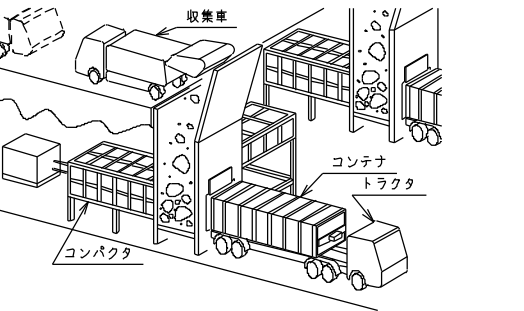
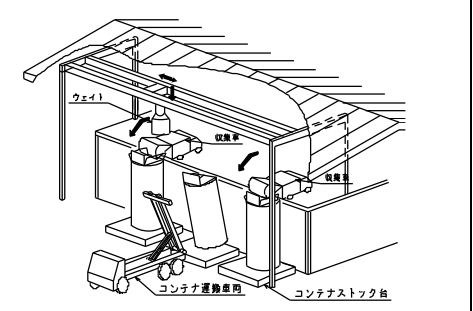
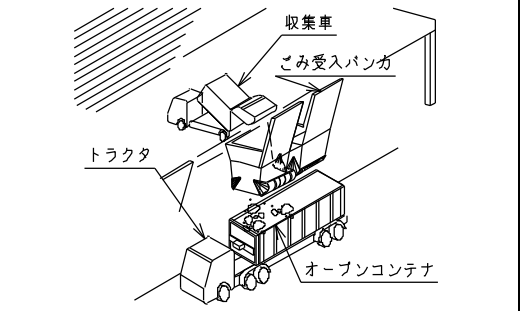


添付資料

- 添付資料① 中継方式技術比較表
- 添付資料② ハノイ市廃棄物マスタープラン概要
- 添付資料③ ワークショッププレゼンテーション資料
 - ③-1 (独) 国立環境研究所
 - ③-2 ハノイ市建設局
 - ③-3 JICA ベトナム廃棄物プロジェクト
 - ③-4 (株)市川環境エンジニアリング/加藤商事(株)
 - ③-5 新明和工業(株)
 - ③-6 (株)日立物流
- 添付資料④ ワークショップ写真
- 添付資料⑤ ワークショップ参加者 (ベトナム側)
- 添付資料⑥ 英文要約

添付資料 【中継方式技術比較表】

項 目	A . 横型コンパクト・コンテナ方式	B . 縦型コンテナ方式	C . オープンダンプ方式
<p>イメージ図</p>   	<p>ごみ受入ホッパにて一時貯留したごみをコンパクトにてコンテナ内に圧縮詰込みする方式。コンテナは20m³程度の中型か、40m³の大型トレーラ型が主流。詰込み中のコンテナを計量することにより、詰込み量のコントロールが可能。中型コンテナを採用した場合、コンテナ移動装置を用いた全自動運転システムも可能。</p>	<p>コンテナを垂直に設置し、収集車から直接コンテナ内に投入する方式。主要な固定設備はごみ押し込み用のウエイトのみで、簡易なシステム構成。コンテナの計量は可能。</p>	<p>ごみ受入用のバンカ設備にてごみを一旦貯留し、バンカを「開」動作させることにより、大型ダンプトレーラ車にごみを移し替える方式。主要な固定設備はごみ受入バンカのみで、簡易なシステム構成。車両全体、又はバンカ装置の計量が可能。</p>
<p>1. 方式概要</p>			
<p>2 方式の特徴</p>	<p>1) 圧縮性能（輸送効率） 1.5～2 倍の圧縮力があり、高効率輸送が実現できる（押し込み面圧：3～4 kg/cm²） ホッパ貯留ごみを切り出し詰込みするため、詰込み量はコントロール可能。中間計量により高効率詰込みが実現できる 2) 詰込み効率（輸送効率） 3) ごみ量変動への対応 ごみ搬入ピーク時には受入ホッパに一時貯留が可能 4) 中継システムとしての適合性 単一ごみを大量中継輸送するのに適している</p>	<p>ウエイトによる重力圧縮のため、殆ど圧縮性能は望めない（押し込み面圧：0.8 kg/cm² 程度） コンテナ計量は可能だが、パuffers機能がないため、収集車単位の投入となり、詰込み量のコントロールができない ごみ搬入ピーク時の対応は、設置コンテナ台数で決まる 他品種、少量ごみを受け入れるシステムに適している</p>	<p>× 圧縮機能なし。（押し込み面圧：ゼロ） 車両の計量が可能で、パuffers機能を持つが、収集車単位の投入となり、詰込み量のコントロールができない ピーク時の対応はバンカでの一時貯留、及び迅速な車両入替で対応する 輸送効率は低いが、大型車両の採用が可能。</p>
<p>3 衛生面</p>	<p>1) 臭気対策 ごみ受入部でのごみ飛散が無く、コンテナ保管中も殆ど臭気が外部に漏れない。 2) 汚水対策 汚水漏れ対策型テールゲートとコンテナ下部汚水タンクにより、ごみと汚水の同体輸送が可能。</p>	<p>同 左 投入側ゲートの構造上、汚水が漏れる可能性がある</p>	<p>施設内：オープンシステムであるため、脱臭システムの効率が悪い 輸送車両：オープンタイプであるため、加圧等の対策が必要 排出ゲートまわりのパッキンにより、ごみと汚水の同体輸送が可能。</p>
<p>4 ケーススタディ</p>	<p>1) 設備系統数 2 系統 2) コンテナ、車両台数 40m³トレーラコンテナ：24台、トラクタ：18台 × 3) 施設/建築面積、延床面積 建築面積：約1,200 m²、延床面積：約2,400 m² 4) 敷地面積 駐車場：コンテナ、車両台数が少ないため省スペース化スロープ：3方式同様（階高が同様のため） × 5) 運転人員 80名（施設人員：40名 + 運転手：40名）</p>	<p>8 系統（ピーク時対応を考慮） 22m³コンテナ：80台、専用輸送車：56台 × 建築面積：約1,300 m²、延床面積：約2,300 m² 駐車場：コンテナ、車両台数が多く大きなスペースが必要 スロープ：3方式同様（階高が同様のため） × 168名（施設人員：48名 + 運転手：120名）</p>	<p>3 系統（ピーク時対応を考慮） 40m³ダンプトレーラ：39台、トラクタ：30台 建築面積：約1,150 m²、延床面積：約2,100 m² 駐車場：コンテナ、車両台数が多く大きなスペースが必要 スロープ：3方式同様（階高が同様のため） 103名（施設人員：37名 + 運転手：66名）</p>
<p>5. 総合評価 【：3、：2、：1、×：0】</p>	<p>4 0 輸送効率が高いため、車両、コンテナ台数が少なく、敷地面積の省スペース化が可能。 このため、インジナル、ランニングコストも他方式より安価。</p>	<p>1 5 輸送効率が悪いので、車両、コンテナ台数が多くなり、敷地面積、インジナル、ランニングコスト等他方式に比べ不利となる。 単一ごみの大量輸送には不向きなシステム。</p>	<p>2 4 圧縮機構がないため、コンパクト方式よりも輸送効率が悪くなり、車両、コンテナ台数が増える。 大型ごみの輸送に適している方式。</p>

2) 処理・処分施設

現在ほとんどの廃棄物が埋め立て処分されているが、今後大型の最終処分場を確保することは制限が多いことが予想される。

< 建設完了或いは進行中案件 >

Nam Son 埋め立て処分場

-Phase1 : URENC08 運営。83.5ha (埋め立て区域は 50ha、9 セル)

- 生活廃棄物用として利用。既に 7 セルが埋め立て済。市内都市部 10 地区・郊外部 5 地区より 3200 ~ 3500t/日の廃棄物が持ち込まれている。
- 併設して 5ha の産業廃棄物処理施設を有する。焼却炉有。(現在 75t/日も建設中)
- 1,500m³/日の浸出水処理施設。

-Phase2 : URENC08 運営。106ha (拡張規模は 79.5ha、【106 との整合性要確認】)

Cau Dien コンポスト化施設 : 3.9ha。URENC07 運営。現在 70t/日の投入を行って運営、稼働率 42%。スペイン ODA。

* ハノイ URENCO が上記 2 施設を中心とした処理の為の 2011 年度予算としてハノイ市人民委員会から受けた金額は約 5.6 億円だった。但し、その他様々なサービス収入があるとのこと【要調査】。

Kieu Ky

-処分場 (Gia Lam 地区) : Gia Lam URENCO 運営。6.3ha。60t ~ 80t/日

-コンポスト化施設 : Gia Lam URENCO 運営。7.7ha (一説には 14ha)。施設規模 150t/日、稼働率 30%程度。

Xuan Son 処分場 (Son Tay 地区)

-Phase1 : Son Tay Urban Work 社運営、13ha、10 セル。200t/日 (一説には 1,000t/日)。

-Phase2 : Thang Long 社運営、13ha、最大 48ha。

Son Tay 処理施設 (Son Tay 地区) : Seraphin 社運営。

-Phase1 : 200t/日、1.5ha。選別・コンポスト化・プラスチックリサイクル・焼却・埋め立て。しかし失敗し、Thang Long 社との JV になる。

-Phase2 : 300t/日焼却炉、1ha。稼働開始。

-Phase3 : Phase1 を建替えて 500t/日 (一説には 300t/日) 焼却炉建設予定。

Nui Toong 処分場 (Chuong My 地区) : Xuan Mai Urban Environment Company

-Phase1 : 2ha、40t/日、浸出水流出問題があった。

-Phase2 : 9.2ha (一説には 6.2ha)、コンポスト施設計画有、3000t/日 (?)

