

**Statement at East Asian and Middle-South American Conference on
Environmental Industry**

*Subject: “Sanitation of Water Source and Treatment of Garbage and Wastes” in Hanoi City
(in November 2012)*

Hanoi is the Capital of Vietnam with the area of more than 3,344 km² and population of more than 6.3 million people in 10 urban districts, 1 town and 18 rural districts.

In 2008, when the administrative border of the City was extended, the high rate of urbanization and development has caused that technical infrastructure system of the City cannot meet the demand. Urban traffic congestion regularly occurs on large scale; environmental pollution of water source, air and noise has raised. A lot of areas in the City can not reach the treated water supply; there are some areas where water source is polluted and ammonium content of water is much higher than allowable level. Most of urban drainage network is out of date with limited scale and maintenance is not ensured. This causes flood in rainy season. More than 90% of urban wastes has not yet been treated and directly discharged into rivers and lakes inside the City which makes environmental pollution becoming more serious. Urban garbage collection and treatment faces with many difficulties and entanglements; collection is not carried out comprehensively and collected garbage is mainly transported for burial, filling and not treated, etc.

In the agenda framework, we would like to report 3 main matters. Those are: urban water supply; drainage and wastewater treatment; garbage treatment and urban solid wastes

I. WATER SUPPLY

Hanoi water supply system is divided into urban water supply sub-system and rural water supply sub-system. The urban water supply sub-system consists of the whole areas of urban districts and areas with water supply network from centralized water source of the City. The rural water supply sub-system consists of rural districts where water supply network are small-sized and independent.

The urban water supply sub-system of the City is assigned for four (04) Water Supply Companies. In each service area, each Company is responsible for exploitation, production and supply of treated water for water users. The water has met the required quality according to Vietnamese regulations and standards and service extent in compliance with the contracts with water-using customers. Total supplied water

volume for urban areas of the City is approximately 870,000m³/day, 80% of which supplied from underground water; more than 95% of the urban residents in 10 urban districts have used treated water and have met unit water demand of 130 litre/capita/day. Some water treatment plants in the South of Hanoi use underground water source which has been polluted and ammonium content of water is 5 to 10 times (7-20 mg/l) higher than allowable standard.

In July 2011, the Government approved Hanoi Capital Construction Master Plan to 2030 and Vision to 2050 (hereinafter called Master Plan). On the basis, Capital Water Supply Plan Scheme up to 2030 and Vision to 2050 (hereinafter called Water Supply Plan) was studied at the same time in order to detail water supply orientations of the Master Plan and propose investment projects in line with socio-economic development demand of the City in each period. Water Supply Plan was completed and submitted for approval. Accordingly, the highest water demand for urban areas will be 1,560,000 m³/day, 2,360,000 m³/day and 3,150,000 m³/day in 2020, 2030 and 2050, respectively. Underground water source (at present accounts for 80% of the supplied water volume) will be decreased in exploited water volume because of degraded drilling wells, polluted water source, collapse and settlement of soil ground. Surface water source of rivers such Da River, Red River and Duong River will gradually replace the existing water source. According to the survey and assessment of water source of the rivers, they secure capacity, quality of exploitation, production and supply for urban areas of the City.

**** Investment Projects for Construction of Water Treatment Plants in future comprise:***

- Investment project for construction of Red River Surface Water Treatment Plant with capacity of 150,000 m³/day at first stage up to 2015; capacity of 300.000 m³/day at second stage up to 2020 (including main transmission pipelines);

- Investment project for construction of Duong River Surface Water Treatment Plant with capacity of 150,000 m³/day at first stage up to 2015; capacity of 300,000 m³/day at second stage up to 2020 (including main transmission pipelines).

**** Solutions to attract foreign investment and investment projects***

- Vietnam Government issued regulations on preferential investment and assistance policies for foreign investment projects: Decree No. 117/2007/ND-CP and Decree No.124/2011/ND-CP on treated water production and supply for urban areas and industrial parks; Decree No. 108/2009/ND-CP and Decree No. 24/2011/ND-CP on investment in the form of Build-Operate-Transfer (BOT), Build-Transfer-Operate (BTO), Build-Transfer (BT) Contract; Decision No. 71/2010/QĐ-TTg promulgating the regulation on pilot investment in the Public-Private Partnership form. According to the regulations, investors enjoy preferential treatment and cost assistance such as exemption of land use and rental fee; compensation and land acquisition; exemption of

import taxes of materials, equipment, machines, special vehicles in technology line. Also, preferential policies of corporate income tax and natural resource tax are applied. In addition, related utilities such as power and water supply and other utilities up to boundary of project, etc are provided.

