

# **Technical Seminar: Debriefing Session for Waste Management Study Trip to South Korea**

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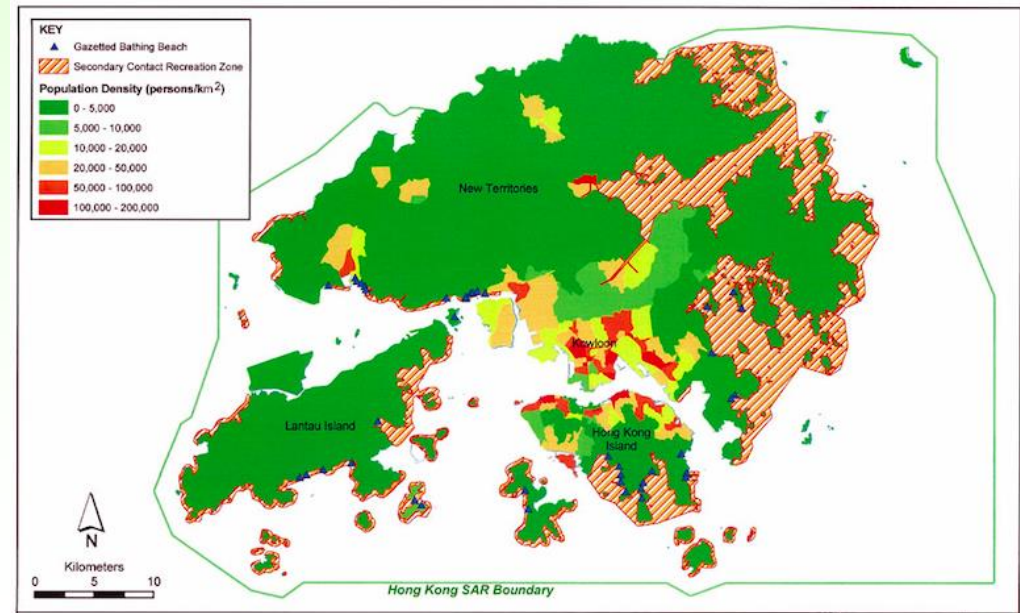


# Hong Kong's Vs Seoul Demographic



- Hong Kong
- Population : **7.347M**
- Land Area : **1,106Km<sup>2</sup>**
- GDP : **US \$43,681**

