

The 8<sup>th</sup> Work shop on GHG inventories in Asia (WGIA8)

Vientiane , Laos PDR

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## GHG emissions from waste sector of INC of Myanmar

Presented by

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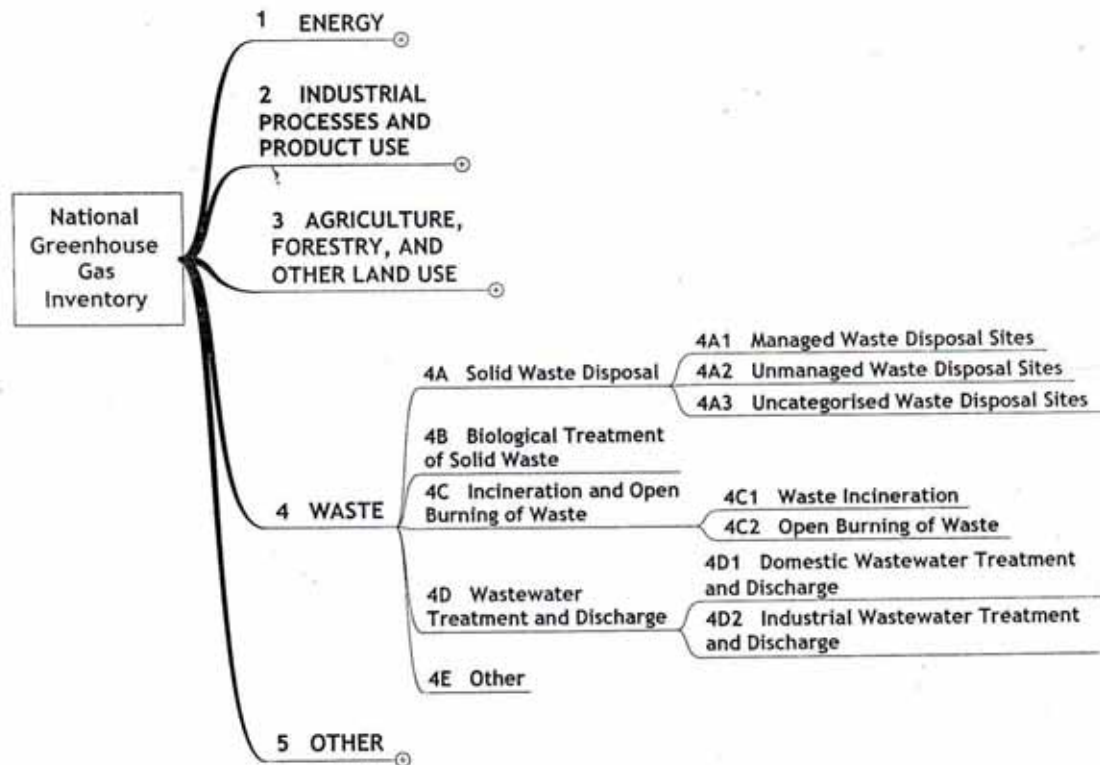
- The concept of “ Waste ” is replaced
  - by a concept of waste as a “ resource ” for a sustainable development approach

- Municipal Solid Waste is generally defined as Waste collected by Municipalities or other local authorities .



- For National Greenhouse Gas Inventories ,
- estimation of Carbon dioxide (CO<sub>2</sub>) , Methane (CH<sub>4</sub>) ,
- and Nitrous oxide (N<sub>2</sub>O ) emission from waste is
- to be calculated

# Structure of Waste Sector





## ● **Waste generation and Management Data in Myanmar .**

- Base Year : 2000 ,
- Estimated Population: 50.125 Million ,
- Population in Urban Area : 15.03 Million,
- (about 30 % )
- Waste Generated Rate : 0.278 kg/Cap: / day ,
- Total Waste Generated per day : 1514.12 Gg ,
- Waste disposal to site : 1211.9 Gg ,
- Methane emission from this source : 133.309 Gg .

- Waste incineration is the combustion of solid and
- liquid waste in controlled incineration facilities .
- About 8% of waste collected is incinerated and
- open burnt in sub-urban townships and quarters .



- Methane Emissions from Domestic and Commercial Wastewater and Sludge Treatment (Work sheet 6-2 ) is
- 1.257 Gg .



- Total Emission of Methane ( $\text{CH}_4$ ) from Waste Sector is 133.309Gg plus 1.257 Gg that is equal to 134.57 Gg

## Estimated Methane Emissions By Years in Myanmar .

Years	From <u>SWDs</u>	From Domestic & Commercial Waste-water	From Sludge	Total Emissions
2000	133.31Gg	1.198Gg	0.059Gg	134.57Gg
2001	136.05Gg	1.222Gg	0.060Gg	137.206Gg
2002	138.01Gg	1.240Gg	0.061Gg	139.311Gg
2003	141.59Gg	1.272Gg	0.063Gg	142.925Gg
2004	144.396Gg	1.297Gg	0.064Gg	145.757Gg
2005	147.32Gg	1.320Gg	0.065Gg	148.70Gg
2010	157.32Gg	1.420Gg	0.070Gg	159.44Gg
2015	172.690Gg	1.550Gg	0.076Gg	174.30Gg
2020	188.650Gg	1.700Gg	0.083Gg	190.40Gg





- Waste to Energy Processes

- ) 3 – R Objectives

- MSW Minimization

- (a) Recycle / Reuse

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- (Recycling and Reutilization )

- (b) Recover (Energy utilization .)