- Foreign investment projects succeeded in water supply field. They are Gia Lam Water Treatment Plant with capacity of 30,000 m³/day completed in 1994; Thang Long North-Van Tri Water Purification Plant with capacity of 50,000 m³/day completed in 2004. These projects were invested by non-refundable assistance loans and ODA loan of Japan Government. The projects were completed and put into operation and have brought practical effectiveness and improved domestic living conditions and sanitation for residents in the project area in particular and the City in general.

At present, Japan International Cooperation Agency and some partners of Japan are coordinating with Hanoi Water Company (Hawaco), Vietnam Water and Environment Investment Corporation (Viwaseen) are preparing and finalizing Feasibility Study Report on Investment Project for Construction of Duong River Water Treatment Plant with its capacity of 150,000 m³/day at first stage and 300,000 m³/day at second stage. The Project is under the process of reporting, proposal and recommendation by Ministry of Construction to the Prime Minister to approve for the contents such as advocacy of project investment according to BOT form (originally according to PPP form); advocacy of changing the investor; approval for some mechanisms and preferential policies for the project.

II . DRAINAGE AND WASTE WATER TREATMENT

II.1. Drainage.

Drainage system in Hanoi was built over the periods, mainly combined systems (mixed) are concentrated in old urban area; Drainage capacity of this system is limited, inundation situation when rain occurs in many places, flooding lasts 3 to 5 days in some places.

In 1999, The 1st Hanoi Drainage project for environmental improvement in Hanoi was constructed by ODA loan of Japanese government. End of the 1st project in 2005, drainage situation in the urban area (To Lich basin with the length of 77.5 km²) has been significantly improved, reducing the number of flooding area, level and duration of flooding. For example, the rain on 15th July 1999 (before starting the project) with the rainfall was 150,9mm and flooding duration was 3 days, and after completion of the 1st project, the rain on 27th September 2005 with rainfall was 144,1mm and flooding duration was only 2-4h.

In 2009, The 2nd Hanoi Drainage project for environmental improvement in Hanoi has directly been implemented by ODA loan of Japanese Government. The

project focuses on improvement and construction of channels, ditches, reservoir lake, sewers, and improve the capacity of key Yen So pumping station from 45 m³/s (Phase I) up to 90 m³/s. This project is now under the construction and expected complete by 2014.

II.2. Wastewater collection and treatment.

Almost the system is combined sewer network, mostly sewerage hasn't been treated (account for 90% of total urban sewerage volume) and directly discharge into the river causing severe environmental pollution of surface water, air for urban residential areas. Monitoring document of environment agency showed that in some areas, the amount of BOD and COD in effluent water to rivers and lakes in Hanoi excess the permitted level from 1.5 to 9 times.

The 1st, 2nd Hanoi Drainage project for environmental improvement in Hanoi, in addition to the work focus on improvement, flooding prevention, the project has also invested in constructing some pilot WWTPs such as Kim Lien 3,700 m³/day, Trúc Bạch 2,300 m³/day; Bay Mau WWTP with the capacity of 13.300 m³/day, North Thang long WWTP of 42.000 m³/day by Japanese ODA loan. Also the Hanoi city invested in constructing Yen so WWTP with the capacity of 200,000 m³/day under BT method.

The third phase is in the process of promoting investment to construct Yên Xá WWTP with the capacity of 270.000 m³/day under PPPs (Orix corporation) in line with Japanese ODA loan.

Hanoi drainage planning to 2030, vision 2050 is finalizing the approval process. Accordingly, by 2030, the city needs to invest in construction of some surface water works, focal pumping stations with the capacity of 8 to 170 m³/s. Continue to call for the construction of WWTPs in the west of Nhue river of 62,000 m³/day and Phu Do 84,000 m³/day...

****Supporting policies and mechanism to attract foreign investment:*** similar to water supply sector.

III. RUBBISH AND SOLID WASTE TREATMENT

II. 1. Current status of solid waste management

- *Industrial waste*
 - + Hazardous industrial waste: 420 ton/day; treatment: burn
 - + Non-hazardous industrial waste: 1,000 ton/day; treatment: dumping.
- *Medical waste/toxic:* Weight:20ton/day; Treatment: burn.
- *Urban waste*

+ Total volume of urban waste generated in the city is around 6.800 ton/day, of which organic waste accounted for 70.9%, plastic 9.0%, ash brick 6.8% used paper 3.8%.