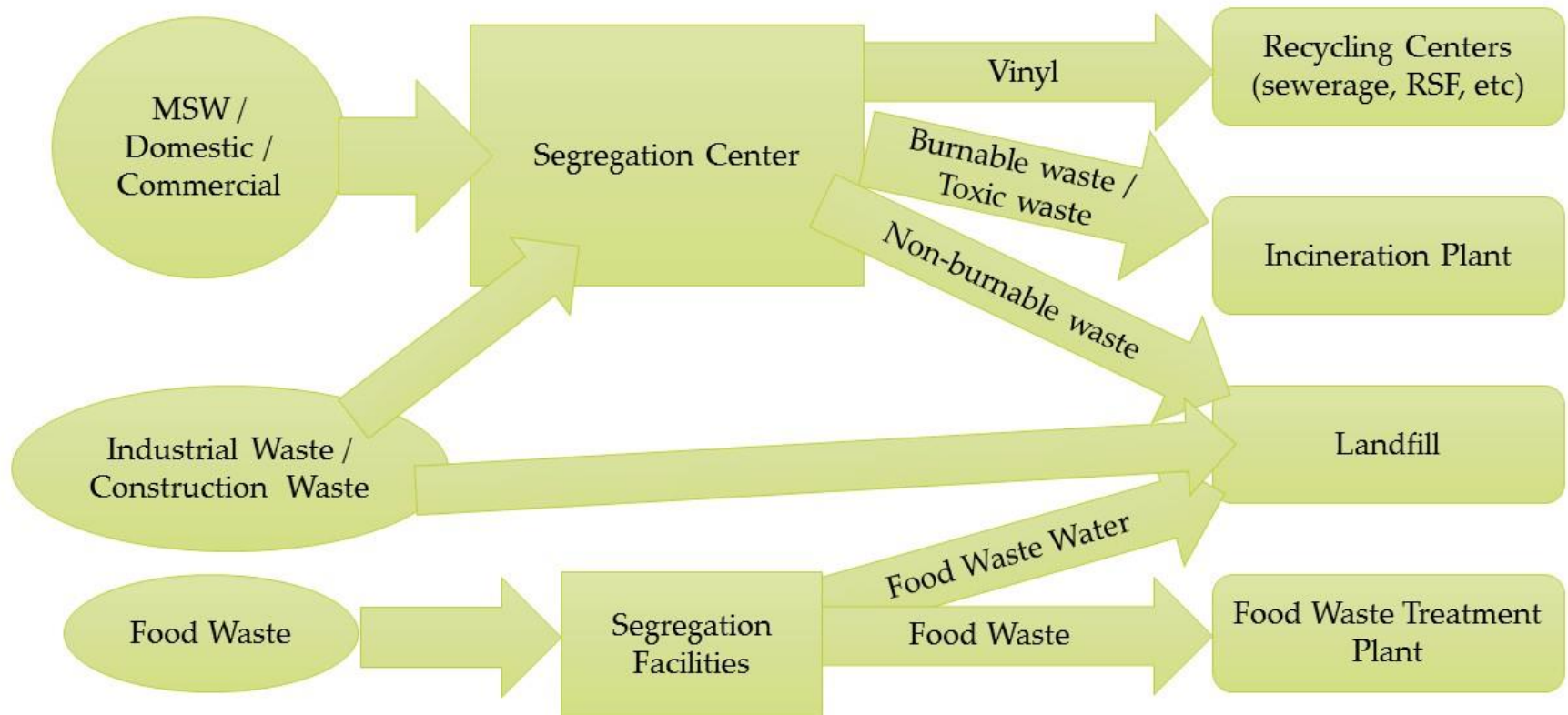
Seoul  
: **9.86M**  
: **605.3Km<sup>2</sup>**  
: **US \$42,793**