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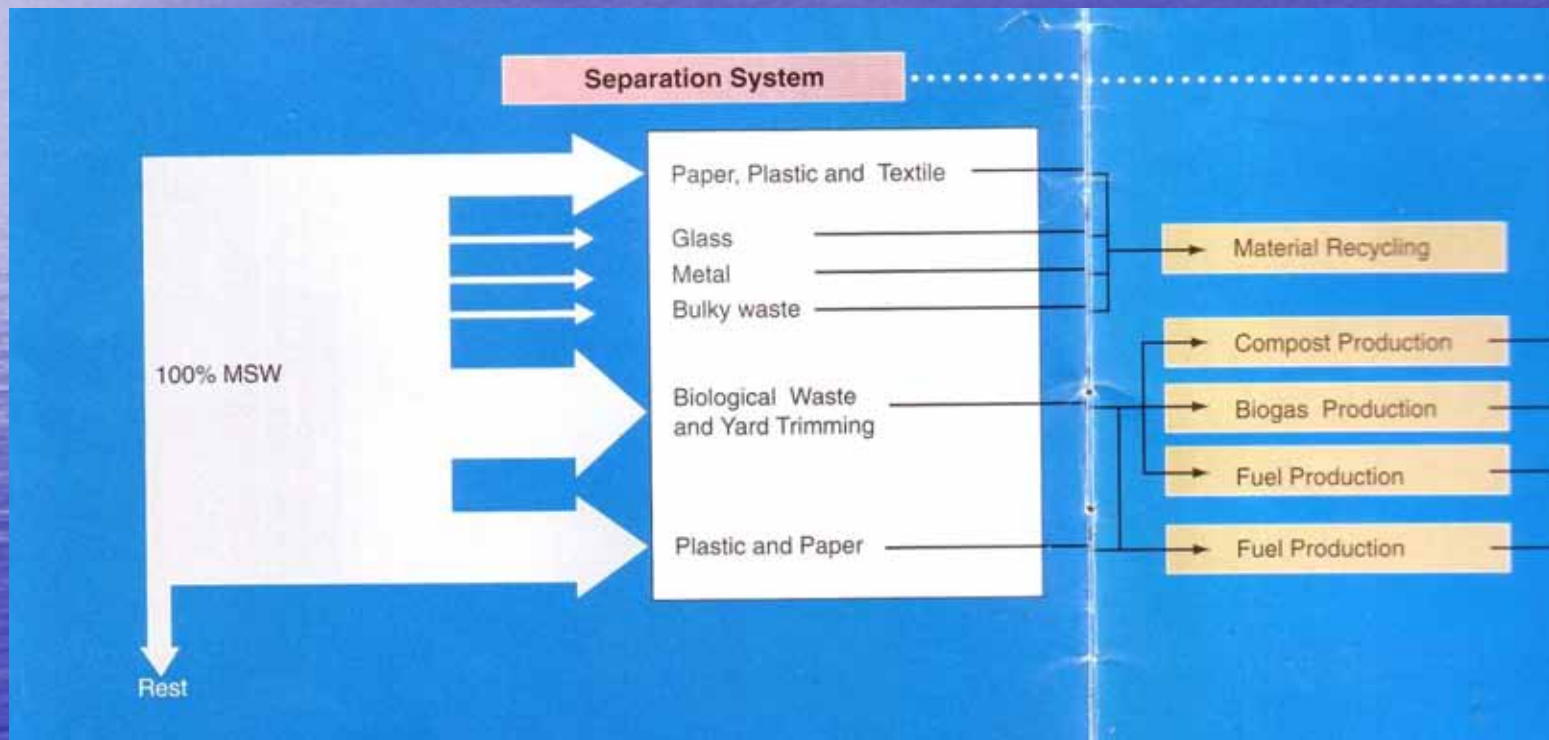
- © Reduce ( Disposal )

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- From a global perspective ,
- such efforts are of great service
- to society in the long run .