Viet Hung Commune (Dong Anh地区) : Dong Anh 地区人民委員会運営、Thanh Quang industrial construction and trade company 投資。8.75ha。プラズマ、300t/日。

Phuong Dinh commune (Dan Phuong 地区) : Thanh Quang company投資。5ha。200t/日 (衛生埋め立て + 焼却)

【全体政策】

- National strategy for integrated solid waste management up to 2025, a vision to 2050 に基づく。
- 国の北部・中部・南部の 3 地域での政策遂行。北部には 12 か所が注力地点として指定され、ハノイには 3 か所指定されている (Nam Son、Dong Ke、Xuan Son)。

【マスタープラン】

- 人口は 2020 年に 730 万人、2030 年に 910 万人、2050 年には 1000 万人を超えると予測。
- Nam Son 処分場の Phase2 以降、大型埋め立て処分場は建てられない。分別効果についても疑問。
- 焼却比率を 60%～85%に高め、リサイクルと共に 85%-90%を目指す。
- 分散型処理・処分（中北部、東部、南部、西部に複合施設）
- 運搬の効率化
- 民間活力の導入
- 収集運搬については Zone を 3 つに分割（6 か所）。総投資としては約 30 億円を市の予算として計画。
中・北・東部：4,600～7,700t/日（3 か所で対処）。2020 年までに TayMo、Lam Du の具現化。
南部：800～1,000t/日（1 か所で対処）
西部：1,300～1,500t/日（2 ヶ所で対処）
- 処理施設については既設も含め 16 か所（中・北・東部 5 か所、南部 6 か所、西部 5 か所）、総投資額は市の予算として 340 億円程度を計画。
- 資金としては国家予算の他、ODA や民間投資を念頭に置く。
- 新技術導入の運用や中継施設管理などの対する人的能力開発も行って行く

【具体的計画】

- NEDO/日立造船 + ハノイ URENCO : Nam Son での 75t 発電付キルンストーカ炉（2015 年完成予定）
- Dong Minh 社 : 米国企業と協力して、廃棄物から油・アスファルト・ブロックの製造を行う予定。
- AIC 社 : 15ha, 2000t/日。日本技術を使って廃棄物処理をする予定（内容不明）。25 億円前後。
- 周辺県との広域処理の検討も進めている。

<その他将来案件>

Chau Can（Phu Xuyen 地区）：25-30ha, 600 tons/日, Thang Long Environment Service JSC による投資。

Cao Duong（Thanh Oai 地区）：20 ha, 500 tons/日。

Phu Dong（Gia Lam 地区）：20 ha, 1000 tons/日。

Dong Ke（Chuong My 地区）：24ha, 800-2000 tons/日。

Lai Thuong（Thach That 地区）：6.3 ha, 200 tons/日。Minh Quan high-tech development JSC による投資。

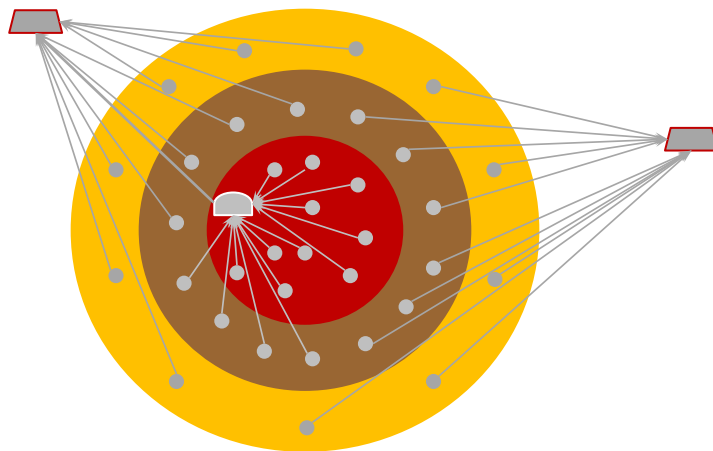
Hop Thanh（My Duc 地区）：200 tons/日, Minh Quan high-tech development JSC を中心とした投資。



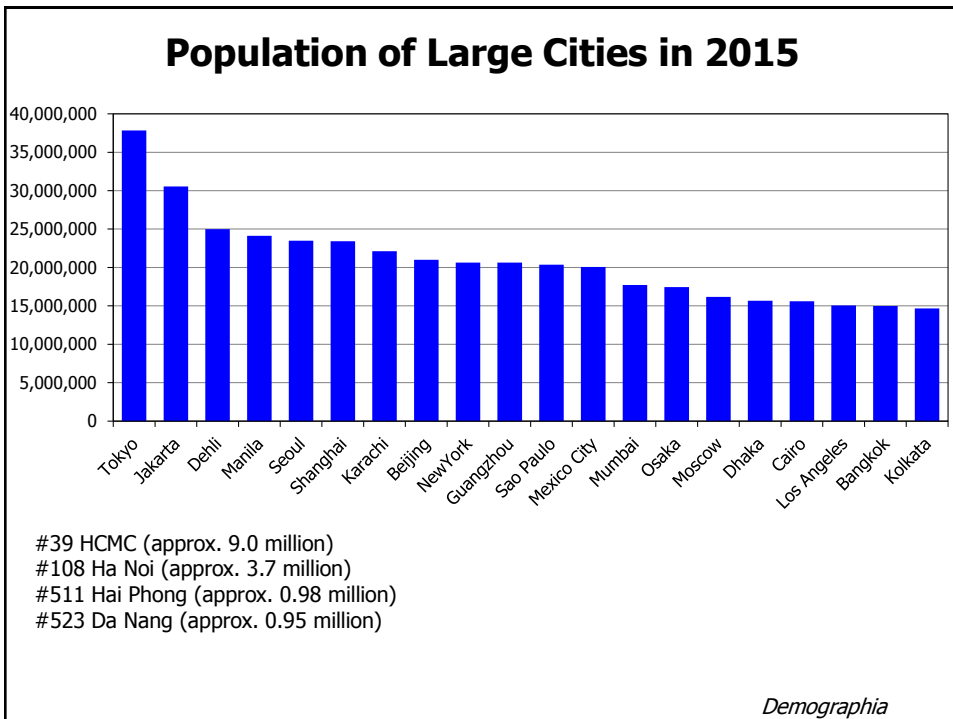
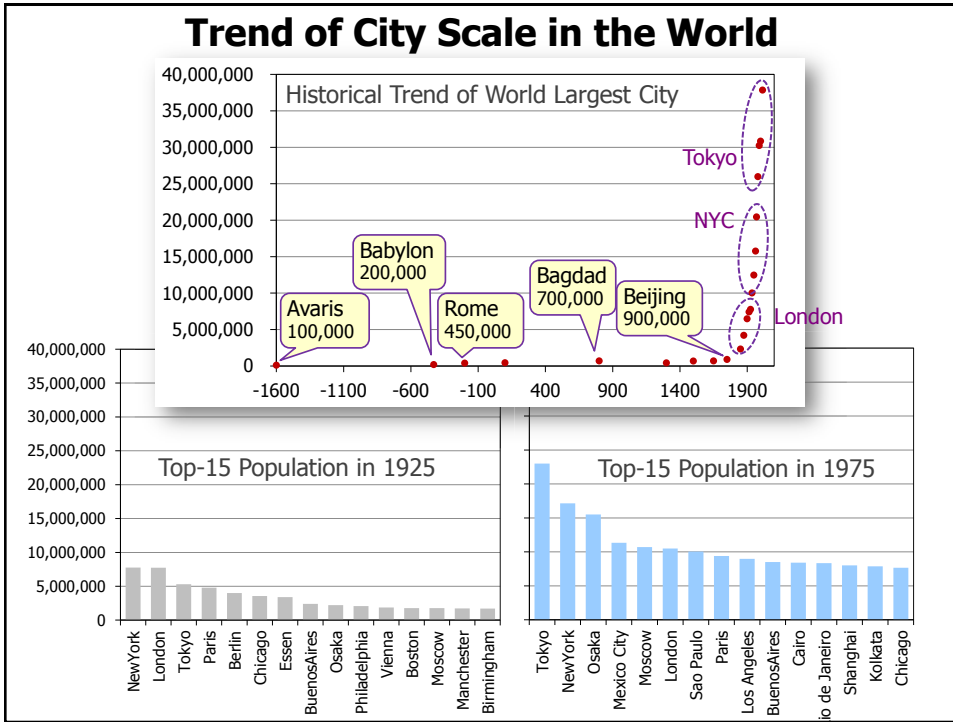
Appropriate and Efficient Waste Management Required for Development of City