# Waste Flow in Korea



## Waste Flow in S. Korea



# Waste Strategy 2020 in South Korea



## Main Target

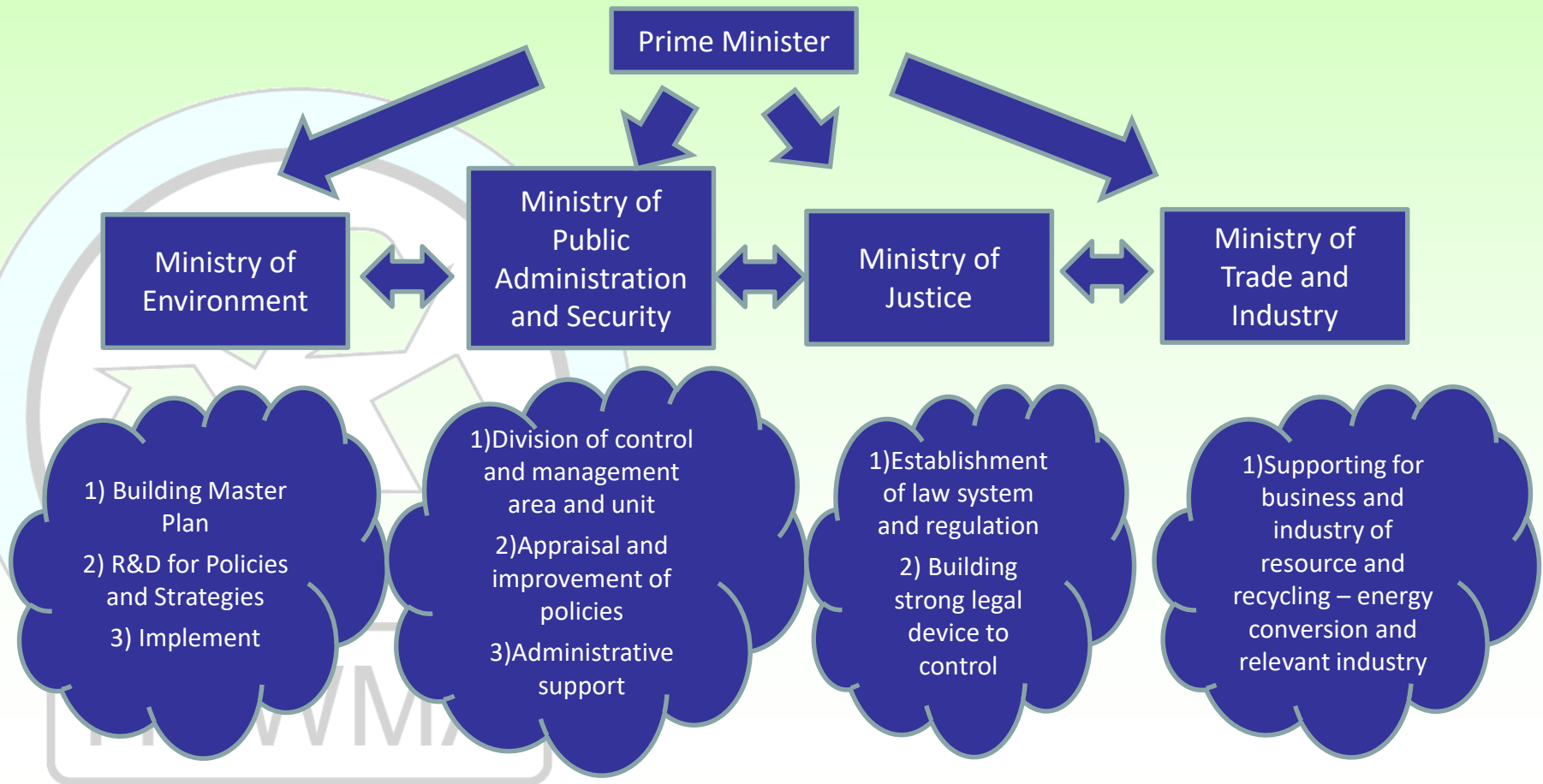
- 1) **Zero Landfill** : Ban to direct landfill of MSW within 2020
- 2) **Reducing 30% of BAU**(Business As Usual)

\*For realization of this target, South Korea government have trying to adapt few key mean.



# 1. Interdepartmental cooperation under Prime Minister

For more effective implement and improvement of MSW disposal policies, South Korea government have trying Interdepartmental cooperation. Through the organic solidarity between each department in government, target strategy could be realized more effectively in short-term. Few policies fruits is relatively successful such as MSW charging scheme and food waste charging scheme using this way.



## 2. Reduction, sorting and effective disposal for reduction of landfill



For Zero landfill strategy, Korea government adapts systematic plan to reduce MSW for landfill.

1<sup>st</sup> stage is waste source identification such as household and industry. Korea government have adapted various policies such as MSW and food waste charging scheme and waste sorting scheme based on each characteristic such as geometrical, population and so on.

2<sup>nd</sup> stage is sorting and recycling. Korea government thrust few recycling policy and plan to reuse and recycle the resource from waste. Government have strongly pushing waste sorting scheme connecting with waste charge.

3<sup>rd</sup> stage is treatment. According to waste's characteristic, optimized treatment facilities have been built such as incinerating plant, Bio-gas plant, Plastic recycling plant and so on and those optimized treatment facility can contribute to reduce landfill waste and realize government target.

### **3. Periodical appraisal and improvement and synchronization of improved system for each city and province**



For improvement of the hardware such as treatment facility and software such as policy, law and standard, Korea government have doing periodical appraisal for both of hardware and software.

According to treatment method, appraisal target can be divided by 6 areas and each area would be appraised by few factors such as operation record, operation rate, energy usage rate, emission rate and so on. After appraisal, Ministry of Environment award the facilities and unit with high ranking and their operation method and advantages could be shared to other unit for synchronization of improvement.

For policy and law system, Ministry of Environment and Ministry of Public Administration and Security have doing appraisal and research periodically to improve it as well.