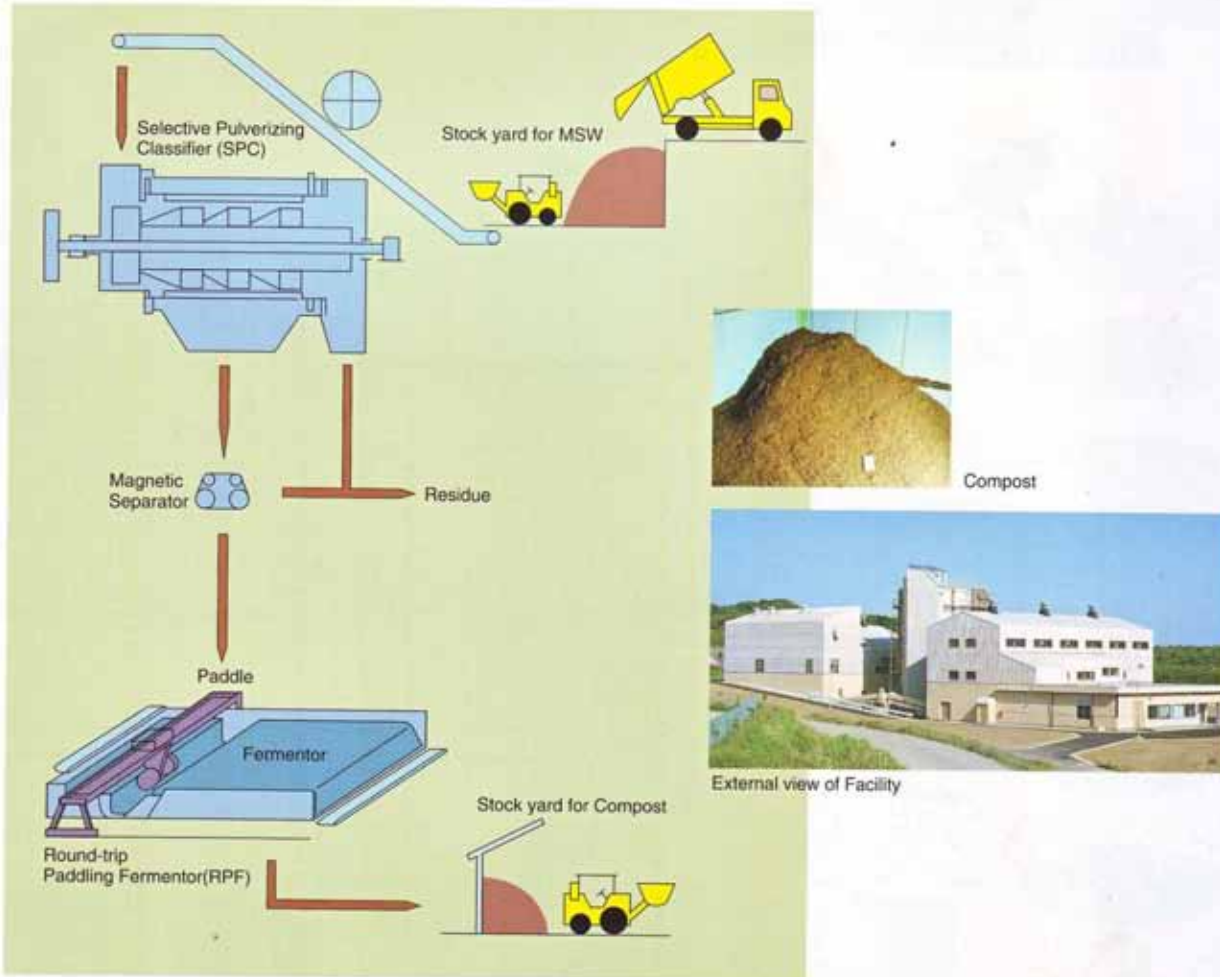


# Separation System

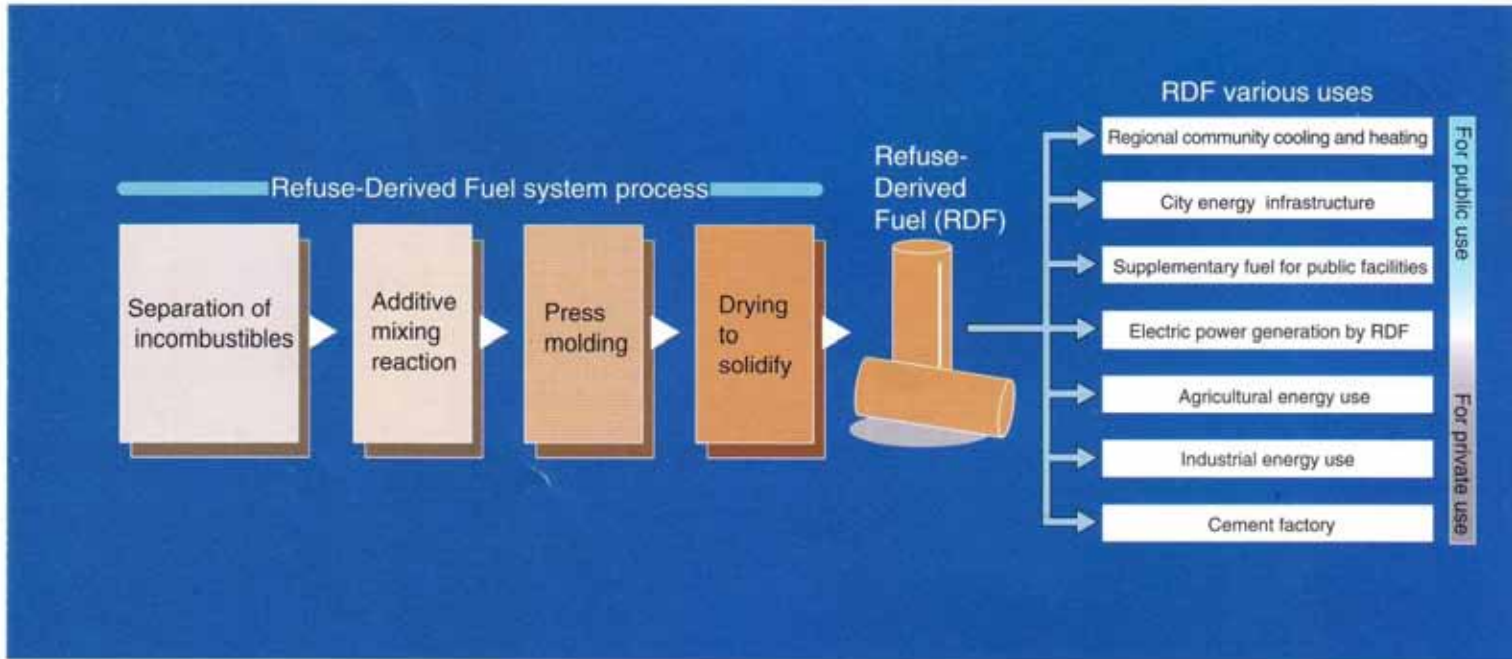


