

HANDLING OF SOLID WASTE IN VIETNAM

Presentation at the 4th Civil Engineering Conference in the Asian Region held by the Asian Civil Engineering Coordinating Council (ACECC) in Taipei 26-28 June, 2007

Dr. PHAM Sy Liem

Institute for Urban Studies and Infrastructure Development,
Hanoi, Vietnam



Dr. Pham Sy Liem (×, VFCEA Vice Chairman), Prof. Jenn-Chuan Chern (–, ACECC Chairman 2004-2007), Mr. Paul Mitchell (◦, ACECC Chairman 2007-2010) and delegates of the ACECC Executive Committee Meeting

Abstract: Solid waste is a growing problem for Vietnam. Vietnam produces over 15 million tons of waste each year from various sources. The handling of waste - including reuse and recycling, collection, treatment and disposal - is crucial to providing a cost - effective waste management system that is able to reduce public health and environmental risks.

Key words: Waste handling - hazardous - landfill.

1 INTRODUCTION

After fifteen years of renovation, Vietnam has made significant achievements in socio-economic development and environmental protection. As a result, GNI in the year 2005 is 3.48 times the level it was in 1990.

Vietnam is in the midst of a rapid industrialization, modernization, and urbanization. At the same time, solid waste generation is becoming a growing problem, posing serious environmental concerns,

requiring concerted efforts by government, industries, hospitals, solid waste operators, and individuals to establish effective handling, treatment and disposal systems through a combination of policies, financing, public awareness and participation, and support from international development agencies.

2 CURRENT SITUATION

2.1 Waste generation.

Table 1. Solid Waste Management in Vietnam

Municipal solid waste generation (tons/yr)	
• National	12, 800, 000
• Urban areas	6, 400, 000
• Rural areas	6, 400, 000
Hazardous waste generation by industries (tons/yr)	128, 400
Non hazardous waste generation (tons/yr)	2, 510, 000
Hazardous healthcare waste generation (tons/yr)	21, 000
Hazardous waste from agriculture (tons/yr)	8, 600
Amount of stockpiled agriculture chemicals (tons/yr)	37, 000
Municipal waste generation by each person (kg/day)	
• National	0.4
• Urban areas	0.7
• Rural areas	0.3
Collection of waste (% of waste generated)	
• Urban areas	71 %
• Rural areas	< 20%
• Among urban poor	10-20%
No. of solid waste disposal facilities	
• Dumps and poorly operated landfills	74
• Sanitary landfills	17
Capacity for hazardous healthcare waste treatment (% of total)	50%

Vietnam produces over 15 millions tons of solid waste each year (Table 1) from various sources, and dramatic increases in waste generation are expected, due to more affluent lifestyles, larger quantity of commercial activities, and more intense industrialization and urbanization. These activities also increase the proportion of hazardous waste, non-degradable waste and construction demolition waste found in urban waste. Hazardous healthcare waste poses a significant threat to public health.

In rural areas, rural industrial waste from 1,450 craft villages must be considered with attention. Agricultural activities produce large amounts of toxic pesticide residues, posing the risk of further environmental impacts.

2.2 Waste handling

Over last ten years, the handling of waste – including reuse and recycling, collection, treatment and disposal - is improving in cities, but is limited in rural areas.

Waste handling is carried out in each city by Public Urban Environment Company (URENCO), which is responsible for street sweeping, collection and disposal of municipal waste, and in most cases also industrial and healthcare waste.

Average collection rates remain low in many cities, range from 45 percent in small cities to 80 percent in larger towns. There is often a lack of service coverage in temporary housing areas and city outskirts, which are typically occupied by low income people. Self - disposal is common in these areas. Recently, community - based groups and private companies have been encouraged to work with local URENCO in the framework of Public - Private Partnership (PPP), filling the gaps in municipal waste collection services.

