at 2005 prices, equivalent to 1.3 percent of gross domestic product (GDP).

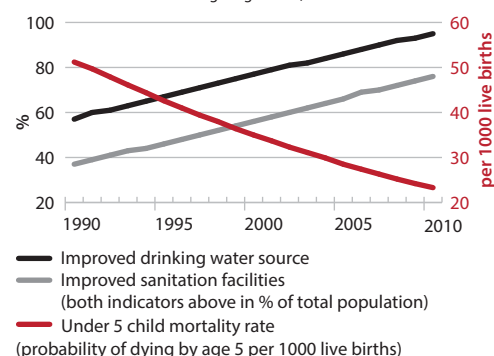
Accession of the International Covenant on Economic, Social and Cultural Rights (ICESCR):

24 September 1982

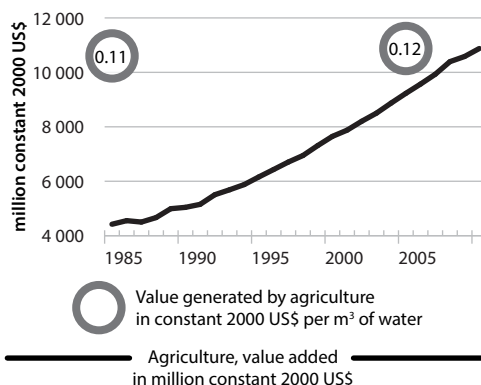
(The right to water is implicit within the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of health outlined in the ICESCR.)

Access to drinking water and sanitation & under-5 child mortality

(UN Inter-agency Group for Child Mortality Estimation (IGME) and WHO/UNICEF Joint Monitoring Programme)



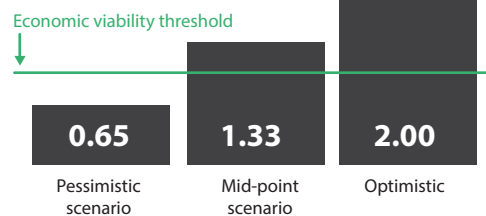
Value generated by agriculture per m³ of water (FAO AQUASTAT, World Bank)



During 1985 to 2005, the value generated by agriculture per m³ of water increased by 0.4 percent annually.

The economic viability of new irrigation schemes is highly influenced by an ability to achieve agronomic practice productivity gains in addition to gains directly

Economic viability of establishing new irrigation schemes for rice



related to a move from dryland cropping to irrigated cropping. The analysis of expanding irrigation for a crop, such as rice, indicates that it is likely to be economically viable. However, this is based on an assumption that agronomic productivity improvements beyond a simple move to irrigation can be achieved. Where these benefits are not realized, further expansion of irrigation is less likely to be viable. It should be noted that this analysis does not include labour costs associated with capital investments in establishing infrastructure systems and any costs from negative externalities, such as, increased pollution loads into waterway.



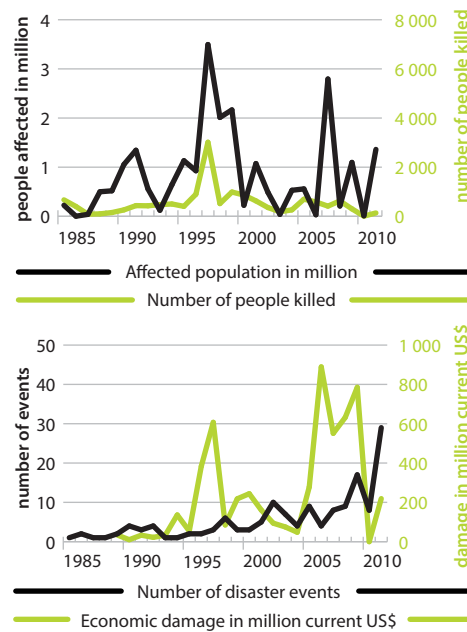
Water - related Disasters*

Impact for development

Viet Nam is exposed mainly to landslides and floods triggered by tropical storms and monsoon rains, although storm surge, whirlwind, river bank and coastline erosion, hail rain and drought are also prevalent. The recent flood events of 2006, 2007, 2008 and 2009 are the worst in disaster history in terms of human casualties and economic damage. While the trend in the number of water-related disasters has been increasing, the number of casualties by such disasters has been controlled. Economic loss and the number of affected people have nonetheless been on the rise. According to this data, 90 people die on average in each water-related disaster event while 0.15 million people are affected and there is US\$ 38 million current dollars' worth of cost to the economy.

*'Water-related disasters' within the scope of this WCB study do not include droughts.

Water-related disasters impacts (CCFSC)

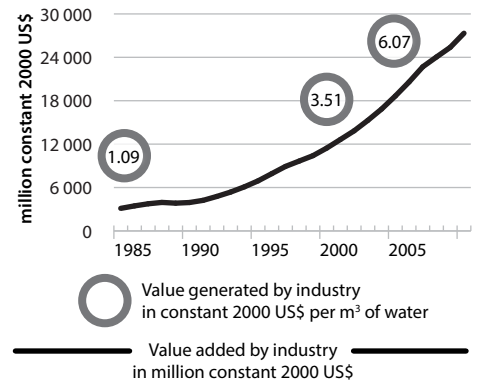


Water Intensity in Industry

Impact for development

During 1985 to 2000, the value generated by industry per m³ of water increased by 8 percent annually, and during 2000 to 2005 this value increased by 12 percent annually. Unauthorized wastewater discharges or inadequate treatment processes have been occurring.