# Compost

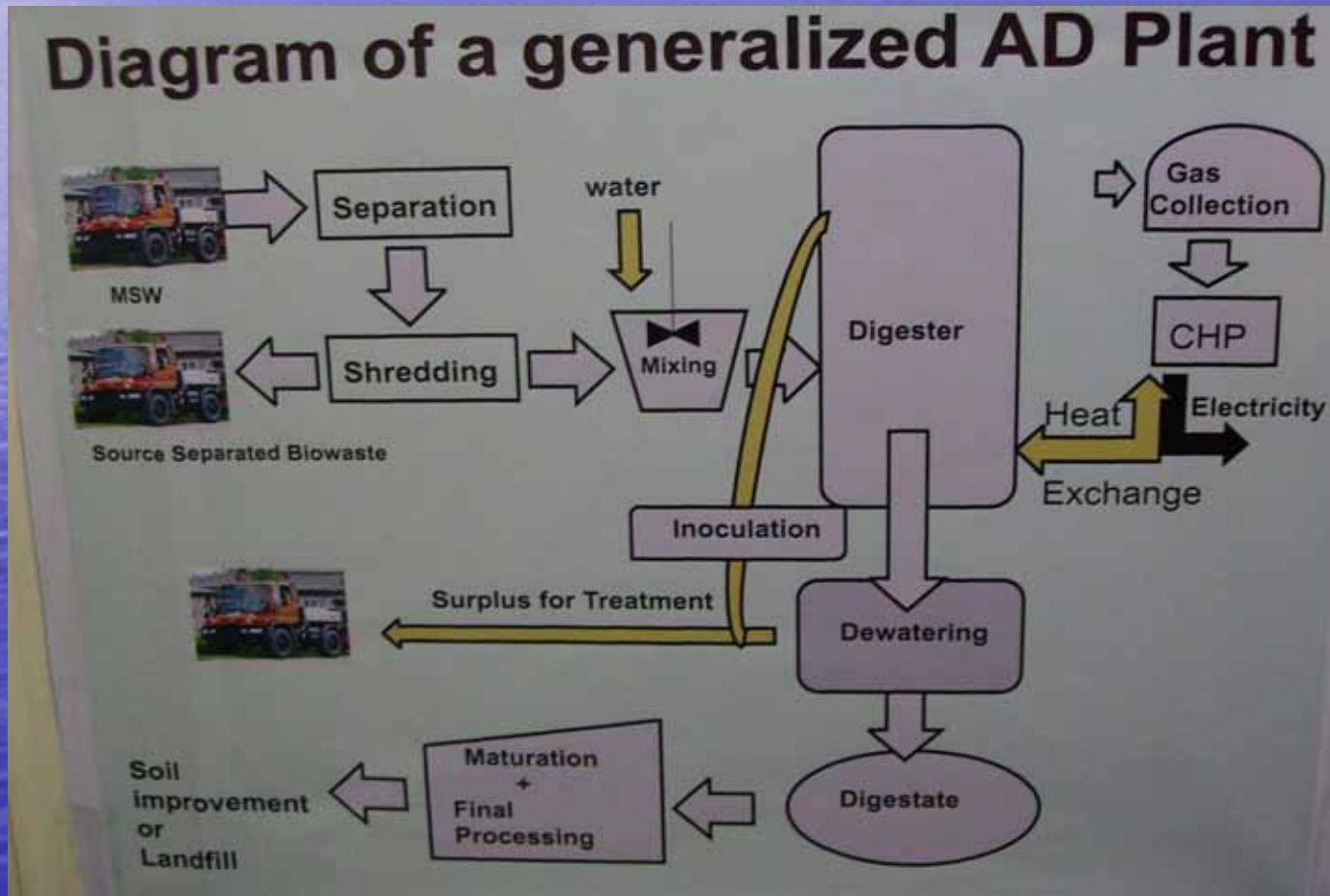
## Example of Composting Process





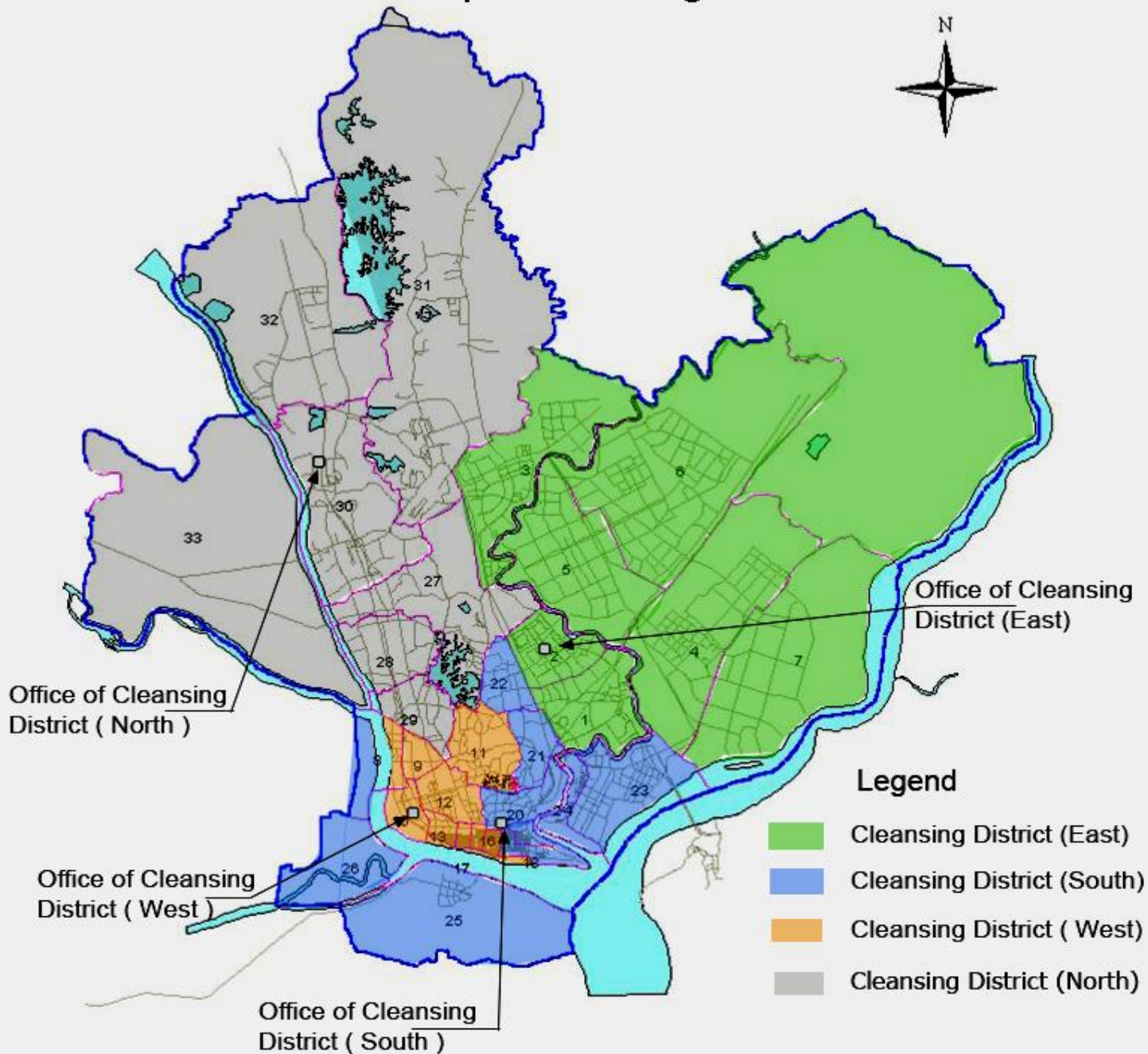