# Study Trip schedule



<b>DAY 1 (12 JUNE)</b>	Arrival at Incheon Airport
	Site-Trip: ARCS of OHsystem
<b>DAY 2 (13JUNE)</b>	Site-Trip: Plastic bag and vinyl recycling center
	Site-trip: Waste sorting spot and RFID system in apartment house
	Site-trip: Food waste treatment center
	Networking Meeting and Dinner with Korea Waste Engineering Association
<b>DAY 3 (14JUNE)</b>	Kick-off meeting and MOU sign ceremony
	Site-trip: SUDOKWON Landfill & auxiliary facility
<b>DAY 4 (15JUNE)</b>	Workshop of waste charging and sorting policy in Korea
	Dreampark resource recycling forum



# Study Trip schedule

1 : Automated Refuse Collecting System in Siksa residential complex

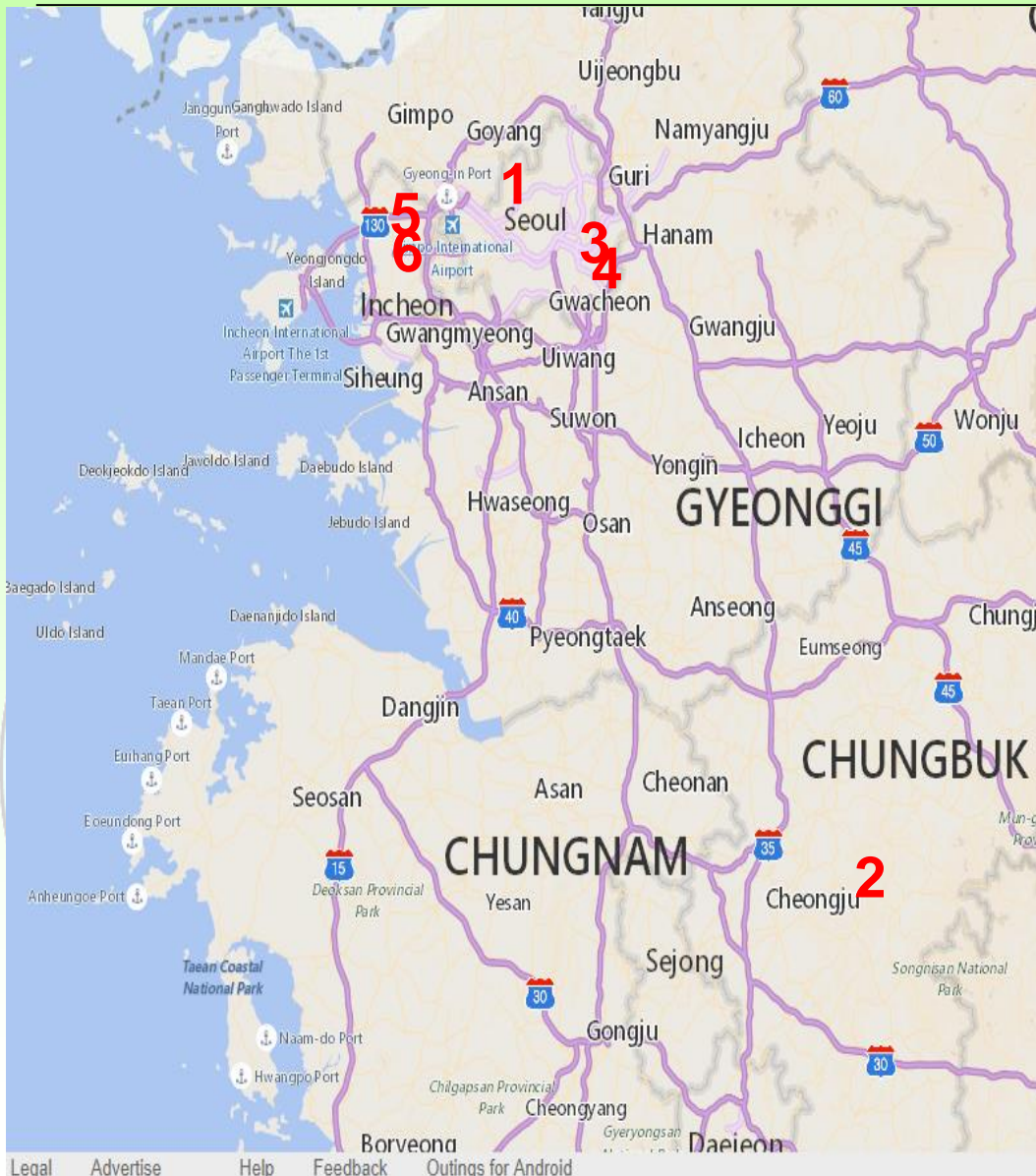
2 : Waste plastic film and vinyl recycling plant (Sangmyeong Green Industry Corp)