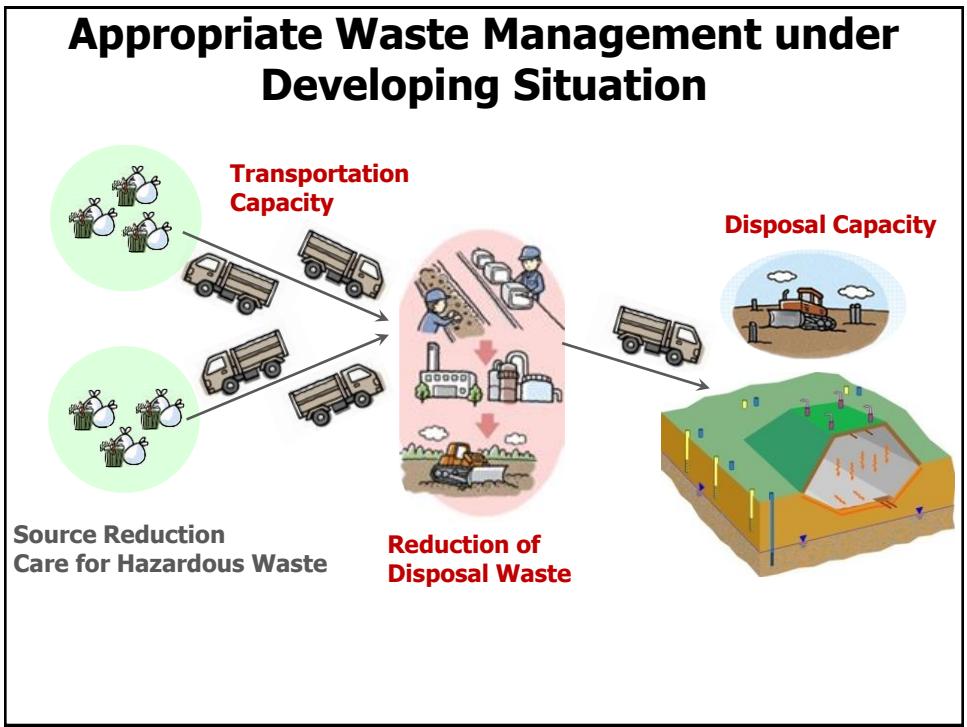
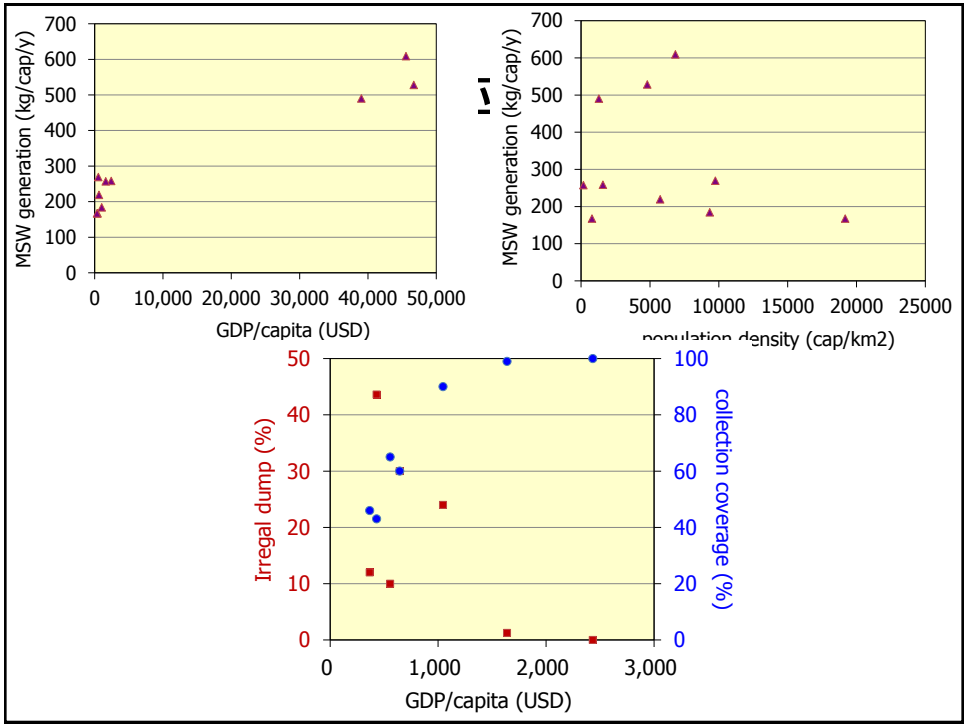
Tomonori ISHIGAKI
National Institute for Environmental Studies, Japan

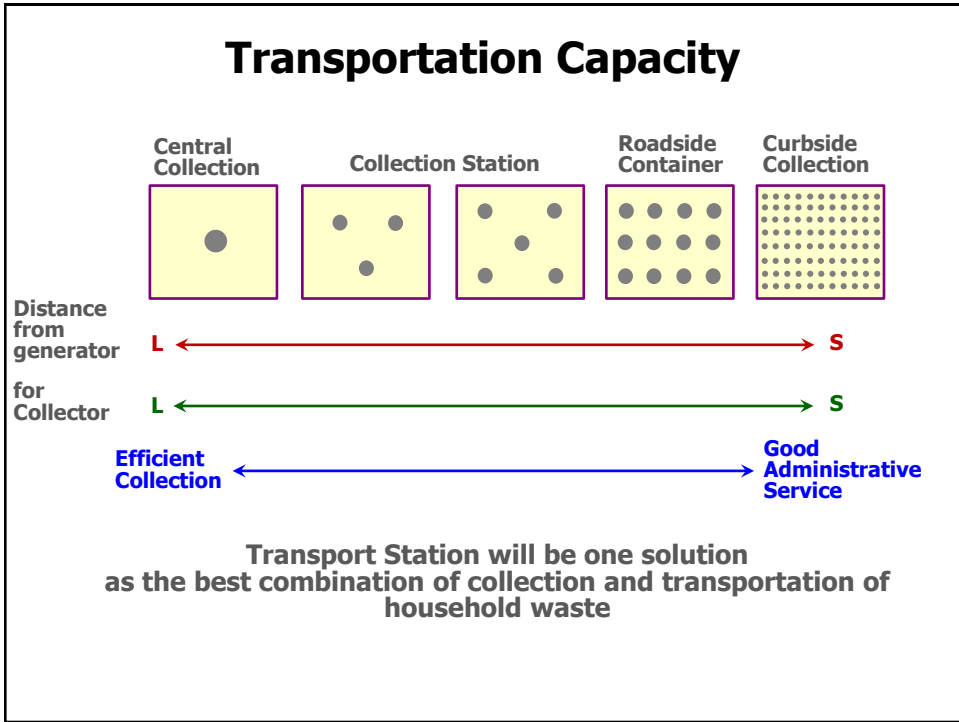
Development of City and Waste Management



City growth and expansion will complicate waste logistics









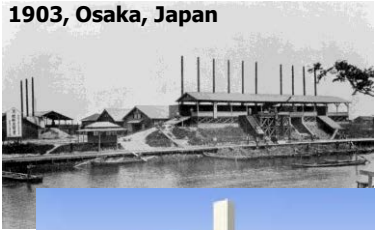

Waste Volume Reduction

- **Waste to Energy**
 - Volume reduction and Sanitation
 - Energy Production
- **Mechanical Biological Treatment**
 - Volume Reduction and Energy production