# Bio gas (methane)





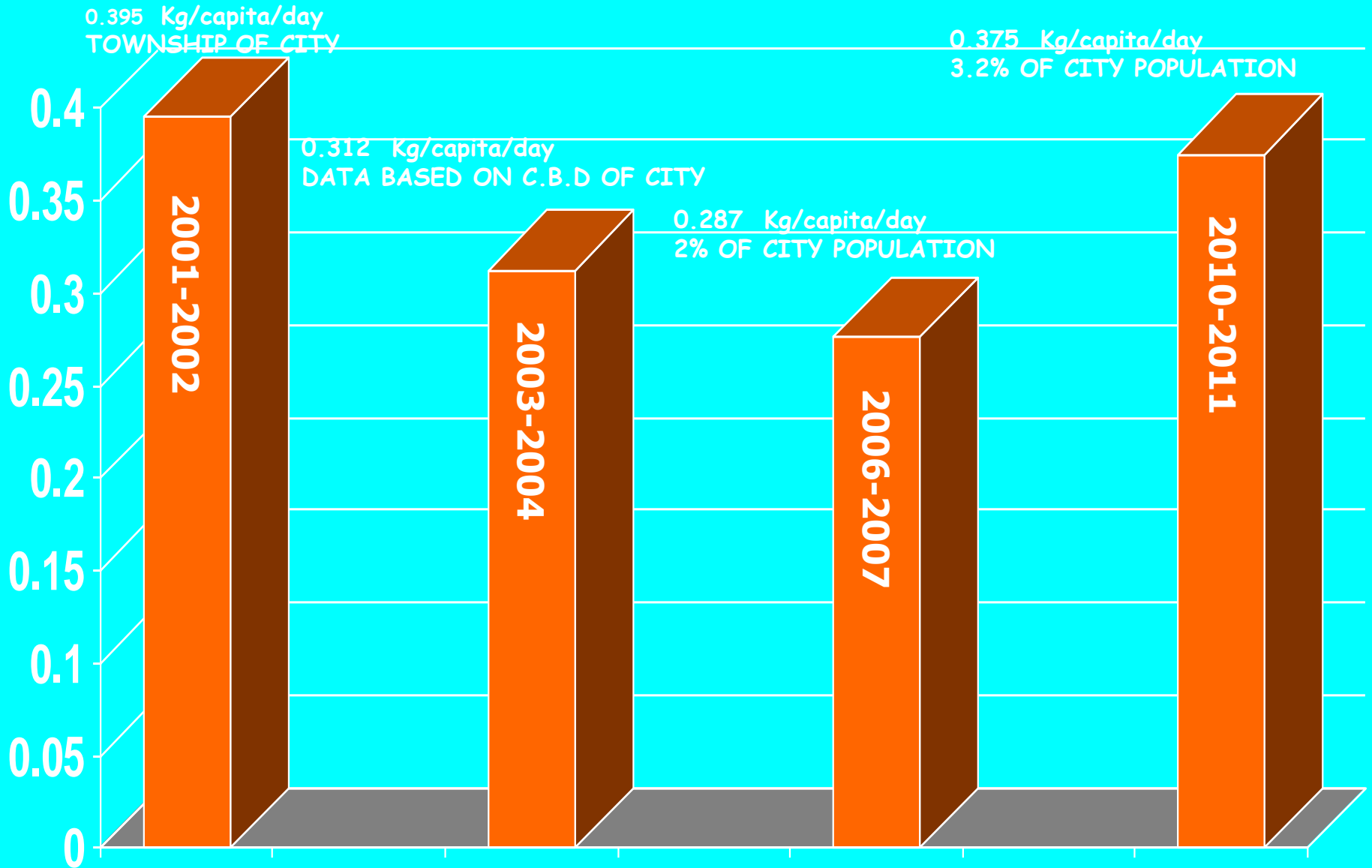
## Location Map of Cleansing District



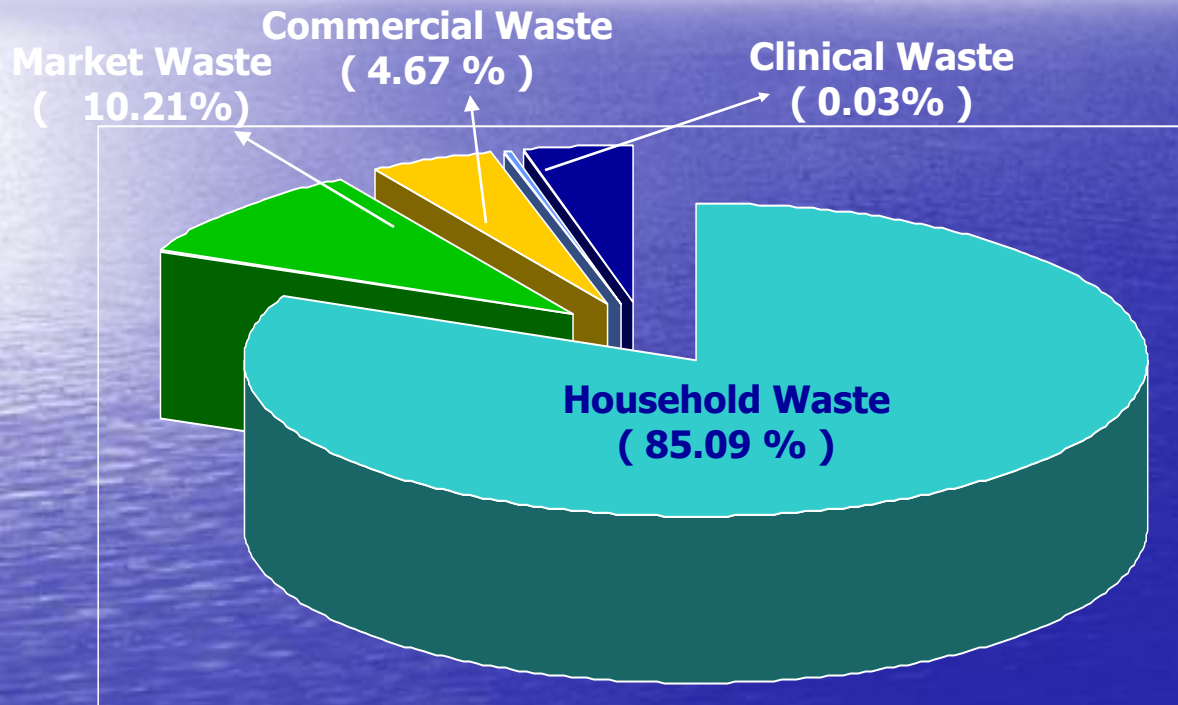
➤ Yangon is divided by four cleansing districts in order to perform the solid waste management effectively.



