

INTEGRATED SOLID WASTE MANAGEMENT IN VIETNAM

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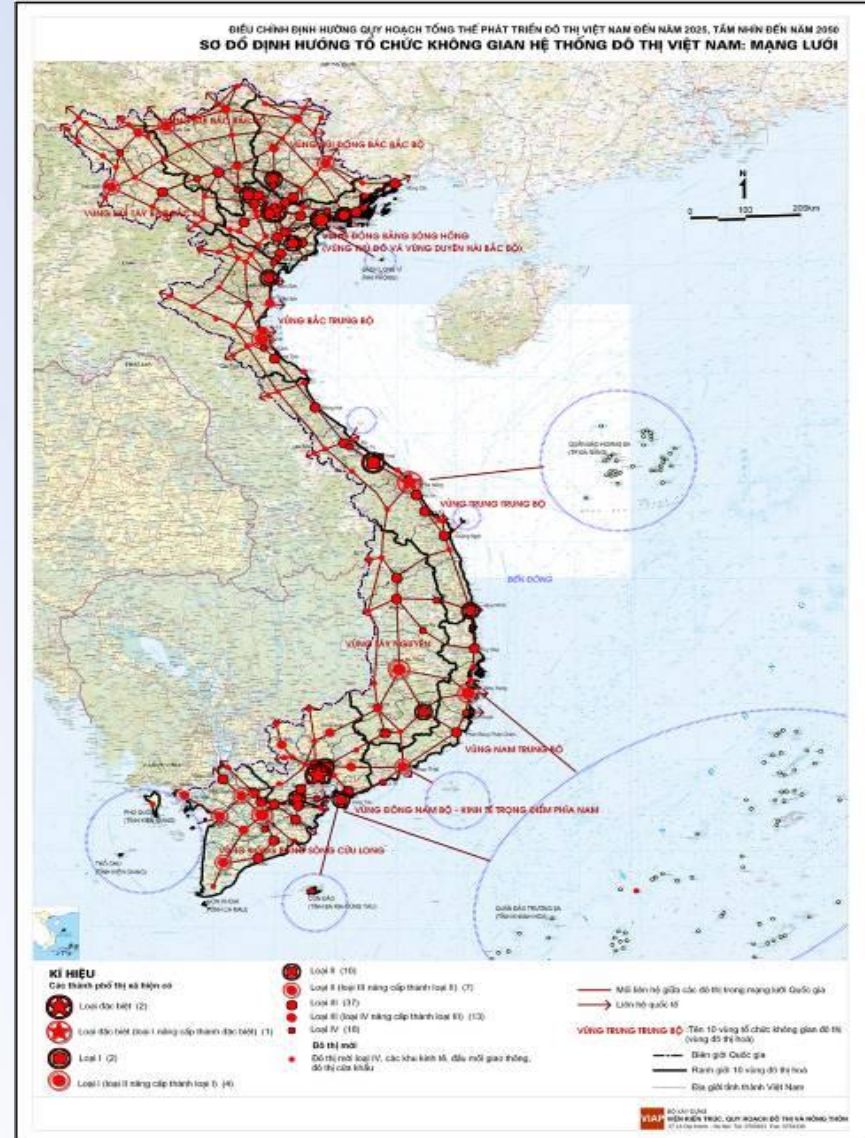
1. Current situation on Urban Construction & Development

- At present, there are appr.770 urbane; in which there are 2 special grade, 14 grade I, 10 grade II, 52 grade III, 63 grade IV and the remains grade V.

- Average urbanization ratio in the whole country is above 33.9%

- Economic growth rate in urban areas reaches to 12-15%, on average, 1.5 – 2 times higher than the average level of the whole country; Anually, urban areas contribute 70-75% to GDP of Vietnam.

Urbane is confirmed its motivated role for the development of the economy, the core of economy's and labor structure's transaction in each locality, each zone and in the whole country.



2. Solid waste collection, transportation

Urban areas:

Total generation of domestic solid waste : 31.500 t/d

Collection rate: 84%

The collection, transportation of solid waste in urban areas has achieved a number of results; many municipalities had well performance in solid waste collection, transportation and treatment that make cities cleaner and beautiful, such as: Da Nang, Hue, HCMC, Da Lat, Vung Tau...

Rural areas:

Total generation of domestic solid waste : 31.500 t/d

The collection rate in rural areas is still low, 40-55% on average, depending on each localities, region. Collection rate in rural areas which is the sub-urban areas or townships is bit higher, 60-80%; meanwhile in some remote areas, collection rate is less than 10%



3. Treatment and treatment technologies of solid waste

- Up to March 2014, there are 26 centralized solid waste treatment facilities operating with total design capacity is 6,010t/d, total land-used is 343ha; distribute in the whole country as follows:

+ Northern area: 13 facilities with total capacity approximately to 2,090t/d, total land used is 130ha.