3 : Food waste collecting and weighing system based on RFID

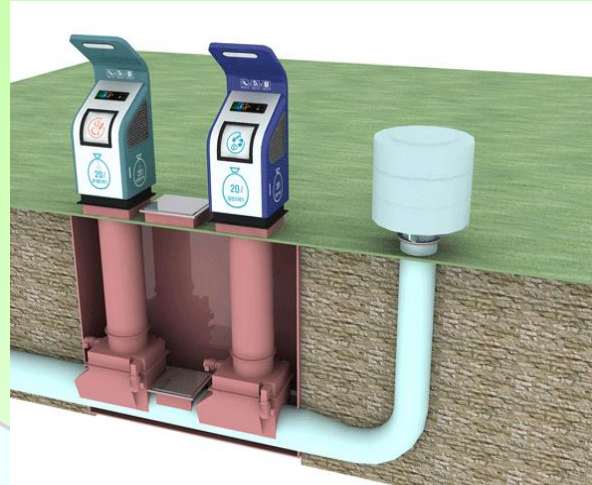
4 : Food waste biogas treatment facility in Seoul

5 : SUDOKWON(Capital area) Landfill

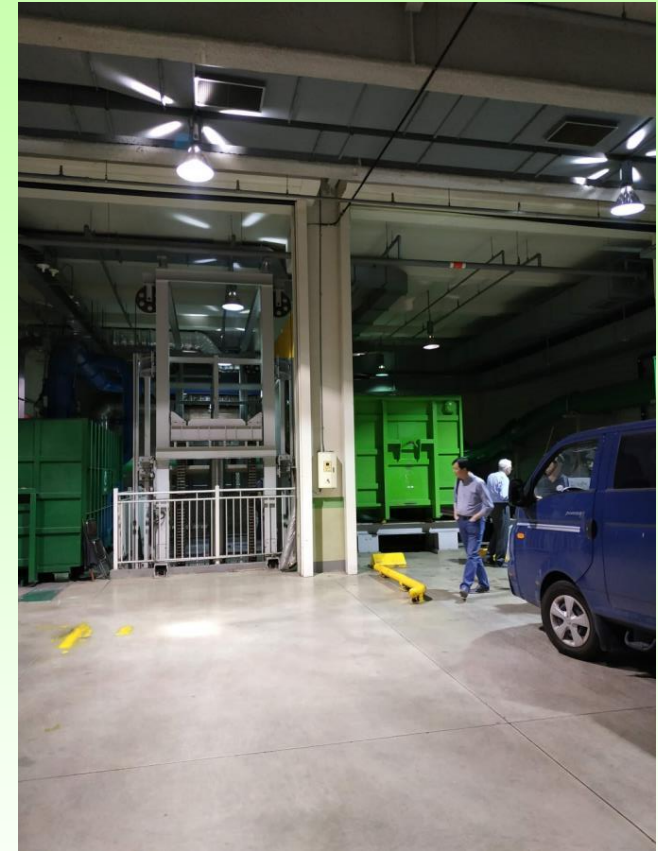
6 : Environmental Industry Research Complex(Forum venue)



# ARCS of Ohsystem



- Pre-paid garbage bag with RFID to activate the system inlet point
- Siksa residential complex is the one of biggest planned residential area in South Korea. The complex has adapted Automatic Refuse Collecting System covering entire residential area with state of the art technology. The **longest** pipe line total length is 21km



- Automatic waste container swapping/lifting system under basement



# ARCS of Ohsystem



Automatic food waste collection and separation

# Plastic bag and vinyl recycling center



- Sangmyeong Green Industry Corp is specialized at the recycling product using waste plastic film and vinyl collected from residential and industrial area. Waste plastic film and vinyl is collected and packed on each collection spot and recycling center and delivered to this plant as raw material for products.