# Generation Rate Household Waste

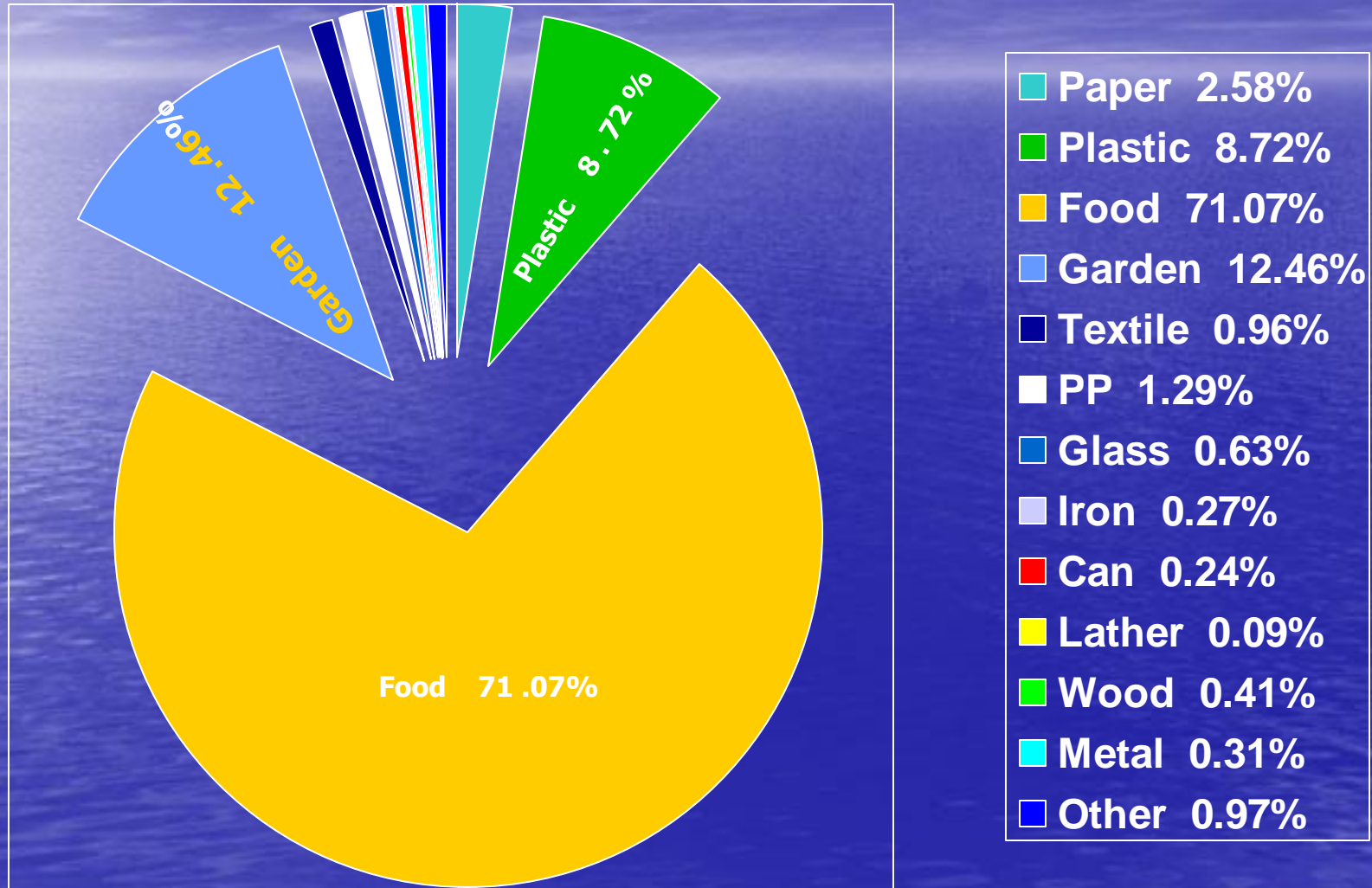


# WASTE CATEGORIES (Ton Per Day) 2010-2011 SURVEY DATA



**Household Waste**  
1725.53 Ton/day  
**Market Waste**  
206.96 Ton/day  
**Commercial Waste**  
94.68 Ton/day  
**Clinical Waste**  
0.74 Ton/day

# TYPICAL COMPOSITION OF HOUSEHOLD WASTE IN YCDC 2010- 2011 SURVEY DATA





# Collection system

- 289 collection vehicles and uses these of 143 units daily as of 2009
- Waste collection ratio is only 80%.
- Collection as practiced by PCCD can be categorized in three types:
  - ❖ Bell ringing system (in this system, collection vehicles pass through streets with bell ringing so that people can come out to dispose garbage into it )
  - ❖ Collection at a street dumps yard
  - ❖ Temporary storage system ( in this system , people have to dispose garbage legally temporary storage tanks, i.e. Brick tank within 6 pm to 6 am. )





## Vehicles and man power

- (289) transportation vehicles and heavy machinery
- (29) officers in my department
- (3954) persons cleansing force works in city.





