ECO-INDUSTRIAL PARKS VIET NAM
OPPORTUNITIES AND REGULATORY CHALLENGES FOR INDUSTRIAL WATER REUSE IN VIET NAM
THE STATUS QUO OF INDUSTRIAL WATER REUSE IN VIETNAM

**Water uses in Viet Nam (yr 2005)**

- **95%** Industry
- **4%** Municipalities
- **1%** Irrigation + livestock

**Main industrial uses of water:**
- Process water
- Cooling
- Steam generation

**Key water intensive industry sectors:**
- Food and beverage processing
- Textile processing
- Chemical manufacturing

**Water withdrawal by source (yr 2005):**
- Total water redrawal = 82.03 km³
- Surface water = 98.1% (80.45 km³)
- Groundwater = 1.7% (1.4 km³)
- Direct use of treated wastewater = 0.2% (175 million m³)

**Existing policy and regulatory framework**

**Current regulatory framework in relation to industrial water reuse**

Decree 80/2014/ND-CP (Article 24) on the management and reuse treated wastewater.

- Reusing treated wastewater must comply with appropriate standards and national technical regulations applicable to intended applications, not affecting the community’s health and safety, and ensuring environmental hygiene;
- Treated wastewater has to be delivered to the user by a separated piping system, ensuring no intrusion and no impact to clean water supply system in the same area;
- The Ministry of Natural Resources and Environment (MONRE) shall coordinate with other related ministries.

Circular 04/2015/TT-BXD regulates that treated wastewater to be reused for direct applications (e.g. agricultural irrigation, watering trees, cleaning roads and vehicles, reuse in industry) has to meet national standards of used water for the corresponding applications.

- For example, wastewater reuse for watering trees has to meet column A QCVN14/ 2008/BTNMT and a plan for the wastewater reuse must be approved by MONRE or other relevant ministries (Ministry of Agriculture).

Currently companies submit a request letter to MONRE outlining their intention for reusing wastewater. MONRE will review the request and provide instructions customised to each case, including additional documentation that is required. An approved Environmental Impact Assessment (EIA) is compulsory.

**Current challenges**

- There is currently no detail guidance on how to obtain the approval from the government for reusing wastewater. There are national standards issued by Ministry of Science and Technology, but it is often not known which standard is applicable in individual cases.
- It is a long process to obtain government approval for water reuse, because detailed data is required by the government on the water quality and intended reuse. Extensive monitoring and reporting systems are required for wastewater treatment and reuse.
- Companies must discharge their effluent to a centralized wastewater treatment facility or other treatment unit (Article 9, circular 35/2015TT-BTNMT). Companies are not allowed to transfer their wastewater to another company which does not have a wastewater treatment function registered in its business license.
- Industrial water reuse is very sensitive, because authorities are concerned that companies will take advantages of the approval to discharge unqualified treated wastewater into the environment.
Heineken Vietnam is a subsidiary of Heineken, the world’s most international brewer. Headquartered in the Netherlands, the Heineken-owned business bears and distributes over 200 million hectolitres of beverages in more than 190 countries. Heineken Vietnam is a recognized leader and a pioneer in environmental sustainability in the Vietnamese market, with several programs and initiatives to improve water and resource efficiency. From its commitment to efficiency in production processes to its support to education and environmental awareness programs, Heineken Vietnam is always a driving force in driving the country towards a more sustainable future.

In addition to closely managing its water consumption, Heineken Vietnam believes that prudent water management is critical to sustain its valuable water sources and ensure the long-term viability of its operations. Heineken Vietnam has been recognized as the most sustainable company in Vietnam by the Vietnam Chamber of Commerce and Industry (VCCI) based on the Vietnamese Corporate Sustainability Index (VCSI).

Specific water consumption [hl/beer]
- 2014: 4.37
- 2015: 4.22
- 2016: 4.03
- 2017: 3.87
- 2018: 3.72
- 2019: 3.60
- 2020: 3.53

Over the years, Heineken’s production processes have been continuously improved to transition towards a more regenerative and sustainable resource management, where resources are reused, recycled and released back into the product lifecycle, while inhalent are utilized resources as an efficient and responsible manner.

The goal of Heineken is to be beyond mere pollution abatement and instead work to improve the health and benefits of society and the environment as well as ourselves. Heineken’s strategy for regenerative and sustainable resources management is to: improve the water management system through technological improvements; have the treated wastewater converted into renewable energy; and to take actions that stimulate the circular economy. Heineken Viet Nam has also achieved water consumption reduction at its three sites since 2014. As a result, all our breweries have also achieved a more water-efficient resource management.

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Capturing the opportunities for industrial water reuse in Viet Nam

The demand for industrial water reuse is increasing in order to conserve water resources but also for companies to save on their production costs. Further, the Government of Viet Nam is pushing for the country to transition into a circular economy. Various initiatives are under development and being implemented to facilitate this transition. For example, the Vietnam Environment Administration (VEA) is planning to review existing regulations on the management of treated wastewater with a view of streamlining these. Another government initiative is the implementation of Decree 82, as outlined below.

Decree 82: Policy framework to support industrial water reuse

The recently approved Decree 82/2018/ND-CP ‘Management of Industrial Parks and Economic Zones’ prescribes the planning, establishment and operation of policies on and state management of, industrial parks and economic zones. The Decree explicitly mentions instructions for the implementation of Eco-Industrial Parks (EIP). Value recovery and reuse of industrial by-products, energy, and water are key elements of the EIP concept. The Decree 82 aims to further remove regulatory barriers to could hamper EIP development, including industrial water reuse.

Decree 80/2014 regulates the drainage and treatment of wastewater including its reuse. As part of Decree 82/2018 (Article 42) it is compulsory for an industrial park to have at least one industrial symbiosis implemented in order to be recognized as an eco-industrial park. Industrial symbiosis is defined as the cooperation between enterprises to optimize the use of natural resources, including (waste)water. Therefore, both Decree 80 and Decree 82 include a focus on enabling the sustainable and safe reuse of industrial wastewater.

To support the implementation of Decree 82, it is envisaged that Ministerial circulars on industrial water reuse will be developed. These circulars will serve as national technical guidelines for both industries and government authorities to streamline the approval processes for industrial water reuse in a safe and sustainable manner.

In 2019, UNIDO will support the Government of Viet Nam with the development of the circulars for industrial water reuse in Viet Nam. This activity is led by the Ministry of Planning and Investment.

If you would like to learn more about this case study or be involved as stakeholder in the operationalization of Decree 82/2018/ND-CP on industrial water reuse in Viet Nam, please get in touch with us at EIP@unido.org.