Sweep-Net’s 3rd Regional Forum

USING WASTE ATLAS FOR FORECASTING WASTE IN MENA REGION

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All about waste knowledge
What is Waste Atlas?

- 162 Countries
- 1582 cities
- 650 SLs
- 700 WtE
- 96 MBTs
- 72 BTs
- 46 of the world’s biggest dumpsites

Useful Features
Waste Generation Per Capita (kg/yr)

The average amount of Municipal Solid Waste (MSW) generated annually per person.
Global Correlation Charts

Waste Generation per Capita vs GDP per Capita

Log10[GDP per Capita (current US $/yr)]

Waste Generation per capita (kg/yr):
The average amount of Municipal Solid Waste (MSW) generated annually per person

GDP per capita (current US$):
GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.

* Note: This graph uses logarithmic scale values of GDP per Capita
Waste Atlas in brief…

As a waste map…

• **Global** alliance of organizations that promotes sustainable waste management

• **Free** for everyone who needs such data

• **Crowdsourced** by scientists and professionals

Beyond visualization…

• A powerful tool for **waste planners**

• A unique database waiting for **researchers** and **academics** to study it

• A valuable source for every **decision maker** and **consultant**
An example: Waste forecast

- Waste forecast is one of the most usual demands for any plan and facility.
- Usual approaches are based on steady or variable rates of increase (e.g. X% for year) of waste generation per capita.
- Population increase is usually taken as given and steady as well.
- Relation with the economic growth is usually ignored.
But unfortunately...

- Waste generation is linked with the economic growth
- Population forecasts include uncertainties
- Consumption patterns are affected by urbanization rates too

And then waste forecasts are invalid or even worse useless...

...and this results to serious mistakes in sizing of facilities and budgeting
Utilizing Atlas data

**Waste Generation per Capita vs GDP per Capita**

![Graph showing the relationship between waste generation per capita and GDP per capita.](image)

*Note: This graph uses logarithmic scale values of GDP per Capita*

**Definitions**

**Waste Generation per capita (kg/yr):**

The average amount of Municipal Solid Waste (MSW) generated annually per person.

**GDP per capita (current US$):**

GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.
Forecast about Sweep-Net’s members

Forecasts made are based on changes and projections in:

1. GDP per capita
2. Consumption patterns
3. Population
4. If we had data regarding the urbanization rates we could utilize it as well

All these parameters have significant uncertainties
Means to manage uncertainties

• Inputs & their uncertainty

  • Global Economic Prospects for MENA region (January 2013), World Bank
  • World Population Prospects (2006), UNPD
  • Current waste generation

• Use of a stock exchange software @Risk

  • Probabilistic analysis using Monte Carlo simulation
  • Beta Generalized Distribution (working function) instead of fixed figures
Outcomes

Egypt, Arab Rep. / 2012 to Egypt, Arab Rep. / 2020

- 95%
- 75%
- Mean
- 25%
- 5%
Per capita – 7 countries
2020: 90% possibility waste generation per capita to be between 277 and 290 kg and 50% possibility to be between 280 and 285 kg
2020: 90% possibility waste generation to be between 62 and 65.4 million tonnes and 50% possibility to be between 63.2 and 64.2 million tonnes.
Conclusions


2. High increase in waste generation is expected

3. Coordinated actions are required
Thank you for your attention!!!
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Presentation available on:
www.d-waste.com