The dominant form of municipal waste disposal remains open dumping. Of the 91 disposal sites in the country, only 17 are sanitary landfills. Vietnam is no exception with the problem of NIMBY (Not In My Backyard) protests against unsafe landfills. In this regard, recent Prime Minister's Decision requires 49 hot spots of these sites to be treated in 2007, but unfortunately funding is needed! At the same time, new landfill facilities are also needed across the country. With the land scarcity and rapid urbanization, landfill location is an issue for local governments.

Unsafe methods of handling and treating industrial hazardous waste are predominante. Nowadays, there are plans for development of several centralized treatment facilities in the country.

In rural areas, most wastes from agricultural cultivation are reused. Appropriate technologies have been developed for reusing waste from rice straw, corn stems, coconut trees, sugar cane, and other products. Nevertheless, in Mekong Delta these wastes continue to pollute

canals and river affluents due to its enormous quantity.

For the treatment of solid and liquid agricultural chemical wastes, Vietnam uses incineration and chemical techniques. However, the treatment is expensive and there are still significant amounts of illegally stored and banned chemicals, including war chemicals, that must be treated.

Incineration capacity for hazardous healthcare waste has increased but unfortunately is underused, since hospitals do not have sufficient resources to finance the operating cost.

Waste reuse and recycling is already common practice in many households, who routinely separate recyclable wastes such as plastics, metal and paper for sale to itinerant buyers. Reusable and recyclable wastes are also being separated by waste pickers, and then sold to the recycling business. It is known that approximately 20 percent of the municipal waste in Hanoi is recycled. Currently, the informal sector collects the majority of the recyclable and reusable waste in urban areas. Most of waste pickers are women and children.

Several centralized composting facilities are operating in urban areas, but it is not yet widespread for a number of reasons, including poor quality of fertilizers. In Hochiminh City, foreign investors are undertaking several projects on landfill gas recovery for electricity generation, reducing by the time greenhouse gas emissions and being eligible to receive “carbon credits” under the Clean Development Mechanism of the UN Framework Convention of Climate Change. These credits can be sold in international markets, resulting in revenues for landfill operators.

2.3 Sector management

There are several Ministries directly involved in waste management: the Ministry of Construction (MoC) is responsible for formulating policy and legislation, planning and construction of solid waste facilities, and overseeing the URENCOs; the Ministry of Agriculture and Rural Development (MARD) - for rural sanitation development; the Ministry of Health (MoH) - for healthcare waste collection and treatment; the Ministry of Natural Resources and Environment (MoNRE) - for environment management, monitoring and assessment. The provincial and municipal governments play key roles in providing services.

As legal framework, there are two strategies that apply to solid waste management: (1) the strategy for the Management of Solid Waste in Cities and Industrial Parks (1999), and (2) the National Strategy for Environmental Protection (2003), and a set of relevant legal documents. These strategies and policies have resulted in a

major increase in investment, however the sustainability of such investment is still in doubt, since there are limited human resources and spending on operation and maintenance of the facilities, though large subsidies from central & local governments are provided. Besides, the regulation suffers from major gaps in enforcement and weakness of institutional framework, such as unclear mandates, fragmented and overlapping roles of various government agencies, and limited interagency coordination. As a result, the state oversight of solid waste is insufficient.

Although government policy allows the private sector to provide environmental services and there are good local and international experiences that can be adapted, barriers to private sector participation remain numerous, including the lack of transparency and accountability, and corruption.

3 CHALLENGES AND PRIORITIES.

Given Vietnam's rapid economic growth, it is anticipated that waste generation will increase to over 23 million tons by 2010, and the types of waste produced will undergo a change from more degradable to less degradable, and more hazardous.

