

## SECTOR REPORT- ENVIRONMENT

Vietnam produces an annual average of more than 15 million tonnes of waste, including 4.7 million tonnes of solid industrial waste, according to the Ministry of Natural Resources and Environment<sup>1</sup>. With its rapid industrialisation and urbanization, population growth, and weak enforcement of the laws on environmental protection, improper disposal of waste and its consequent problems have imposed challenges to the economic growth of the country.

### *Waste Water*

Drainage and sewage have been a serious issue and of top government priority, with national investment from 2011 to 2016 being estimated at 236,2 million USD (including 200 million USD from World Bank) - two to three times that of the total investment for water supply projects<sup>2</sup>. The government also give priority in using ODA funds for developing urban drainage systems, and have called for funding from foreign and domestic entities in developing water drainage and wastewater treatment systems.

According to 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”, by 2025 most urban cities will have centralized municipal wastewater treatment and collection systems; and 70-80 percent of municipal wastewater will be collected and treated properly.

### *Industrial Waste Water*

As of 2016, there were 316 industrial parks and 16 economic zones in the country<sup>3</sup>. About 240,000 cubic meters, equal to 75 percent of wastewater, is being discharged into lakes and rivers without treatment every day, according to a report from Ministry of Natural Resources and Environment.

Pollution violations by industrial manufacturers have drawn much public attention and triggered an intensification of monitoring and inspection of industrial pollution as the public recognized the negative impacts on their living environment and the economy. The environmental impact of industrial waste from the footwear manufacturers has specifically been of focus due to their use of hazardous chemicals and discharge of leather, rubber and PVC in huge amounts, which are hard to decompose under natural conditions.

Violating manufacturers are beginning to feel the impacts of boycotts by their associates and customers, and having some difficulty accessing bank funding, as more banks are adjusting their policies to avoid clients on the environmental black list.

### *Solid Waste*

Solid waste continues to increase throughout the country due to rapid industrialization, urbanization, and population increase, and is expected to reach 44 million tons annually, according to the Vietnam Environment Administration. Currently, 46 percent of this solid waste is being discharged from the urban areas, 17 percent from industrial production zones, and the remaining from rural areas, trade villages and the medical sector.

About 80 percent of the waste is being buried in landfills; the rest is treated by burning in industrial incinerators. The country has more than 450 landfills but only around 120 follow proper sanitary regulations<sup>4</sup>. Temporary landfill sites are already overloaded, while the technology at incineration plants is very basic and insufficient.

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<sup>1</sup> <http://english.vietnamnet.vn/fms/environment/175883/vietnam-seeking-solutions-to-industrial-waste.html>

<sup>2</sup> <http://dwrn.gov.vn/index.php?language=vi&nv=news&op=Hop-tac-quoc-te/Bo-sung-von-du-an-Cap-nuoc-va-nuoc-thai-do-thi-4465>

<sup>3</sup> <http://tapchitaichinh.vn/kinh-te-vi-mo/kinh-te-dau-tu/viet-nam-hien-co-316-khu-cong-nghiep-16-khu-kinh-te-88054.html>

<sup>4</sup> <https://www.export.gov/article?id=Vietnam-Environmental-and-Pollution-Control-Equipment-and-Services>

Another concern is waste collection and separation. Waste collection in urban areas is only at 80-82 percent and 40-55 percent in rural areas. Most of the solid waste produced in urban areas is not classified at its source, but often mixed together. Therefore, landfills have to receive waste of different kinds, from domestic garbage, electronic waste, industrial solvents to hazardous waste containing mercury, arsenic, cadmium and lead. Additionally, there is very little recyclable material left once the waste reaches the treatment plants, as scavengers and garbage collectors have already collected the recyclable material including cans, PET bottles, scrap metal, wiring, plastic bags, and paper to sell.

## **Opportunities**

For solid waste, the government strongly encourages private sector participation in solid waste collection, separation, transportation, and treatment. Việt Nam lacks the technology to identify dioxins and other pollutants, and upgrade landfills. An efficient solution is needed for this.

Also, the government encourages new technologies to treat less degradable waste. It is mandatory for new urban residential areas and industrial parks to plan and construct separate drainage systems for storm water and wastewater. In this sense, industrial parks represent an attractive market for wastewater treatment systems.

On the other hand, wastewaters are further required to be pre-treated before being discharged into the city's drainage systems. Thus, the government encourages cost-effective and environmental friendly wastewater treatment technologies and products into Vietnam.

Local production of environmental equipment does not currently meet market demands. Technical equipment including water meters, valves, pumps, motors, water treatment chemicals, water filtration systems, water control and monitoring equipment, etc. must be imported.

Demand for environment consultancy services, including environmental impact assessment capabilities, is rising. More than 2,000 projects in Vietnam are required to make environment impact assessment (EIA) reports each year. Domestic engineering and consulting firms can perform EIAs, but foreign developers prefer to work with foreign engineering and consulting firms because domestic firms often don't have the expertise to perform EIAs to global standards.

Vietnam is increasingly turning to renewable energy solutions, according to Japan's New Energy and Industrial Technology Development Organisation. Vietnam's first green energy waste-to-power facility in the Nam Son waste treatment area, developed by Japan's Hitachi Zosen Corporation and Hanoi Urban Environment Company, began supplying electricity to the national power grid in 2017<sup>5</sup>. Energy production from solid waste in urban areas is forecast to increase by 10-16 percent, heard a workshop on the topic of "Handbook for the development of grid-connected power generation from solid waste in Vietnam" by the General Department of Energy, Ministry of Industry and Trade in collaboration with German Development Cooperation (GIZ) in Hanoi on August 18th 2017. (Ministry of Industry and Trade, 2017)

Vietnam is also moving forward with co-processing methods to transform disposal waste. Co-processing makes best use of the 2000degree Celcius heat in cement kilns to destroy waste completely, leaving no residues for landfilling and thus reducing carbon dioxide emissions. Co-processing is recognised and encouraged by international institutions such as the World Health Organization, World Business Council for Sustainable Development, Hazardous Chemical and Waste conventions, the Basel Convention, The European Cement Association, and German Technical Corporation.<sup>6</sup>

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<sup>5</sup> <http://www.vir.com.vn/waste-to-power-is-twice-sustainable.html>

<sup>6</sup> <http://vietnamnews.vn/environment/377027/co-processing-solution-for-industrial-waste.html#MOACZiAfi7vsYzdQ.97>

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