Value generated by industry per m³ of water (FAO AQUASTAT, World Bank)

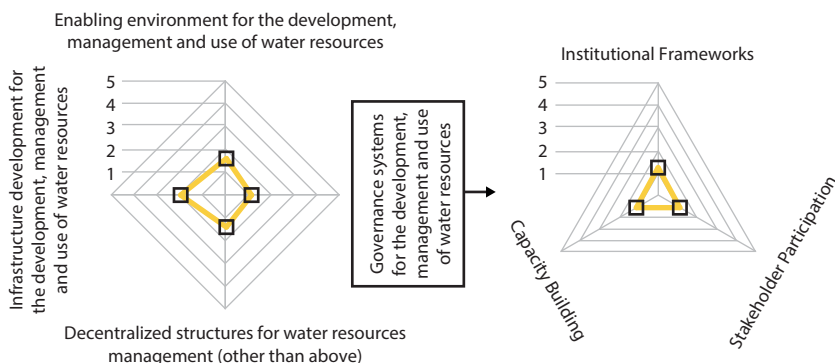


Tracking Water Governance

Impact for development

There is no overall integrated strategy and action plan at the national or regional basin level, although, strategies and action plans exist for a number of the subsectors. Major issues on water resources management include the need for: i) legislative reform to enforce the use, development and protection of water resources, ii) institutional reform to improve coordination among relevant agencies (at central level, as well as, between central and local authorities, in river basin organizations in particular), iii) application of relevant management tools such as, licensing, financing, sanctioning etc., to enhance effective water use among competitive users, iv) raising awareness and knowledge on IWRM for all stakeholders and the application of the polluter-pays principle.

UN-Water survey on integrated approaches in the development, management and use of water resources governance, 2012 (UN-Water)



- 1 Under development
- 2 Developed but implementation not yet started
- 3 Implementation started

- 4 Implementation advanced
- 5 Fully implemented

Several legal instruments have been enacted, such as the Law on Environmental Protection (2005), Law on Water Resources (1998 and under revision), Decrees on Fee for Environment Protection. However, some provisions contained in these legal documents are not effectively implemented, due to difficulties in collecting fees for environmental protection, unauthorized wastewater discharges. Inspection and fines are not sufficiently implemented and enforced.

Irrigated agriculture is regulated by: a 2001 policy to transfer irrigation management to farmers (IMT), circular on guidance to establish and develop Organizations of Water User Cooperation (2004), Strategic Framework for Participatory Irrigation Management (PIM). Decrees on river basin management, water fee, inter-reservoir regulation (ensuring water low-flow in river system for irrigation) are also issued.

Is the right to sanitation/drinking-water explicitly recognized in policy or law?

sanitation		drinking water	
urban	rural	urban	rural
Already fully recognized in law or policy	Already fully recognized in law or policy	Progressing with some elements in place	Progressing with some elements in place

Can people claim their human right to sanitation or drinking-water in a domestic court?

sanitation		drinking water	
urban	rural	urban	rural
Yes but little used	Yes but little used	No	Yes but little used

UN-Water GLAAS (WHO, 2012)

Rapid Assessment

Overall

Pressures on water

Viet Nam is a downstream riparian state, and faces issues relative to management of transboundary water resources. Almost 60 percent of the total water resources are generated outside the country, making the country susceptible to decisions made about water resources in upstream countries. Agriculture withdraws the largest amounts of water and the principle concern in terms of irrigation is the rapidly increasing demand for industrial farms. Water shortage during the dry season and water pollution are main issues, especially in those river basins where water demand/competition between water users is becoming critical. At present, water availability in 11 out of 16 river basins is under pressure of shortage, of which the Dong Nai river basin as well as some other basins in the Southeastern regions of Viet Nam are of highest concern. Water pollution is at critical levels in Cau and Nhue-Day river basins.

The government has enacted laws, created institutions, expanded investments and decentralized

authority to manage the country's vast water resources efficiently and sustainably. However, rapid economic development, high population growth, worsening environmental conditions and frequent natural disasters are overwhelming the capacity of the existing policy and institutional framework and in turn are undermining the effectiveness of numerous government interventions. Given this history and context, the management of water resources is one of the most critical issues in Viet Nam.

Investments

Over the period 2001 to 2011, the Government of Viet Nam's water-related investments accounted for an estimated 22.9 percent of total government expenditures, though during this period 48.2 percent of the water-related expenditure was for hydroelectric power plants. Agricultural water resources and water supply and sanitation followed in government expenditure priority. Overall, ODA disbursements have quadrupled since 2002.