# Waste sorting spot and RFID system in apartment house



- Songpa Habio Prugio Apartment house complex (111, songpa-daero, Songpa-gu, Seoul)
- Number of households: 10 buildings (999 households)



- RFID system has three main features which are RFID user identification system, weighing system and wireless telecommunication system.
- This three features are satisfying all management company and government needs to monitor entire process of waste collection and transportation and build a database with user identification and waste weight for charging fee with fully automation way.



# Food waste treatment center



Capacity : 450t/day

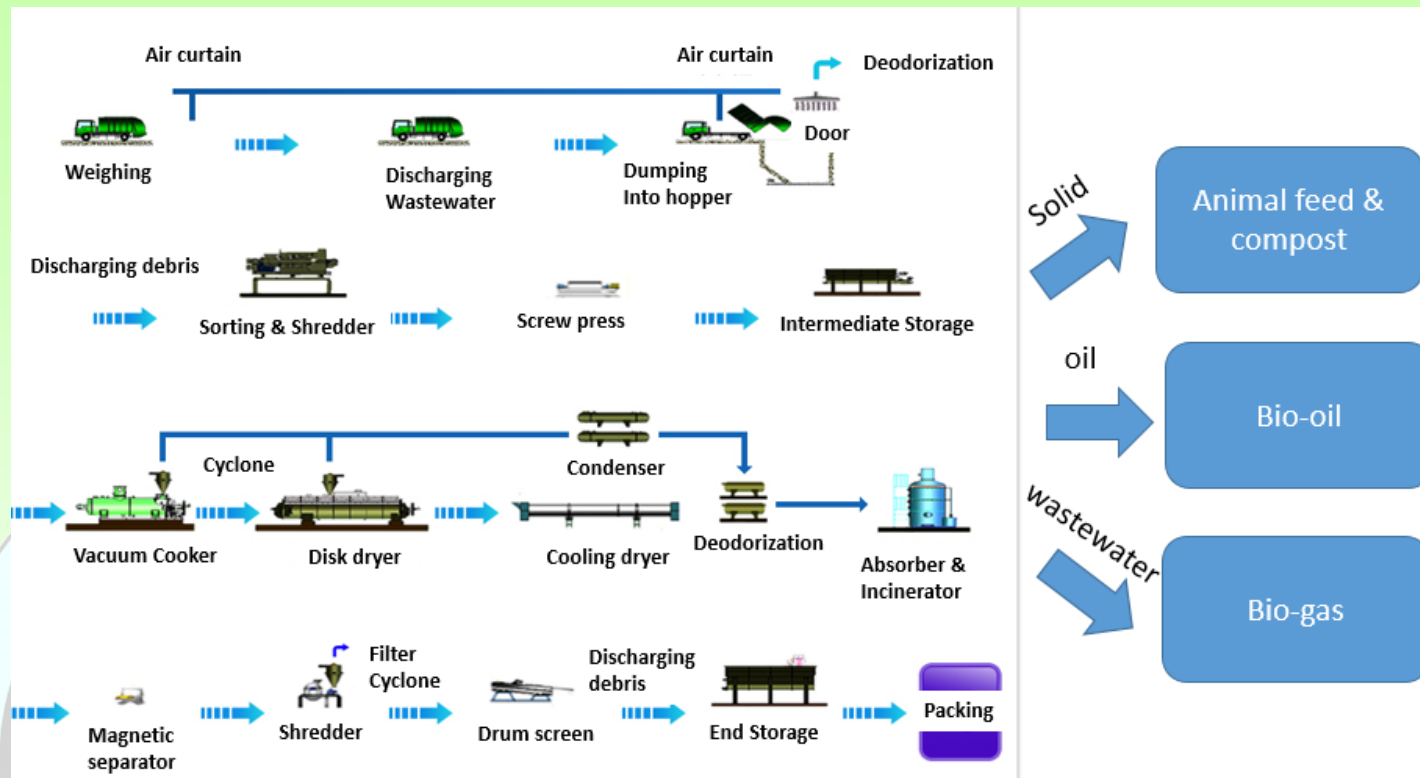
Daily throughput: 14,000Nm<sup>3</sup>

Generation amount of food waste water: 40Nm<sup>3</sup> per 1m<sup>3</sup>

Contents of output (Biogas):  
Methane(60.5%), CO<sub>2</sub>(38.9%)