1903, Osaka, Japan

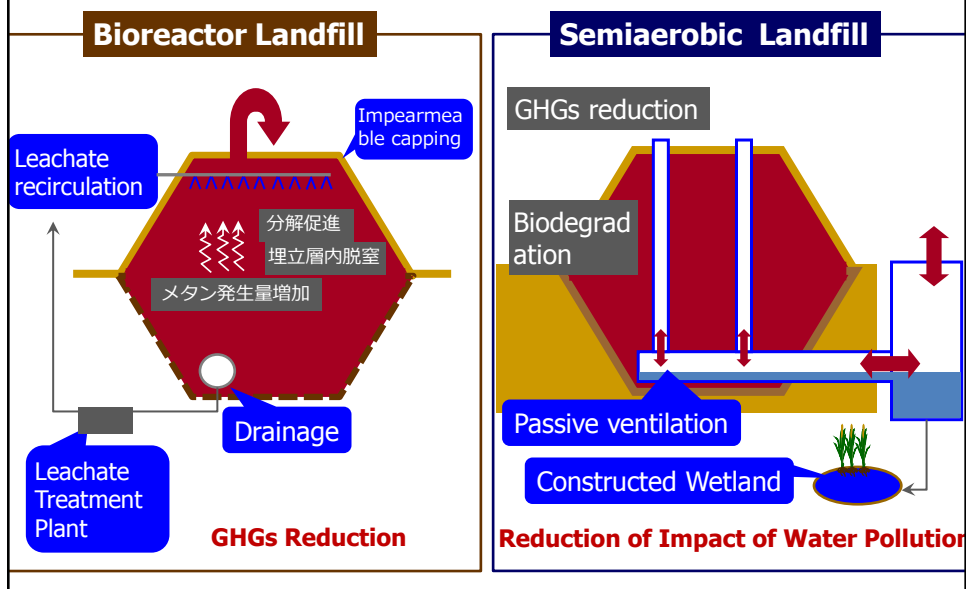



Disposal Capacity

- Promotion of Biodegradation
- Compaction (Solidification)
 - Prevention of hazard risk
 - Financial cost
- Expansion
 - sometimes bad practice



Degradation-Promotive Landfills



Technology in Transfer Station

- **Logistics management**
 - Total reduction of travel per waste
 - Capacity
 - Frequency
 - Traffic
- **Physical Compaction**
 - Volume Reduction
- **Resource Recovery**
 - Valuables: Metal, Plastics
 - for Fuels, Materials in Industry

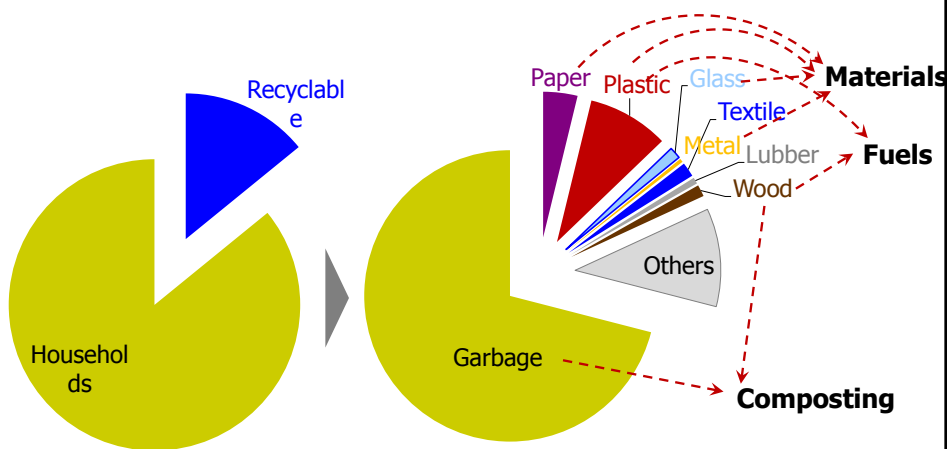
Economic Effect

- **Increase Employment**
 - Drivers
 - Operators
 - Resource Separators
- **Recovered Resource**
- **Suppression of Traffic congestion**
- **Infrastructure Preparation**
 - Road, Junction
 - Countermeasure for Inundation

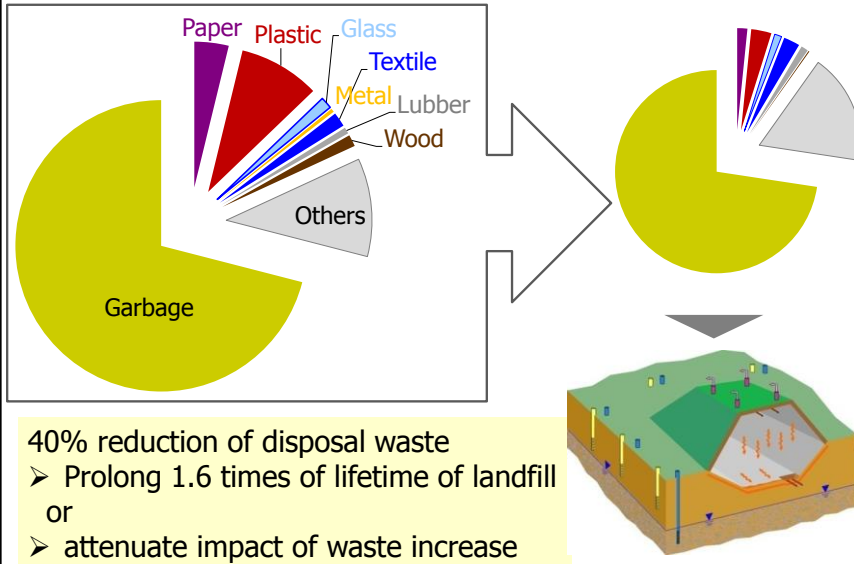
Air Pollution, GHGs Reduction

- By Reduction of Travel Times
- By Using Updated Transportation
- By Suppression of Traffic congestion

Separation Enhances Recycling (and Reduction of Disposal)



Reduction of Disposal Waste and Extension of Landfill Lifetime



WASTE TRANSFER STATION CONSTRUCTION IN HANOI CITY



Prepared by: Mr Hoang Nam Son
Hanoi Construction Department (DOC)
Hanoi, 10th March, 2015

