



Vietnam Market for Environmental and Pollution Control Equipment and Services

By U.S. Commercial Service – Vietnam
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Overview

	2010	2011	2012 (estimated)
Total Market Size	750	790	830
Total Local Production	415	435	455
Total Exports	0	0	0
Total Imports	335	355	370
Imports from the U.S.	28.5	29.5	31

The above statistics are in \$ millions and are unofficial estimates, based on total ODA funding of environmental projects underway and in the pipeline, as well as projects undertaken by urban and industrial entities including water resources funds.

Vietnam is facing an increasing number of environmental pollution challenges including air, water, and solid waste pollution. Major factors contributing to these problems include high population growth rate, rapid urbanization, accelerating industrialization, and weak enforcement of the Law on Environmental Protection and Development.

Sub-Sector Best Prospects

Water Supply

The lack of clean water is one of Vietnam's most pressing environmental concerns. At present, it is estimated that only about 70 percent of the Vietnamese population has access to potable water. A high rate of water loss, averaging 32 percent, further aggravates the problem. In order to improve upon this situation, the Prime Minister recently issued Decision 1929/QD-TTg on approval of the "Orientation for Development of Water Supply in Vietnam's Urban Centers and Industrial Parks Leading to 2025, and Vision for 2050". The Decision sets a target of supplying clean water to all urban cities, towns, and limiting the rate of water loss in these cities to less than 15 percent by 2025. By 2050, all urban cities, towns, and industrial parks will be supplied in a stable manner with high quality of services.

To this end, the GVN is using Official Development Assistance (ODA) funding to develop water distribution networks. The ODA funds are used for three major water supply programs: (i) World Bank water supply projects for small and medium cities, (ii) Finnish water supply projects for the northern mountainous areas, and (iii) Agence Francaise de Development (AFD) water supply projects for Mekong Delta provinces. However, it is estimated that ODA will be gradually reduced, since GDP per capita surpassed the \$1,000 threshold as of the end 2010. In that context and in view of the enormous demand, the GVN strongly encourages private participation in the development of water supply facilities and has created policies to encourage investments including Decree No. 117 on Water Supply and Environmental Sanitation; Decree No. 88 on Drainage System Management; and Decree No. 59 on Solid Waste Management.

Currently the 240 water treatment plants in Vietnam, produce over 4.7 million cubic meters per day for urban consumption, but only meet about 70% of demand.

Waste Water

In addition to water supply, one of the most pressing environmental concerns and a top government priority is drainage and sewage. Due to rapid and ongoing urbanization and industrialization, improved municipal and industrial wastewater treatment has emerged as a critical need. The total investment required to meet sewage and drainage system needs throughout the country is estimated to be two to three times the total investment for water supply projects.

Most of the cities and provinces have no centralized wastewater treatment plants. Both storm water and household wastewater are commonly discharged through combined outdated drainage systems into canals and rivers without treatment. The development of wastewater treatment facilities in industrial parks has also become a pressing need. Currently, only about ten percent of industrial parks have centralized wastewater treatment plants.

In November 2009, the Prime Minister approved the "Orientation for Development of Water Sewage and Drainage Systems in Vietnam's Urban Centers and Industrial Parks Leading to 2025, and Vision for 2050". According to the directive, by 2025 all urban cities class IV and above will have centralized municipal wastewater treatment and collection systems; 70-80 percent of municipal wastewater will be collected and treated properly. All traditional handicraft villages will have centralized or decentralized wastewater treatment facilities. By 2050, all urban cities class IV and above will have storm water discharging systems as well as wastewater treatment systems. The Government will give priority in using ODA funds to developing urban water drainage systems, especially in major cities and in areas that are prone to natural calamity. The Government also encourages funding from both domestic and foreign individuals and institutions in developing water drainage and wastewater treatment systems.

Class I cities: population > 3 million.

Class II cities: populations between 1 million - 3 million.

Class III cities: population < 1 million.