The Government of Vietnam recognizes the economic and social costs of poor solid waste management and is addressing the following challenges in order to achieve the goal of safe and cost-effective waste management in the country:

3.1 Improving the financial and social sustainability of solid waste management services.

Investment needs to meet the Vietnam Millennium Development Goal in rural and urban water and sanitation by 2020 are estimated at roughly four times the annual investment in the last ten years. Moreover, most of past investment has come from ODA, which is unlikely to expand significantly in the future. In this context, Vietnam must use the coming years to develop financial institutions, capable of providing long-term finance for infrastructure, including sanitation sector, and must reform URENCO's businesses to become credit-worthy. Private sector participation and getting polluters to pay should be promoted. Systematic consultation with and participation by poor communities is needed in the siting, impact assessment, and operation of landfills. Special attention should be paid to protect vulnerable groups involved in waste handling.

Making investments that are cost-effective, targeted to priority areas, and based on appropriate technology is a key task.

3.2 Improving institutional effectiveness, monitoring, and enforcement.

There is a need to strengthen regulatory institutions for monitoring, and enforcement of solid waste management practices, and at the same time to improve financial autonomy of URENCOs and to create incentives for waste minimization and recycling. There is also an urgent need to establish hazardous waste management system in three Focus Economic Zones (Northern, Central, and Southern).

In line with a growing concern about sanitation issues, embracing both solid and liquid waste management in urban as well as in rural areas, it is time to promote a comprehensive and unified Sanitation Sector Strategy and Action Plan for the country. This would draw together sanitation for urban, rural, small town and peri - urban areas, setting sanitation efforts within the wider context of the sustainable environment, water resources management and environmental health. It will provide a clear basis for planning, funding and implementing projects and activities in a more integrated way.

3.3 Increasing public awareness about solid waste management.

The public must be made aware of the negative consequences of improper waste management practices, and also their accountability in paying for better waste management services. Municipal governments and mass organizations should encourage awareness - raising campaigns such as existing “Green, Clean and Beautiful City” movement, mobilizing cleanup efforts and public participation in waste management. Public education programs should target also children in the school system. Addressing the NIMBY syndrome requires widespread implementation of safe waste disposal practices, which will give the public greater confidence.

4 INTERNATIONAL COOPERATION

4.1 Sanitation management is becoming an urgent problem for developing countries.

During the last two decades, in water and sanitation sector development the Vietnam Government has placed greater emphasis on water supply. This tendency has been observed also at the international level. However, given the rapid urbanization of Vietnam as well as of developing countries, sanitation management becomes an urgent issue to be addressed. Innovative approaches and frameworks for international cooperation in the sanitation sector must be developed and should include new and improved forms of

cooperation and coordination between and among countries, multilateral and bilateral assistance agencies, international financial institutions and international organizations.

4.2 Technology transfer and information exchange.

The use and transfer of environmentally sound appropriate technologies offer opportunities for more efficient waste management. There is also a need to adopt Cleaner Production technologies that could help minimize industrial waste and can have a much higher payback. The international organizations play an important role in identification and dissemination of those new and promising technologies in sanitation sector. The establishment of a global network among interested parties to facilitate the exchange of information about these technologies would be very helpful. Opportunities for strengthening South - South cooperation and supporting partnership in the sector between developing and developed countries should be explored.

5 CONCLUSION

Given the anticipated rapid growth in waste in Vietnam, programs to encourage lower waste generation and better waste handling should be undertaken in the coming years. A comprehensive Sanitation Sector Strategy is very likely needed to promote vertical and horizontal unification of the sector management across administrative and sub- sectoral boundaries.

Weak waste management is a common growing problem facing developing countries. There is a need for specific action at the international level to establish, inspire and encourage new forms of cooperation, partnership, coordination at all levels, in order to contribute effectively to the provision and improvement of waste management services, especially in developing countries, taking into account the diversity of needs and opportunities among countries ./.

REFERENCES

MoNRE, WB & CIDA - Vietnam environment monitor
2004. Solid waste.

Pham Sy Liem (2005). Institutional reforms of urban water supply and sanitation in Vietnam. VWSA, Hanoi