+ Central area: 6 facilities with total capacity approximately to 1,105t/d, total land used is 37ha.

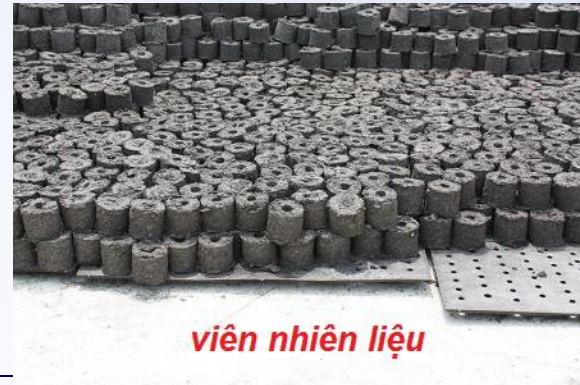
+ Southern area: 7 facilities with total capacity approximately to 2,820t/d, total land used is 176ha.

3. Treatment and treatment technologies of solid waste

- Total investment is around 4.676 billion VND. In which, 10 projects used ODA capital with total investment is 1,212 billion VND, and the remained projects used state budget or socilized budget of private enterprises involved in investment, operation of solid waste treatment facilities with total investment is about 3,464 billion VND.
- Existing treatment technologies: incineration, composting, landfill; other treatment technologies: waste compression, Hydromex, polymerization, Refused- derive Fuel...

3. Treatment and treatment technologies of solid waste

- ❖ - Incineration technology: 03 facilities with total designed capacity is 750 t/d, total land –used is 36.8ha.
- ❖ - Composting technology: 11 facilities with total designed capacity is 3,175 t/d, total land –used is 198ha.
- ❖ - Composting integrated with incineration technology: 11 facilities with total designed capacity is 2,040 t/d, total land –used is 122ha
- ❖ - RDF technology: 01 facility with total designed capacity is 50 t/d, total land –used is 2ha



3. Treatment and treatment technologies of solid waste

- ❖ There are about 458 landfills (area is larger than 1ha) with the total area is 1,813.5 ha. In which, there are 121 sanitary landfills and 337 unsanitary landfills (account for 73.5% of landfills) . The unsanitary landfill are mainly opened, temporary and without wastewater treatment facilities which are the sources of pollution (air pollution, soil contamination, water pollution and effected to landscape) and occur for a large space.



4. Solid waste collection, transportation and treatment cost

❖ - Cost for urban domestic waste collection and transportation is partly covered by state budget and partly by sanitation fee collected from localities.

+ Sanitation fee is currently at around 6.000 VND/person/month or from 10.000 to 20.000 VND/household/month. The level applying for business entities is from 120.000 to 200.000 VND/entity/month, depending on scale and localities.

+ Environment charge to solid waste: Decree No.174/NĐ-CP dated on 29/11/2007 of the government on environment charge to solid waste has been reported by 34 localities that only 14/34 province is implementing collection the environment charge to solid waste and this charge is also very low, for example: Tuyen Quang: 28 mil.VND (2011), Dong Nai: 2,500 mil.VND, Ba Ria- Vung Tau:8,163 mil.VND (2009-end of 1st quarter of 2013)...

However, the charge is still low and only enough to cover partly of collection and transportation of solid waste, not included treatment.

4. Solid waste collection, transportation and treatment cost

- ❖ -Treatment cost of domestic solid waste:
 - +Treatment cost for Urban domestic solid waste paid by localities fluctuates from 194,000 to 400,000 VND/t (Incineration plant in Xuan Son-Hanoi: 376,688 đồng/tấn; Solid waste treatment and processing plant in Cam Xuyen, Ha Tinh: 278,000 VND/t; Composting plant in Rach Gia, Kien Giang: 318,000 VND/t; Solid waste treatment plant in Dong Xoai, Binh Phuoc: 260,000 VND/t, Ca Mau: 312,000 VND/t, Solid waste treatment plant in Van Phu, Phu Tho: 194,000 VND/t, Solid waste treatment plant in Lang Man, Nam Dinh: 200,000 VND/t, Domestic solid waste treatment plant in South Binh Duong, Binh Duong: 331,.000 VND/t ...)
 - + Real cost that investors have to pay for treatment of urban domestic solid waste by composting in some provinces is higher than the payment of localities. For example, Binh Phuoc: 350,000VND/t, Binh Duong 512,000VND/t...