CONTENT

I

- **SOLID WASTE MANAGEMENT IN HANOI**

II

- **MASTER PLAN AND LOCATION OF WASTE TRANSFER STATIONS**

III

- **NECESSITY OF SOLID WASTE TRANSFER STATION INVESTMENT FOR HANOI CITY**

IV

- **CONCLUSION AND PROPOSALS**



SOLID WASTE MANAGEMENT IN HANOI

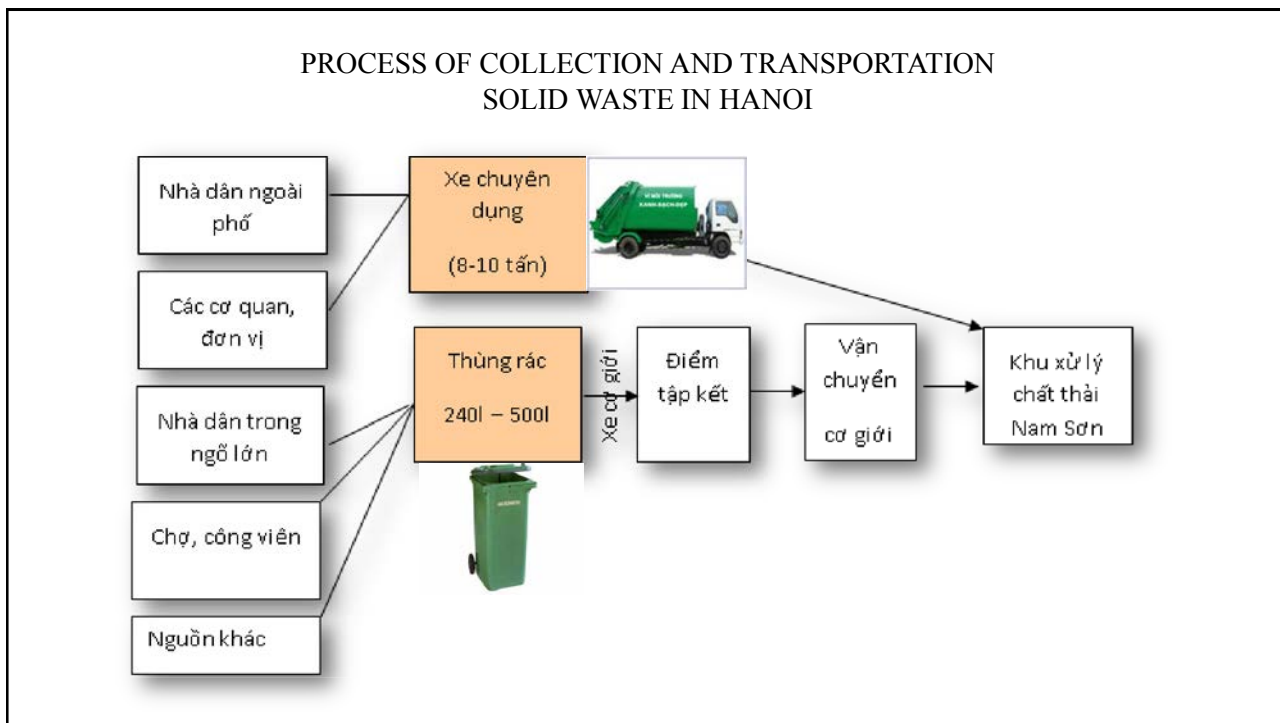
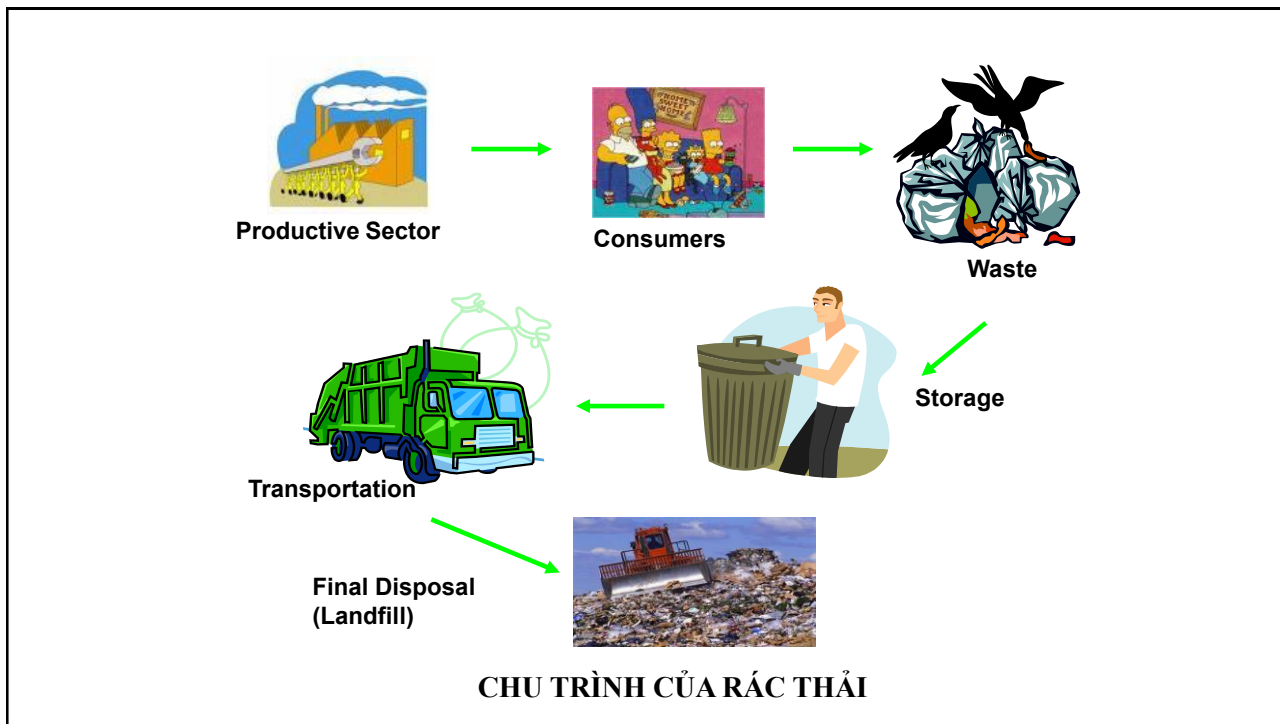
COLLECTION, TRANSPORTATION AND TREATMENT OF WASTE IN HANOI

1. MSW Collection:

MSW generated from households, offices daily collected by handcarts and containers of 240l, then transported to the collection points for transportation to Nam Son landfill site by trucks (the distance is 110 km).

2. MSW transportation:

The vehicles used for waste transportation by URENCO are special trucks with compact, the loading capacity is from 3 tons ÷ 15 tons. The domestic waste in the areas of 10 districts and 5 suburban districts: Từ Liêm, Thanh Trì, Đông Anh, Sóc Sơn and Mê Linh transported to Nam Son landfill site by the specialized trucks.



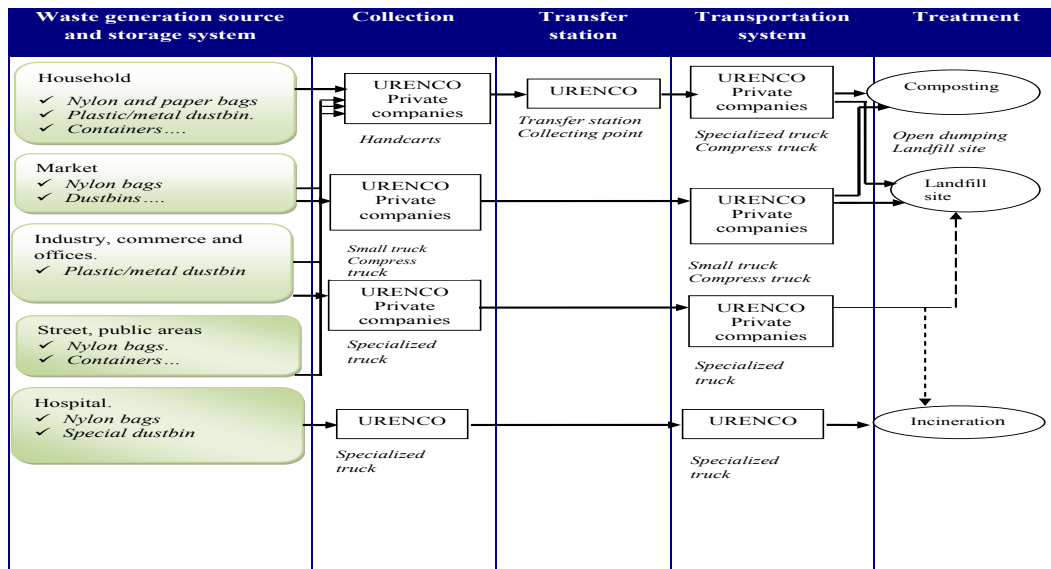
COLLECTION, TRANSPORTATION AND TREATMENT OF WASTE IN HANOI

3. MSW treatment:

The landfill is mainly method used for domestic waste treatment at the waste treatment facilities of Hanoi city (85-90% of collected waste transported to Nam Son landfill site, Soc Son, Hanoi for landfill.

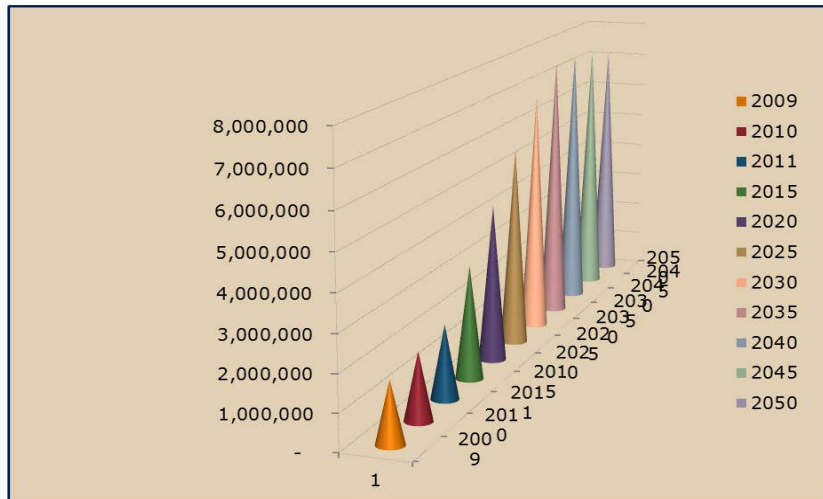


Nam Son landfill site



MANAGEMENT SYSTEM OF MUNICIPAL SOLID WASTE IN HANOI

FORECAST ON SOLID WASTE AMOUNT IN HANOI



STATE MANAGEMENT OF NORMAL SOLID WASTE IN HANOI

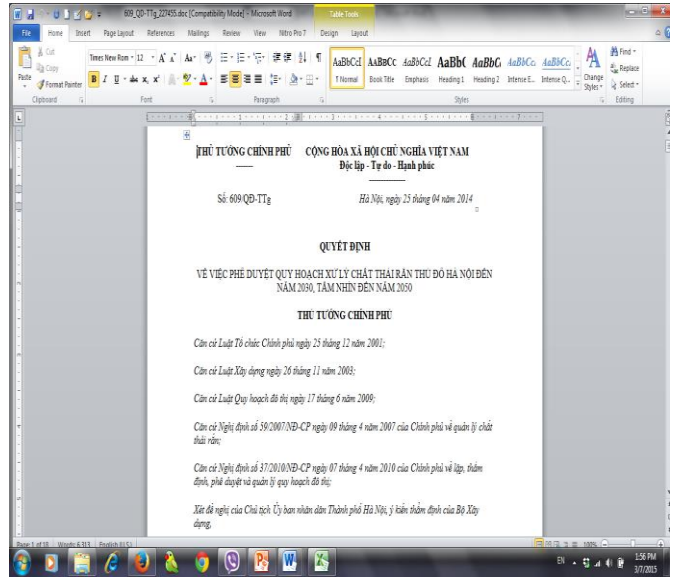
Department of Construction, Hanoi Environment and Natural Resources Department are appropriate authorities as advisors for Hanoi People's Committee (HPC), assisting HPC in performing the state management in the sector of normal solid waste in Hanoi area.