Class IV & V cities: considered as small provinces, cities, and towns.

Municipal Waste Water

According to the Hanoi Drainage Company, the city discharges 450,000 to 510,000 cubic meters of wastewater per day into lakes and rivers. Over 90% of the city's wastewater is discharged directly into lakes and rivers without treatment, making these watercourses seriously polluted. Currently, Hanoi has only one wastewater treatment plant (Bac Thang Long - Van Tri) and two small wastewater treatment units (Kim Lien and Truc Bach).

Ho Chi Minh City discharges 1.2 million cubic meter of wastewater per day. Similar to Hanoi, the City's wastewater is mainly discharged into rivers. Ho Chi Minh City authority is launching the 3 big projects in order to solve the waste water problem of the city under the management of Steering Center of the Urban Flood Control Program of Ho Chi Minh City:

- The interception and Cat Lai Centralized Waste Water Treatment plan. This plant is used to treat the whole city. The estimated investment value is US\$450- 500 million.

Design and EPC contractor shall be selected via a public bidding process which is planned to start in 2012. The HCMC Steering Center for Urban Flood Control is working on the bidding document for the design of this project. Since this is a World Bank project, the Invitation for Bid (IFB) will be announced publicly sometime within 2012. The construction is to start in 2013.

- The collection system and the waste water treatment plant for Western area of the city and Binh Tan District. The investment value is US\$700 – 800 million. This project is looking to start a feasibility study and for financial support.
- The interception and Tan Hoa Lo Gom waste water treatment plant. Total estimated value is US\$350 – 400 million.

According to HCMC's 2020 master plan for wastewater drainage, which was approved by the Prime Minister, the City will need an additional eight wastewater treatment plants of similar size with a total investment of up to \$4 billion to resolve its wastewater drainage problem. These projects are under the management of the HCMC Steering Center for Urban Flood Control. (<http://ttn.hochiminhcity.gov.vn/web/guest/gioi-thieu1>)

In the Prime Minister's Decision No. 1336 on the development of the drainage system and wastewater treatment for economic development zones, total investment requirement for implementation, excluding resettlement cost, was estimated at \$3.4 billion. In the decision, the Prime Minister made it mandatory for new urban residential areas and industrial parks to plan and construct separate drainage systems for storm water and wastewater. Municipal and industrial wastewaters are further required to be pre-treated to ensure compliance with environmental standards before being discharged into the city's drainage systems. As a result, the Government encourages cost-effective and environmental friendly wastewater treatment technologies.

Industrial Waste Water

Pollution violations by industrial manufacturers have drawn much media, government and public attention in the recent past. Public interest groups have begun to highlight the impact of polluting manufacturers on the environment and economy. Violating manufacturers are beginning to feel the negative impacts of boycotts by their associates and customers. Polluting companies have also had some difficulty in accessing bank funds, as more banks are adjusting their policies to avoid lending to clients on the environment black list. Highly visible cases have been discussed at National Assembly meetings since Q4 2008. These recent developments have triggered an intensification of monitoring and inspection of industrial environmental pollution.

Industrial parks (IPs) represent an attractive market for wastewater treatment plants since the government is pushing industries harder on environmental compliance. There are many centralized wastewater treatment facilities under construction or were put into operation in industrial parks including the Vinh Loc IP, Tan Binh IP, and High-Tech Park in the south, and the Pho Noi IP in the north. For instance, a wastewater treatment plant with a capacity of 5,000 cubic meters per day in High-Tech Park was put into operation on September 10, 2009; another wastewater treatment plant with a capacity of 10,000 cubic meters per day is under construction in Long Giang IP in Long An province.

Solid Waste

According to the Ministry of Construction, Vietnam's waste amounted to over 30 million metric tons in 2011, with municipal waste from households, restaurants, markets, and businesses sources accounting for over 80 percent of the total. Given a growing population, rapid urbanization and increased consumption, municipal waste is expanding considerably. With this growth, it is anticipated that waste generation will increase to 36 million metric tons by 2015, 47 million metric tons by 2020, and 54 million metric tons by 2025, and that the types of waste produced will continue to undergo a change from more degradable to less degradable and more hazardous.