5. Solid waste collection, transportation and treatment model in urban area

- Solid waste collection, transportation and treatment in urban area is organized completely and professionally, mostly done by Public Services Companies (URENCOs) or Urban Works Companies (CITENCO).
- State has policy to enhance the socialization in environment sector. Then, there were many private companies involved in solid waste collection, transportation in urban areas. The socialization ratio in this sector is getting higher and higher, for example in HCMC: 50% of municipal solid waste is collected by private collection companies, teams.



Model in rural area...

Model of implementation solid waste's collection, transportation and treatment in rural area:

- Self-management collection team: currently popular model.
- Environment sanitation Services Cooperatives: developed in provinces that have concentrated collection based on district or communes' groups.
- URENCOs collaborate with communal collection teams: is developed in sub-urban area if URENCOs have enough ability to cover the collection service for sub-urban areas.
- Private companies: Existed but very few



6. Management, mechanism and policies.....

- Decree No.59/2007/NĐ-CP dated on 09/4/2007 on **solid waste management** (*is under studying for amendment or replacement pursuant to Law on Environment protection 2014*)
- Decree No.75/2011/NĐ-CP dated on 20/12/2006 of the **Government on investment credit and exporting credit** (*Construction projects in solid waste treatment works is listed as subjects to receive investment credit loans of the state*)
- Decree No. 69/2009/ NĐ-CP dated on 20/12/2006 of the **Government on addition to planning on land-use, land's price, land's reclamation, compensation, support and relocation** (*At present, there is new decree replaced in pursuant to New Law on Land*)

6. Management, mechanism and policies.....

- Decree No.04/2009/NĐ-CP Supports and incentives for environmental activities: *(Solid waste treatment projects is supported 50% construction investment cost (40% from central budget and 10% from local budget), the remains shall be borrowed from Vietnam Development Bank or Vietnam Environment Protection Fun- difficult to implement).*
- Decision No.29/2011/QĐ-TTg of Prime Minister promulgates sectors shall receive soft interest of the Government's ODA loans.
- Decision No.71/2010/QĐ – TTg of Prime Minister promulgates Model mechanism of investment by PPP (including solid waste management) – At present, MPI is taking prime responsibility to develop a new decree on this matter.
- Decision No.1196/QĐ – TTg dated on 23/7/2014 of the Prime Minister on approval for Scheme “Mobilization of investment resources for construction of water supplying, sewage and domestic solid waste system”

7. Strategies, programs.....

Decision No.2149/QĐ-TTg on National Strategy on Integrated solid waste management:

Targets of year 2025:

- + 100% urban which has recycling works shall implement source separation;
- + 100% total amount of domestic solid waste
- + 100% total amount of hazardous and non-hazardous industrial solid waste,
- + 90% total amount of construction waste and 90% solid waste generated in rural residential areas and 100% of craft villages is collected and treated in accordance with environment standards.
- + The amount of nylon bag used in supermarkets and trade centers shall be reduced by 85% in compared with 2010.

7. Strategies, programs.....

- **Decision No.1216/QĐ-TTg dated on 05/9/2012 of Prime Minister on National Strategy on Environment protection until 2020, vision to 2030.**
- **Decision No.798/QĐ-TTg dated on 25/5/2011 of Prime Minister on approval of Program on investment in solid waste treatment period 2011-2020.**
- **Decision No.322/QĐ-BXD dated on 06/4/2012 on announcement of Investment rate and treatment tipping fee for domestic solid waste treatment.**

8. Planning.....

1. Inter-provinces and River basin's solid waste management planning :

Completed and approved by Prime Minister on Planning of construction solid waste treatment facilities in 4 economic focal zones: North, Centre, South and Mekong river delta.

2.City/province Solid waste management Master plan

- Completed and approved by Prime Minister on solid waste management master plan of Cau river basin. Completing and will be submitted to prime Minister for approval of solid waste management master plan for Nhue –Day river and Dong nai river basin.

- Completed and approved solid waste management master plan of 45/63 cities/provinces; 10 cities/provinces completed and submitting for approval, 8 cities/provinces is under the development of master plan.

3. Planning on development of new rural area is including the content of solid waste management.

9. General evaluation

I. General evaluation: Solid waste collection, transportation and treatment has reached many progresses: ratio of solid waste collection, transportation and treatment in urban areas has reached the target of 84% on average of the whole country, a number of urban has well performance in solid waste collection, transportation and treatment make environment cleaner and beautiful; many provinces also concerned on investment in construction of solid waste treatment facilities, some other provinces has enhance the socialization mainly in solid waste collection, transportation...

II. Challenges:

1. ***Slid waste management is still facing many difficulties, shortcomings, especially in rural areas:***

+ Solid waste collection and treatment has not been concerned by localities. At local level, budget for this sector is still low or no budget, lacking of proper technical technologies meanwhile the demand is getting more pressured.