-Department of Construction (DOC) advises and assists the City People's Committee in performing the state management in the sector of normal solid waste in the areas of 10 districts and 01 town including: Ba Dinh, Hoan Kiem, Hai Ba Trung, Dong Da West Lake Street, Thanh Xuan, Hoang Mai, Long Bien, Ha Dong and Son Tay town.

- Hanoi Environment and Natural Resources Department advises and assists the City People's Committee in performing the state management in the sector of normal solid waste in the areas of 18 suburban districts including : Tu Liem, Thanh Tri, Gia Lam, Dong Anh Soc Son, Hoai Duc, Dan Phuong, Thach, Quoc Oai, Thanh Oai, Thuong Tin, Phu Xuyen, My Duc, Chuong My, Ba Vi, Phuc Tho, Ung Hoa Linh

MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

- ❑ Master plan on solid waste disposal of Hanoi capital to 2030, with a vision to 2050 approved by Prime Minister at Decision No **609/QĐ-TTg** dated **24, April, 2014**.



MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

❑ The Planning objectives :

- To project the total volume of generated solid waste and solid waste disposal demands, to determine modes of solid waste collection, transportation and disposal; to identify locations and sizes of solid waste transfer stations and disposal complexes in Hanoi capital.
- To provide a basis for the implementation of investment projects to build, upgrade, improve or expand the collection and transportation systems and solid waste transfer stations and disposal complexes in Hanoi capital.

MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

1. Population size of Hanoi :

Total population as of 1, April, 2009: 6,451,909 people;

- Forecasting the population size for the periods as follows:

+ *Total estimated population in 2020:* 7,318,800 people;

+ *The total estimated population in 2030:* 9,135,500 people;

+ *The total estimated population in 2050:* 10,733,500 people

MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

2. The total amount of waste generated in Hanoi:

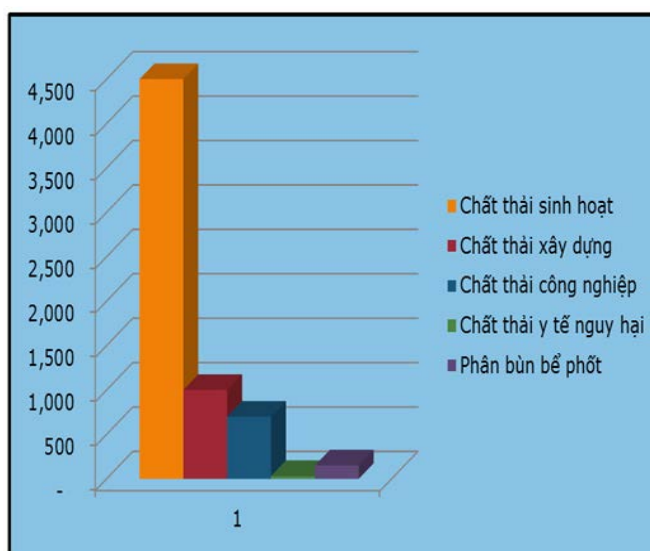
- The volume of generated domestic waste: 5.371 tons/day, in which:

+ Urban areas: 3.200 tons/day

+ Suburban areas: 2.171 tons/day.

- Collection ratio: The MSW amount transported to the landfills is about 3.875 tấn, approximately of 77% of generated waste .

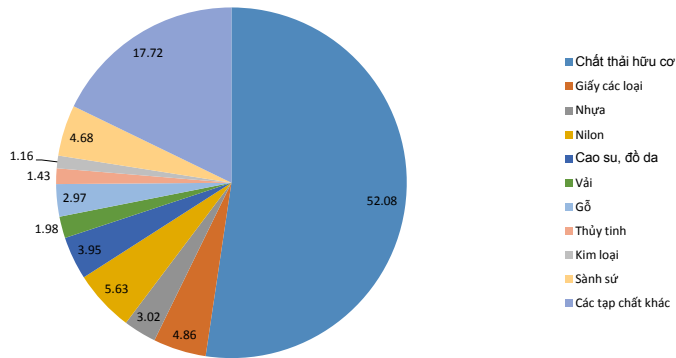
-Emission target: 1,1 kg/person/day.



MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

3. Composition of MSW in Hanoi

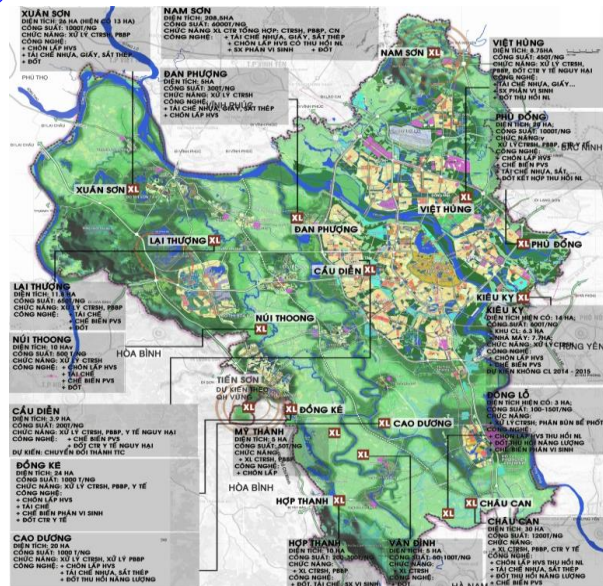
% theo khối lượng



MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

7. MSW treatment facilities and complex planning:

Master plan on solid waste disposal of Hanoi indicated to have 17 MSW treatment complexes, in which, 8 existed ones will be upgraded and expanded and 9 ones will be invested to built. All will be divided in 3 zones.



MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050

8. Waste Transfer Stations planning :

The volume of solid waste collected and transported to the WTS of Hanoi is estimated about 5,700 ÷ 10,200 tons / day and was allocated to 5 WTSs of 3 zones

LOCATION, SIZE WASTE TRANSFER STATIONS

(MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050)

WTS	Collection areas	Receiving waste volume(ton/day)	Area (ha)	Notes
ZONE I				
Thanh Lâm WTS	Đông Anh- Mê Linh, Kim Hoa town and suburban of Mê Linh.	< 1.000	1,5	Location under general planning of Hanoi
Tây Mỗ WTS	Cau Giay district, Từ Liêm, Thanh Xuân	< 1.000	1,5	Location under general planning of Hanoi
ZONE II				
Tả Thanh Oai WTS	Hà Đông district, Thanh Trì, Thanh Oai	800 – 1.000	1,5	Location under general planning of Hanoi

LOCATION, SIZE WASTE TRANSFER STATIONS

(MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050)

WTS	Collection areas	Receiving waste volume(ton /day)	Area (ha)	Notes
ZONE III				
Quốc Oai WTS	½ of Hoài Đức district, Quốc Oai Ecology town, suburban of Quốc Oai.	500 - 700	1,5	Location under general planning of Hanoi
Chúc Sơn WTS	½ of Hoài Đức district, Chúc Sơn Ecology town, suburban of Chương Mỹ.	500 - 1.000	1,5	Location under general planning of Hanoi

LOCATION, SIZE WASTE TRANSFER STATIONS

(MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050)

Investment phases for waste transfer station in Tay Mo:

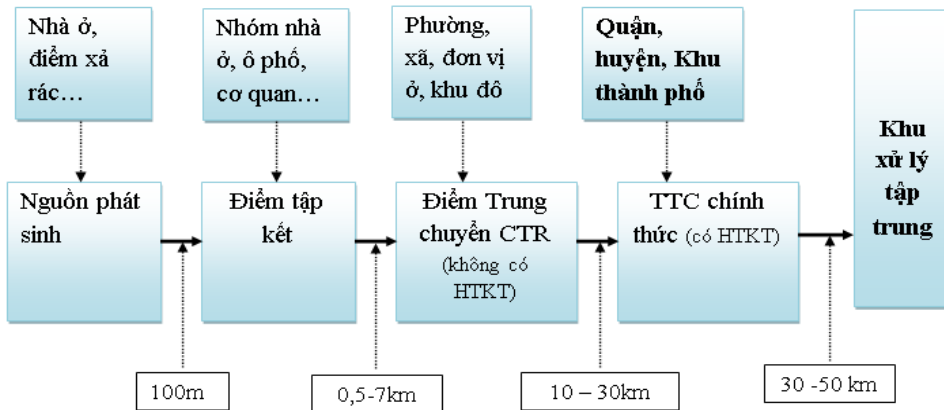
The implement phases of Solid Waste Planning of Hanoi capital to 2030, with a vision to 2050 under the stage is set up on the basis of investment phases. The investment in the construction of solid waste treatment systems based on actual urban development, the anticipative investment according the planning no more than 5 years of plan since the plan is scheduled for completion until operation.