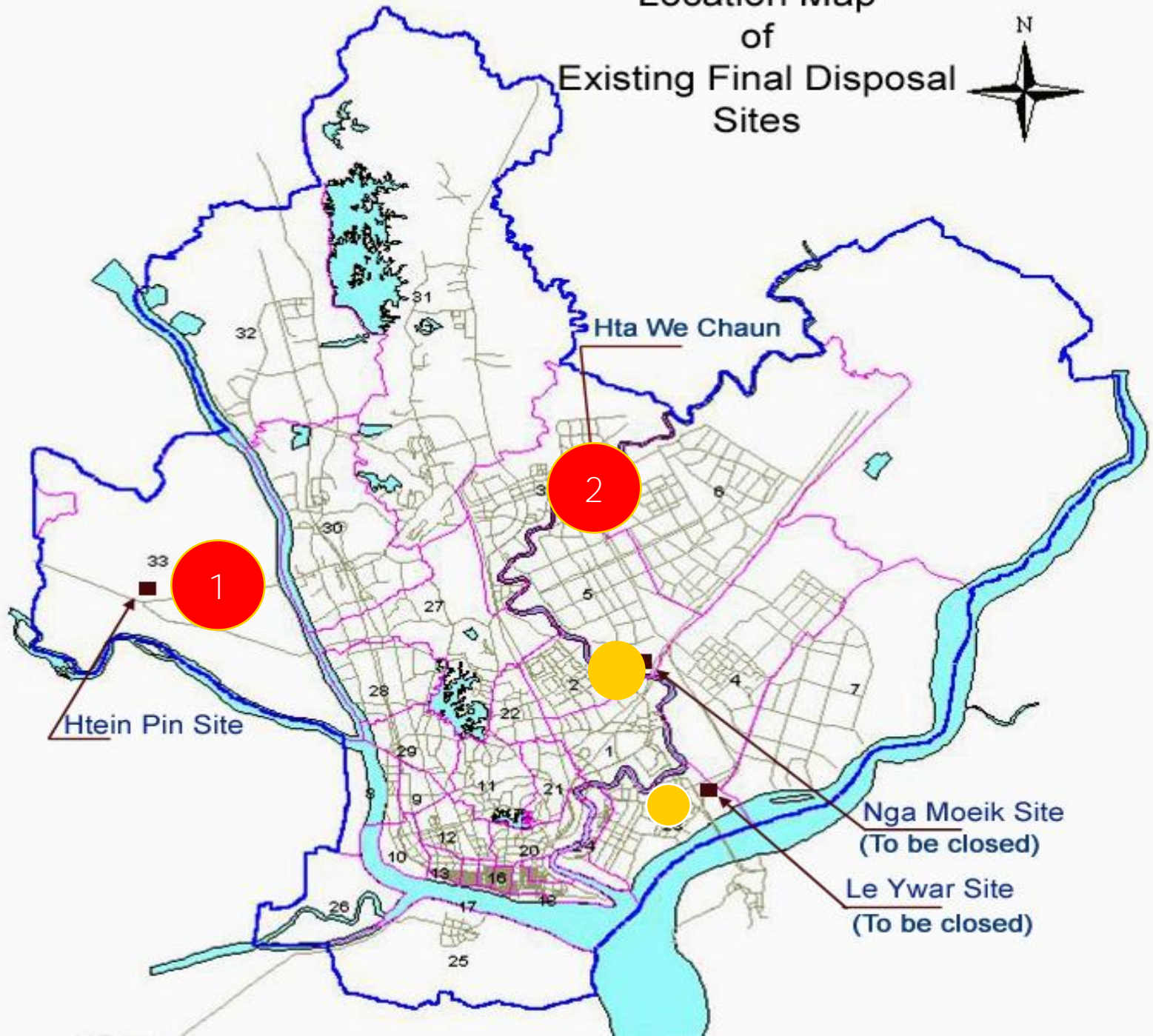
There are various types of vehicles in transportation of solid waste. They are too busily used for long term. It should be replaced with new ones.



HEAVY TRUCK,  
TEN WHEELS



# Location Map of Existing Final Disposal Sites



## FINAL DISPOSAL SITES

NO	FINAL DISPOSAL SITE	LOCATION ; TSP	AREA ACRES	DISPOSED TON PER DAY	REMARK
1	<i>HTAINBIN</i>	<i>HLAINGTHARYAR</i>	<i>56.55</i>	<i>812</i>	<i>OPEN DUMPING</i>
2	<i>HTARWAICHAUNG</i>	<i>NORTH DAGONE</i>	<i>22.88</i>	<i>162</i>	<i>OPEN DUMPING</i>
3	<i>ALEYWA</i>	<i>THAKETA</i>	<i>22.5</i>	<i>650</i>	<i>OPEN DUMPING</i>

OTHER FIVE SETTLITE TOWNS ARE DISPOSED TO PROPER DISPOSED IN THEIR TOWNSHIP.





## Activities in Disposal Sites







## Activities in Disposal Sites





**Thank you for your attention**