# Food waste treatment center



Food waste could be separated by solid, liquid contents and liquid contents could be divided by water and oil contents again. Oil content account for 1% of whole contents and it is directly separated from other contents and produced as bio-oil. Solid and water contents are recycled as animal feed and biogas media



# Networking Meeting and Dinner with Korea Waste Engineering Association



# Kick-off meeting and MOU signing ceremony



## 수도권매립지관리공사·홍콩폐기물관리협회 양해각서 체결

### 매립기술·고형연료제품 생산 등 우수 기술 전파 기대

수도권매립지관리공사가 홍콩 폐기물관리협회와 손잡고 폐기물 처리 기술 노하우를 공유한다.

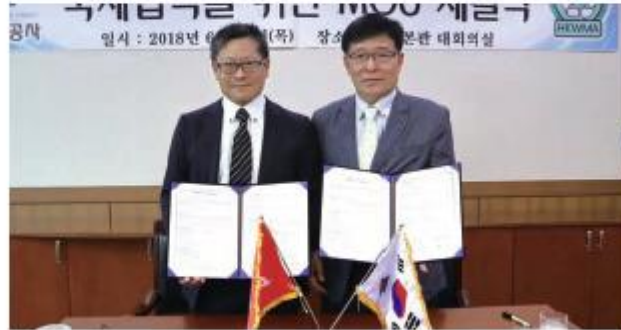
수도권매립지관리공사는 14일 홍콩 폐기물관리협회와 폐기물 처리 기술의 향상과 발전 및 우호관계의 구축과 증진을 위한 양해각서를 체결했다.

양해각서 체결에 따라 양 기관은 폐기물 관리와 폐기물 자원화, 환경 관리 분야에 협력하기로 했다.

또 폐기물기술정보 교환, 강의, 강연 등 심포지엄 등의 참여에도 협력하기로 했다.

수도권매립지관리공사는 관계자

건조연료화 처리기술, 고형연료제품 생산 등 공사의 우수한 기술을 전파할 수 있는 기회가 되길 기대한다"고 말했다. 성장순기자 sdb0770@hanmail.net



14일 수도권매립지관리공사와 홍콩 폐기물관리협회는 폐기물 처리기술 발전 및 우호관계의 구축을 위한 양해각서를 체결했다.



	E-news today
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	Today energy



# SUDOKWON Landfill & Landfill auxiliary facility (1)



SUDOKWON(Capital area) Landfill is not only the biggest landfill but also the biggest comprehensive environment industrial complex including landfill gas plant, leachate treatment system, wastewater of food waste treatment system, waste recycling center and SRF plant in South Korea.



Leachate treatment facility is for treatment of leachate discharged from 1st and 2nd landfill

Landfill gas plant is for generation of electricity using methane gas generated from landfill which capacity is 50MW.



# SUDOKWON Landfill & Landfill auxiliary facility (2)



1st landfill is closed and finished the operation on Oct in 2000. It has been main golf field for 2014 Incheon Asian Game.

2nd Landfill: 15,000 tons of MSW per day from capital area including Seoul, Incheon and Gyunggi-do Province is buried on this landfill



# SUDOKWON Landfill & Landfill auxiliary facility (3)



- Converting combustible waste into Solid Refuse Fuel (SRF)
- Pilot scale: 200T/day
- After pretreatment, SRF production using combustible matters
- Markets: thermoelectric power plants, district heating, industrial boilers



# SUDOKWON Landfill & Landfill auxiliary facility (4)





# Workshop of waste charging and sorting policy in Korea



# Hong Kong Waste Management Strategy 2020



HKWMA



**Thank you!**