For the most part, municipal waste is concentrated in urban areas, while industrial waste is concentrated in economic zones, industrial parks, and urban areas. Growth in hazardous-waste-intensive industries such as chemical products and electronic products is expected to increase the proportion of hazardous waste in Vietnam. There is an urgent need to establish industrial hazardous waste management systems, including factory-based handling, treatment, and disposal systems, and centralized hazardous waste treatment facilities. Hazardous waste from industries and hazardous healthcare waste from hospitals, while much smaller in terms of quantities, are also burning issues because they pose high health and environmental risks if not properly handled and disposed.

Hazardous healthcare waste is increasing more rapidly as a result of the adoption of new medical techniques, greater use of disposable medical equipment such as plastic syringes, and an increase in tests, therapies, and operations.

Waste handling in Vietnam, including collection, treatment and disposal is mainly carried out by Public Urban Environment Companies (URENCOs), which are responsible for the collection and disposal of municipal waste, including domestic, institutional, and in most cases also industrial and healthcare waste. Although there have been significant improvements by URENCOs in handling waste, most of the municipal waste in Vietnam is not safely disposed of. The dominant form of disposal of municipal waste remains open dumping. In many areas, self-disposal methods – such as burning or burying waste, or dumping in rivers, canals, and open fields – is common. Out of the 91 disposal sites in the country, only 17 are sanitary landfills.

Hazardous waste handling remains weak. Industrial hazardous waste treatment systems are largely inadequate. Given the lack of treatment facilities and limited incentives for safe disposal, many industries use a variety of unsafe methods of treatment and disposal, including allowing URENCOs to collect and dispose the hazardous waste with municipal waste, storing hazardous waste onsite, selling to recyclers, or even dumping indiscriminately.

Hazardous healthcare waste treatment capacity is expanding but is hindered by poor technical capacity. Vietnam has built 43 modern medical waste incinerators since 1997, bringing its total capacity for incineration of hazardous healthcare waste up by roughly 50 percent.

The composition of Vietnamese waste makes composting potentially attractive. The high proportion of organic matter in municipal waste provides great potential for composting, which can reduce disposal costs while producing a marketable soil conditioner for agricultural and public uses. Given the strong market for composting fertilizers once source separation becomes successful, the effectiveness of centralized composting facilities could increase considerably.

The government strongly encourages private sector participation in solid waste collection, separation, transportation and treatment. Polluters Pay is compulsory by regulation. Entities generating solid waste are responsible for waste collection, transportation and treatment fees. Regulation also requires that waste be separated at the sources of generation. In order to minimize burying waste, the government recommends new technologies to treat less degradable waste.

Over the past decade, commendable efforts have been made to develop a policy and legal framework for environmental protection, particularly for the management and disposal of waste streams, specifically the Strategy for the Management of Solid Waste (SWM) in Vietnam Cities and Industrial Parks (1999), the National Strategy for Environmental Protection (2003), the government's Decree 59/2007/ND-CP on Solid Waste Management (2007), and the recently approved by Prime Minister 'National Strategy for solid waste management until 2025, with a vision toward 2050'. The Prime Minister also endorsed the list of ten specific programs to implement this National Strategy.

Opportunities

Funding for water supply and wastewater projects comes from various sources within the state budget, as well as Official Development Assistance (ODA) loans and grants. ODA financing plays a key role, with major donors being the World Bank, the Asia Development Bank and bilateral contributors such as Japan, France, Denmark, the Netherlands, Finland, Germany, and Australia. The World Bank (WB) leads the group of multilateral donors with a commitment of US\$2.6 billion for Vietnam in 2011, and \$2.1 billion in 2012. The Asian Development Bank (ADB) has committed US\$1.5 billion in 2011 and approx. \$1.4 billion in 2012.