Giai đoạn từ năm 2010 đến năm 2020:

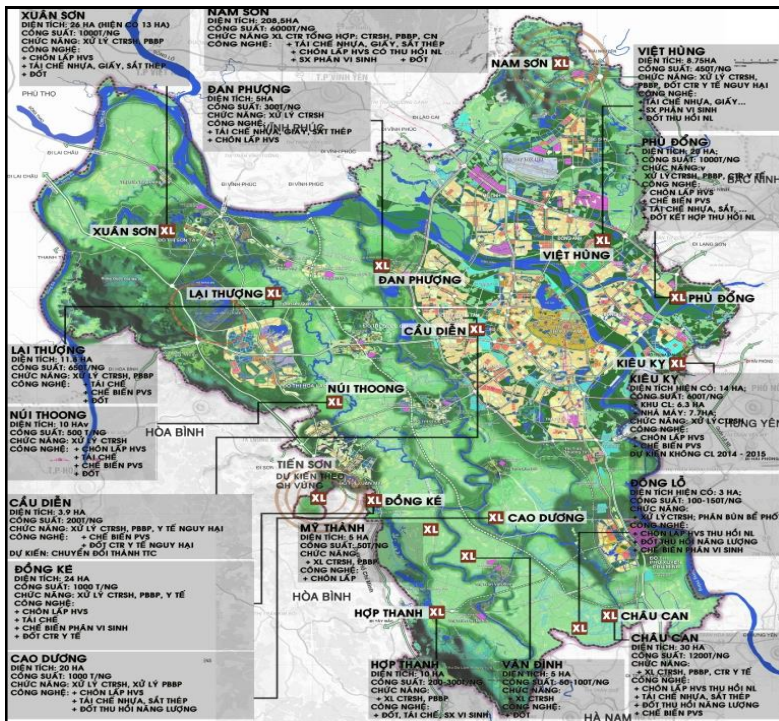
WTS	Are (ha)	Capacity(ton/day)	Total budget (Billion đồng)	Capital source
Tay Mo WTS	1,5	< 1.000	57,0	State Budget

LOCATION, SIZE WASTE TRANSFER STATIONS

(MASTER PLAN ON SOLID WASTE DISPOSAL OF HANOI CAPITAL TO 2030, WITH A VISION TO 2050)



Layout of domestic waste transportation



Map of WTS projects,
MSW treatment
complexes

NECESSITY OF SOLID WASTE TRANSFER STATION INVESTMENT FOR HANOI CITY

1. Landfill is still a main method used for MSW treatment in Hanoi now (85%)
2. The collected waste is transported to Nam Son landfill site, 50 km far from Hanoi center with over 500 turns of trucks from 7-10 tons. It is rather difficult and limited to the waste transport from the areas of districts to Nam Son landfill site in the current traffic.
3. Due to the transport distance away, the turn over time of collection truck long, hence the waste transportation directly to landfill sites is uneconomic and inefficient.



Investment in construction waste transfer station for Hanoi?????????



NECESSITY



- 1. Ensure the MSW management to implement as Planning.*
- 2. Improve the environmental quality in general and waste management in particular.*
- 3. Improve the technology, reduce the time for waste collection and the number of trucks transported waste to the final disposal facility .*
- 4. Ensure the operation effect of transport vehicles in economy and technical, no waste money contributes to reduce the cost of waste transportation of city, reduce the environmental pollution, reduce the traffic density on the collection routes and transport of waste.*

CONCLUSION

Solid waste management under the Master Plan is an important and imperative task nowadays in order to protect environment, urban landscape, human health, contributes to urban clean – beauty, civilization. Project of Waste Transfer Station is required to implement as soon as possible. Therefore:

- The feasibility study of WTS project in Cau Dien should be accelerated the implement according the Document No 267 of HPC.
- Suggest Departments: Architecture and Planning, Investment and Planning and Environment Environment and Natural Resources accompany with DOC to direct and help URENCO and IKE company to complete the feasibility study of project;
- Kindly suggest HPC to approve the project policy early, facilitate the project development.



A small, realistic-looking globe of the Earth is positioned on a single, vibrant green leaf. The globe shows blue oceans and white clouds, with a small portion of a continent visible. The leaf is detailed with veins and a slightly serrated edge. The entire scene is set against a plain white background.

**For a Sustainable
Development**

THANKS FOR YOUR LISTENING

Introduction of “Vietnam Waste Project”



10 March 2015

Hideki Wada, Team Leader
Vietnam Waste Project

1

Project outline



2

Project outline



- Project name
 - Project for Capacity Development on Integrated Management of Municipal Solid Waste in Vietnam
 - Vietnam Waste Project (<http://vietnamwastepj.blogspot.com>)
- Project scheme
 - Technical assistance by Japan International Cooperation Agency (JICA)
- Project purpose
 - Capacity development for domestic waste, construction waste and septic tank sludge
- Counterparts
 - MOC
 - Hanoi
 - Thua Thien Hue Province as a model city
- Major activities
 - MOC
 - Review on existing laws/regulations
 - Arrangement of data monitoring system
 - Promotion of SWM complexes
 - Hanoi
 - Implementation of solid waste management master plan in Hanoi
 - Pre-F/S study on a SWM complex
 - Promotion of SWM complexes
 - Thua Thien Hue Province as a model city
 - Support for SWM planning and its implementation
- Project duration: four years (2014-2018)
- Public outreach seminars: once a year in January



Activity 1



Comprehensive legal and policy review



- Law on environment protection No.52/2005/QH11
- Decree No.59/2007/ND-CP
- Circular No.13/2009/TT-BXD
- Decision No.2149/2009/QD-TTg
- Decision No.1216//QD-TTg
- Decree No.04/2009/ND-CP
- Circular No.101/2010/TT-BTC
- Circular No.121/2008/TT-BTC
- Decision No.1466/2008/QD-TTg
- Circular No.05/2007/TT-BTNMT
- Decision No.71/2010/QD-TTg
- Decision 798/2011/QD-TTg
- Decision 798/2011/QD-TTg
- Decision No.1440/2008/QD-TTg
- Decision No.1873/2010/QD-TTg
- Decree No.174/2007/ND-CP
- Circular No.39/2008/TT-BTC
- Circular No.12/2011/TT-BTNMT
- Decision No. 23/2006/QD-BTNMT
- Circular No.25/2009/TT-BTNMT
- Decision No.43/2007/QD-BYT
- QCVN 02:2008/BTNMT
- TCVN6696-2000
- TCVN 261-2001
- TCVN 670-2009
- Decision No.27/2004/QD-BXD

5

Review example 1. Is the national target too ambitious?



- Example. Recycling rate target in Vietnam (National Strategy)

Index	Definition	Target in 2015	Target in 2020	Target in 2025
Recycling rate over collected waste in urban areas	$\frac{\text{Recycled}}{\text{Collected}}$	60%	85%	90%

- Current recycling rate in Japan (including energy recovery)

$$\bullet \frac{R+Wr+Wie}{R+W} = \frac{2635+6617+33990*0.59}{2635+42616} = 65\% \text{ (in 2012)}$$

- Wie: waste incinerated with energy recovery
- R: recyclable at sources
- Wr: waste recycled
- W: waste to be disposed
- 59% of total incinerators in terms of facility number use waste energy.