+ Collection method mainly by trolley: workers push trolley to the residential areas and use the gong to call people bring garbage to throw at the defined time , garbage shall be stored in a bins, then delivered by trucks to the treating place.

+ Most of the urban waste is processed by dumping method, only 5% are recycled to be fertilized, 4% are processed by combustion technology. At present, there are 3 sanitary landfills in Hanoi namely Nam son, Xuan son and Kieu Ky with the total capacity is of 4,390 ton/day on a total area is about 110ha; Some dumping sites located in suburban areas and 5 disposal sites are constructed with the total area of about 30ha.

II. 2. Some waste treatment projects are under implementation:

2.1 Soc Son solid waste complex (1st phase): total area: 83.4ha included 10 sanitary buried space officially commenced since 2000 and expected to receive garbage by 2015; industrial solid waste and medical solid waste spaces and leakage water treatment station.

2.1.1 CDM Project “Recovery and reuse of landfill gas emissions”: Made by PJI-LFGC company limited (Vietnam), this project is 100% of foreign investment (French). Gas extracted from No.1 to No.5 buried space with the aim at reducing green house emission and producing clean energy;

- This project is divided into to phases: phase 1- Recovery and treatment of waste gas generated from dumping site and phase-2- generate electric power obtained: power generation is about 5MWh.

- The project was implemented on June 2010 and it is expected to complete in 2017

- *Effective assessment:*

+ Reduction of greenhouse gas emissions and environment pollution , and improve the effeiciency of dumping site management.

+ Investors get profits from selling Certified Emission Reduction (CERs) in February and August 2012.

- ***Supporting policy:*** Free of land rent, land using, equipment imported tax, power selling subsidies if invest into the 2nd phase and enjoyed a number of priority policies under Decision No. 130/2007/QĐ-TTg of the Prime Minister on finance mechanism and policies for investment projects under the clean development mechanism.

2.1.2 Construction project for industrial waste treatment for power generation:

- Capacity: 75 ton/day; electricity production: 14.475 million KWh/year.

- Expected commencement at 1st quarter 2013

- Capital: NEDO- Japan sponsors 17 million USD (80%) included equipment for incineration power generation; Hanoi invests 4.25 million USD (20%) to cover construction, project management, project investment expenses and other expenses including contingency fund.

- This project will be implemented under the sample project to replicate the other provinces, districts over the country. Therefore, from now to the end of the year, the Investor and MONRE must fulfill necessary procedures to submit Government for approval in order to entitle priority policies on tax policy and preferential categories similar to the non-refundable ODA projects.

2.2 Soc Son solid waste complex (phase 2): with the area of 73.7 ha included 8 sanitary buried spaces; 2 garbage treatment plants by burning method; 1 compost processing factory; one recycle factory, 1 leakage treatment station and related support facilities. At present, buried spaces and technical infrastructure works has been constructed. All the work items are expected to be completed by the end of 2015.

- Solid waste treatment project under the recycling method, fertilizer production with capacity of 2,000 ton/day of AIC by BOT method.

- Foreign investors can invest in waste treatment plan, wastewater in the form of FDI, ODA or PPPs.

2.3 Domestic solid waste treatment in Xuan son:

* Phase 1: 13ha, sanitary landfill technologies included 3 buried spaces. Spaces 1 and spaces 2 already full and temporary covered by land, this landfill is expected to close in the middle of 2013. Foreign investor can refer to gas recovery project investment for 1st phase Nam Son waste treatment

* Phase 2: 13 ha consist of 2 sanitary landfills, 1 waste disposal by combustion method; 1 waste recycle plant, leakage water treatment works, reservoir lakes and auxiliary works. At present, 1 landfill (3ha) is on the way to apply Fukuoka semi-aerobic technology .

- Garbage incineration project of SARAPHIN company with the capacity of 300 ton/day came into operation; 2 units x300ton/day will be expanded in the near future, it is expected to complete in 2013.

- Foreign investment can invest in waste treatment plants, leakage treatment in the form of ODA, FDI or PPPs.

3. Ability to attract Japanese companies in the field of waste treatment

Japanese companies invest in waste treatment sector in Vietnam have chance to enjoy favourable policies on investment under the Decree No. 04/2009/NĐ-CP dated 14th January 2009 of the Prime minister on mechanisms, policies and finance for finance investment projects under the clean development, including some major

contents such as: exemption regulations on land rent, land use; exemption or reduction of goods imported tax, free to environment protection activities; subsidy, support in goods consumption and other favourable conditions for environment protection activities.

The above mentioned issues are the content of our presentation in this conference on water sanitation, waste disposal and solid waste treatment.

Thank you for listening.

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