In 2011, ADB approved a Multi-tranche Financing Facility (MFF) in the water supply and sanitation sector with a total amount of \$1.0 billion within the next ten years. This investment program will help water supply companies in Viet Nam improve their performance. It will support capital investment in water companies and co-finance the National Nonrevenue Water (NRW) Program. The program will utilize an MFF to provide longer-term support for institutional reform in the Viet Nam water sector until 2020. The MFF will be used as seed money to leverage parallel co-financing and, importantly, gain access to commercial finance and increased private sector participation. Four pilot cities—Da Nang, Hai Phong, Ho Chi Minh City (HCMC), and Hue—were identified for project preparation in 2008. The first periodic financing request (PFR) will cover HCMC. Subsequent tranches will finance part of the National NRW Program and investment subprograms consisting of water supply infrastructure for provincial water companies, duplicating the model established with HCMC in PFR1. Several cities have initiated discussions with the government to finance future tranches totaling over \$300 million for water production plants, transmission and distribution networks.

The Vietnamese government intends to invest \$2.8 billion in the Vietnam water sector by 2020. It has requested an MFF of up to \$1.0 billion from ADB's ordinary capital resources to help finance the investment. The MFF will have several tranches, subject to the government's submission of PFRs and execution of loan and project agreements. The indicative investment plan for the MFF is in following table:

Indicative Investment Program (MFF: 2011–2020)

(\$ million)

Cities	PFR1 2011	PFR2 2012	PFR3 2013	PFR4 2015	Total
Hochiminh City	138				138
Da Nang		47	30		77
Hue		40	20	20	80
Hai Phong		63	0	0	63
Nonrevenue water		0	100	150	250

Future cities		50	150	192	392
Total	138	200	300	362	1,000

MFF = multitranche financing facility; PFR = periodic financing request.

Note: The schedule and amounts are indicative, to be confirmed year to year by the country programming mission. PFR1 is using 2010 country ordinary capital resources allocation.

Source: Asian Development Bank

Whether funded multilaterally or bilaterally, projects funded by ODA offer numerous opportunities for foreign equipment suppliers, and engineering and consulting firms.

Local production of environmental equipment does not meet market demand, especially the requirements of ODA-funded projects. Technical conditions/requirements governing many ODA projects dictate that many materials must be imported. For instance, equipment for water supply (water meters, valves, pumps, motors, water treatment chemicals, water filtration systems, water control and monitoring equipment, etc.) and most wastewater treatment equipment must be imported. Equipment packages over \$500,000 are typically procured through international competitive bidding. Among imports, U.S. products and technologies are highly regarded for their high quality.

In addition to municipal and donor-funded projects, market demand is also being driven by certain industrial users. Industrial parks represent an attractive market for wastewater treatment systems, because Vietnam has to import nearly all of the key components of these systems.

The market for water and wastewater treatment services centers on consultant contracts for ODA funded projects.

Web Resources

Information relating to environmental projects can be found on the following sites:

World Bank – Vietnam Projects and Operations

http://www.worldbank.org/projects/search?lang=en&searchTerm=&countryshortname_exact=Vietnam&src=

Asia Development Bank – Vietnam Projects and Operations

<http://www.adb.org/countries/viet-nam/main>

Ministry of Natural Resources and Environment (MONRE)

www.monre.gov.vn

Vietnam Environment Administration

www.nea.gov.vn

Further information can be obtained from the U.S. Commercial Service in Ho Chi Minh City and Hanoi via the following addresses and website:

Ms. Ngo Anh, Commercial Specialist

U.S. Commercial Service, U.S. Embassy in Hanoi

Email: ngo.anh@mail.doc.gov

Ms. Doan Van, Commercial Specialist
U.S. Commercial Service, U.S. Consulate General
Email: van.doan@trade.gov