+ Sanitation fee low is not enough to secure salary for workers. Most of provinces has the regulations on collection and using sanitation fee in urban areas only; in rural areas, collection teams has to negotiate directly with residents. In conditions of lacking state's supports for solid waste collection, treatment like in urban areas, low collection fee which not enough t cover salary for workers is the main reasons leads to inefficiency operation of collection teams in rural areas.

9. General evaluation

2. Solid waste treatment technologies in Vietnam

Foreign technologies: not suitable for solid waste's characteristics and non-separated at source, weather, replacing tools, treatment cost. Most of them has not showed efficiency.

Domestic technologies: Some of domestic technologies has initial certain achievements. Those technologies are mainly operated simultaneously with completed of technologies so that not synchronized, many technical index has not been correct, not good appearance, not high quality.

Products from solid waste meet difficulties in consuming

9. General evaluation

3. Treatment and operation cost is still high, many localities is lacking budget to pay for treatment and operation cost. Income from sanitation fee is still low, environment charges to solid waste has not been collected much, and those items has just covered partly cost for collection, transportation, not included treatment.

4. Planning and implementation of planning is still slow: Some provinces is slow in approval of solid waste management master plan. Identification the locations to construct solid waste treatment facilities is facing challenges due to disagreement from residents, many landfill is overloaded, not meet the requirements, causing environment pollutions.

9. General evaluation

5. There are incentives mechanism on investment in solid waste treatment, but the application to realities are facing many difficulties. In many places, investment projects are still slow because of land clearance, especially the limitation in approaching to loans due to its characteristic is public service with low economic efficiency. On the other hand, some projects are constructed and operated but localities are lacking budget to pay for operation.

6. Public awareness in environment sanitation is still low. In many places, residents are still discharge waste disorderly

10. Some proposals

1. Completion of mechanisms and policies:

- Review, amend and add to complete the legal documents related to planning and investment in solid waste management in line with new Law on Planning and Law on Environment protection passed through the National Assembly and will be enacted from January 2015.
- Study, complete mechanisms, policies on supports, incentives in investment in land (support for construction works out of fence, land clearance, land-use, land rental fee); support in finance (support, incentive in capital, import tax, income tax of enterprises, pricing supports for output products...); commitment in localities' responsibilities during the investment in construction of domestic solid waste treatment facilities (supply enough solid waste and committed tipping fee)

10. Some proposals

2. Completion of planning

- Review, adjust and complete the solid waste management master plan of its own by December 2014.
- Based on approved master plan, localities make investment planning on construction of solid waste treatment facilities shall include the plan for mobilization of resources for implementation.

3. Cost and Cost's recovery

- Study and applying of service price for domestic solid waste treatment with the roadmap of adjustment gradually of solid waste treatment's price to cover for cost of investment and operation.
- Study, adjust sanitation fee, environment charges for solid waste to cover for solid waste collection, transportation and treatment with suitable schedule for urban and rural areas.

10. Some proposals

- Review, amend and add the norms on technical-economic index related to domestic solid waste collection, transportation and treatment.

4. Development of solid waste treatment technologies

- Encourage to develop the domestic technologies and apply the advanced technologies which in line with Vietnam's conditions.

- Evaluate technologies being applied in Vietnam. Study and formulate the guideline for selection of technologies which suitable for each region.

- Implementation of pilot investment proper solid waste treatment technologies in urban and rural areas to have lesson learnt and expansion.

10. Some proposals

5. Promote for socialization in solid waste collection, transportation and treatment

- ❖ - Formulate the policies, enhance the PPP model in solid waste management field.
- ❖ - Implement the promotion activities to improve the public awareness; organize forum to call for the investment, make advantages for private sectors in field of solid waste collection, transportation and treatment.
- ❖ - Eliminate the concept of solid waste treatment in a closed administration boundary, formulate the solid waste treatment model of inter-regions area to improve the efficiency of investment.
- ❖ - Perform capitalization of state-owned enterprises are providing environmental services and establish one member limited companies, joint stock companies to compete for supplying services on solid waste collection, transportation and treatment.

10. Some proposals

6. Solutions in education and promotion for public awareness raising

- Develop and implement strategies on promotion to raise public awareness in schools, residential areas, business entities to encourage the involvement in source separation, reduction, reuse, recycle, minimization of using nylon bags, do not discharge waste disorderly...
- Enhance the promotion activities, information sharing in solid waste separation, collection, transportation and treatment.
- Disseminate legal documents, experience in solid waste management, capacity development's training for officers in this field.
- Develop the education program to improve the capacity in management of investment in construction of inter-provincial facilities.



Thank you for attention



Plastic pellets



Compost



Office's waste into toilet paper



Plastic culvert