Assessments

- 
Irrigated agriculture ●●●○○○
 During 1985 to 2005, the value generated by agriculture per m³ of water increased by 0.4 percent annually. Improvement in efficiency and enhancement of maintenance and operation are key challenges.
- 
Drinking water supply and sanitation ●●●○○○
 Investments over the past 20 years have significantly closed the gap between the use of improved services for urban and rural populations, particularly for drinking water supply. However, there are still significant gaps in sanitation service levels between urban and rural areas.
- 
Water intensity in industry ●●●○○○
 Since 1985, the value generated by industry per m³ of water has continuously increased. Implementation and enforcement of legislation is in some cases facing challenges.
- 
Water-related disasters ●●○○○○
 The trend in the number of water-related disasters has been increasing; the number of casualties by such disasters has been controlled; the economic loss and the number of affected people are the rise.
- 
Water for energy, energy for water ●●●●○○
 Investments in hydropower have been substantial in recent years.
- 
Environment and ecosystem health ●●○○○○
 Water quality and pollution are significant issues in some rivers basins.
- 
Tracking governance ●●○○○○
 There is no overall integrated strategy and action plan at the national or regional basin level, although, strategies and action plans exist for a number of the subsectors.

Data Quality

- ★★★★☆
Data is available.
- ★★★★☆
Limited data on drinking water quality is available.
- ★★☆☆☆
Data is not readily available.
- ★★★★☆
Data is available.
- ★★★☆☆
Data on energy requirements for water-related activities (i.e.: purification, treatment, irrigation, etc.) is not readily available.
- ★★★★☆
The existing environmental information and reporting system is comprised of a national network of environmental monitoring stations, as well as environmental monitoring at the provincial level.
- ★★★★☆
Viet Nam has participated in the UN-Water questionnaire on Integrated Approaches in the Development, Management and Use of Water Resources.

Legend:

The rapid assessment of the situation above, based on available data, was established in conjunction with in-country experts and officials. It provides an overview of trends according to the following:

- trends are of significant concern
- trends are of concern
- trends are stable or, progressing on certain issues but not on others
- trends show some measure of improvement in all relevant indicators assessed
- trends show significant improvement and there is no concern
- insufficient data

Accurate assessments of progress require relevant, accurate and timely data. The above data quality assessment ranges from:

- ☆☆☆☆☆ → ★★★★★
very poor → very good

Data Concerns

Data is a vital input to water management and investment in water-related infrastructure and projects. The lack of quality and reliability of economic data in Viet Nam, such as, infrastructure costs, operating costs, crop values etc., makes water-related investment decisions inherently more complex and investments more risky for investors. Furthermore, there is little information available on basic fee structure characteristics of irrigation development in Viet Nam, such as the geographic distribution of irrigation schemes and the impact of interstate sharing of resources from major river systems. The sharing of water resources has been highlighted in prevailing literature as an issue impacting upon the

sustainability of irrigation schemes; however, there is no quantitative data to support this claim, making economic analysis difficult.

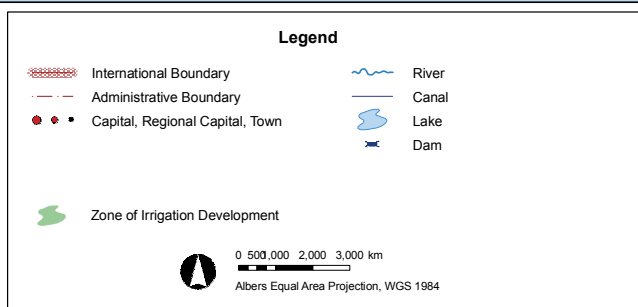
Modest investments in coordinated data collection, collation, analysis and dissemination is vital to demonstrate the benefits of water-related investments to governments, donors and ultimately private capital investors.

It is to be noted that it is virtually impossible to find national-level gender-disaggregated data for almost all themes contained in the UN-Water Country Briefs.

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Additional information on the project, data and methodologies can be accessed at:

<http://www.unwater.org/WaterCountryBriefs.html>



VIET NAM

FAO - AQUASTAT, 2011

Disclaimers

- The most recent and updated information can be found in the original databases cited throughout.
- The rapid assessment methodology presented here is an advocacy tool designed to generate debate and attention to the issues, and is developed in conjunction with national government focal points.
- Data presented herein stems either from existing databases or was collected from national reports, experts and institutions, and in some cases raw data underwent various manipulations to categorize the information for this presentation.
- Due to data limitations, the investment-related estimates may not include water-related investments that are counted under other categories of investments, and some investment categories (ie: disaster prevention and preparedness) may include some investments that are not directly water-related. Moreover, water being a crosscutting issue, investments in other parts of the government (not calculated here) may also benefit water management.
- The words investments / invested / funded for ODA refer to gross disbursements of ODA according to the OECD definitions. The words investments / invested / funded for government refer to government expenditure (2001 - 2011). In addition, investment data and analysis do not include any other forms of investment (such as, private sector investments).
- The benefit-cost analysis on expansion of irrigation is based on very limited data and any decisions should be based on detailed cost-benefit analysis that incorporates all relevant local data.

Disclaimer
The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.