6

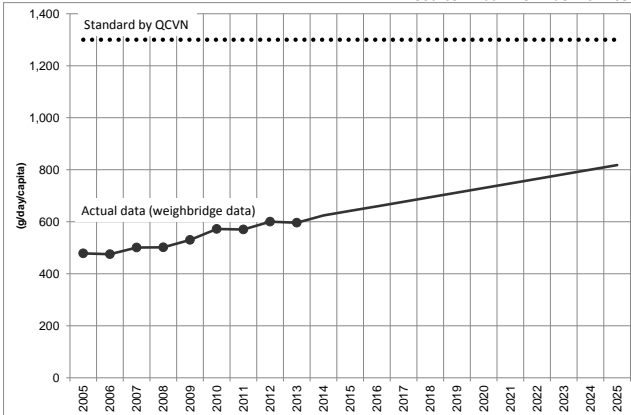
Review example 2. Is the waste amount standard too large?



■ Standard amount of domestic waste (QCVN 07/2010/BXD)

Urban type	Amount of MSW (kg/per/day)	Collection rate (%)
Special, I	1.3	100
II	1.0	≥ 95
III, IV	0.9	≥ 90
V	0.8	≥ 85

Source: Thua Thien Hue Province




Three guidance manuals



- Technology selection
- Mid-term/long-term facility development plan
- Sound financial management

ANNEX 1


Guidance manual to select an appropriate technology for treating domestic solid waste (draft)



January 2015
Vietnam Waste Project

ANNEX 2


Guidance manual for mid-term/long-term facility development plan (draft)



January 2015
Vietnam Waste Project

ANNEX 3

Guidance manual for establishing a sound financial management system for domestic solid waste treatment facilities (draft)



January 2015
Vietnam Waste Project

Activity 2



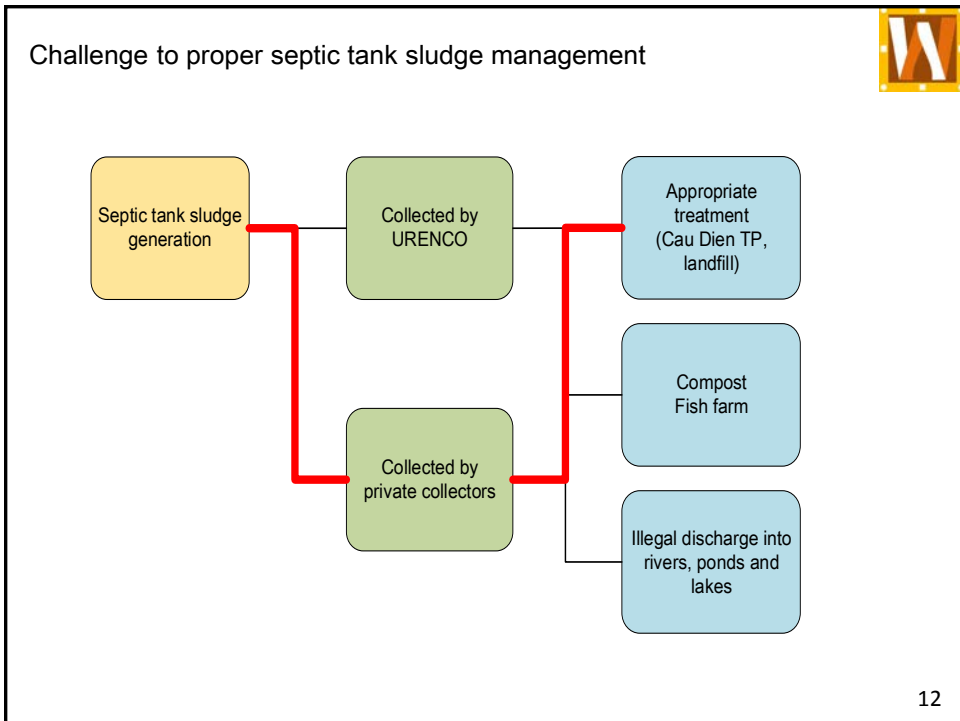
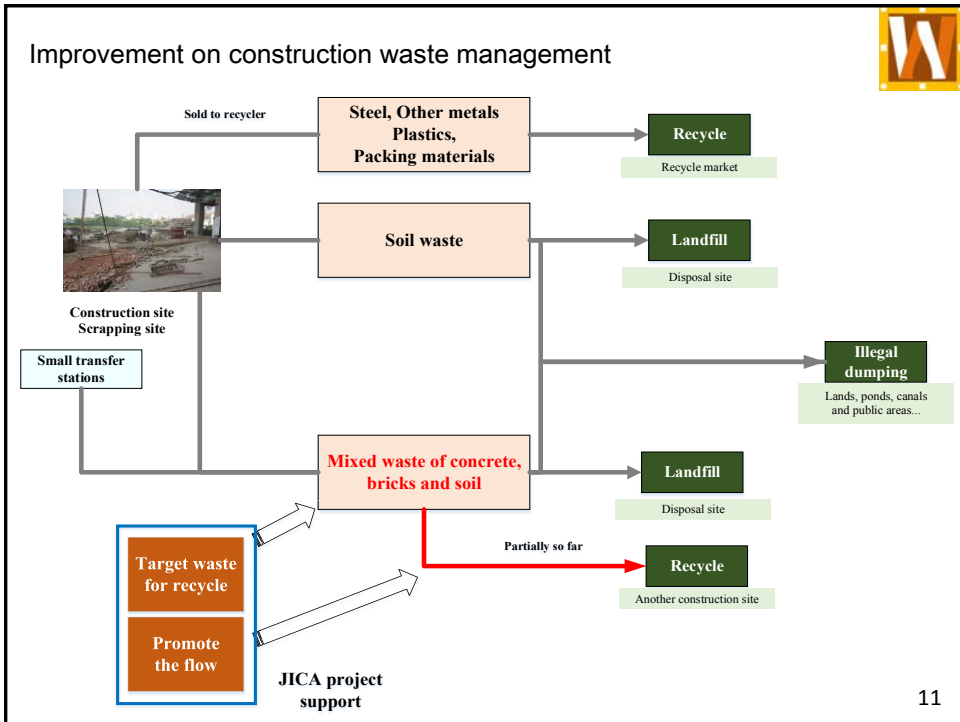
9

Implementation of Hanoi Master Plan

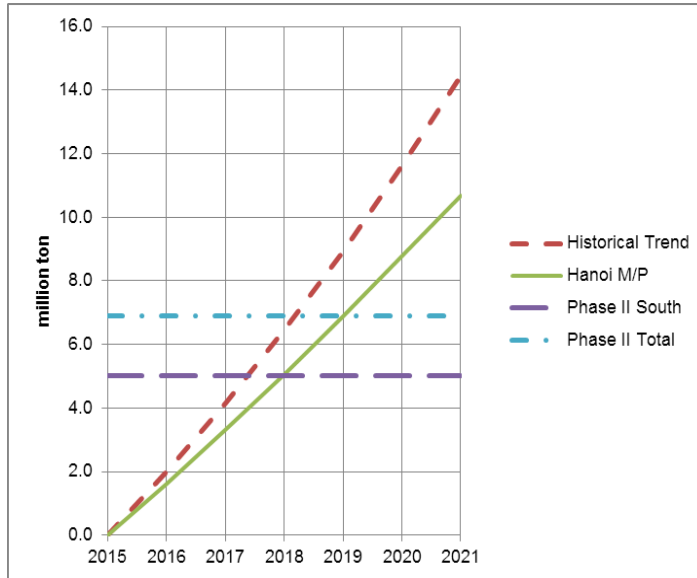


- Domestic waste
 - Source separation
 - What implication can be drawn from JICA 3R Project?
 - How to review it?
 - How to reflect to the future collection system?
 - How to collect?
 - Usage of containers ok?
 - Collection frequency appropriate?
 - How to improve the loading point system?
 - Where to transport?
 - How beneficial is a transfer station?
- Construction waste
- Septic tank sludge management

10



Crisis in Soc Son Landfill site



13

Activity 3



14

“Issues to be solved” for Thua This Hue Province



- Reasonable waste projection
- Promotion of recycling at sources
- Possible source separation
- Collection of hazardous domestic waste
- Reasonable collection system in accordance with area characteristics
- Solid waste management in rural areas
- Optimal waste stream planning
- Total cost management
- Institutional reformation
- Data management and publication
- Applicability of GIS
- Other wastes
 - Flooding waste management as “adaptation”



15

Public involvement in hazardous waste collection



◆ Target waste

Waste	Hazardousness
Dry battery	Heavy metals contained
Florescent tube	- Heavy metals contained - Dangerousness when collected
Small e-waste such as mobile phone	Heavy meals contained
...	



◆ Collection points for involvement

	Target	Involvement
Retailers	Customers	
Schools	School children	Education
Factories	Factory workers	CSR
...		



CSR: Corporate Social Responsibility



