RP2002

ETWW DEMAND FORECASTING

A concept framework capable of clarifying different components of municipal waste management

Residents of cities are consuming an increasing proportion of finite resources and producing a growing amount of municipal waste. Current impacts of municipal waste generation on the environment requires improved municipal waste management system (MWMS). The system needs to integrate three principal components:

i. Regional scale (country, district, and household level);

ii. Modelling methods to predict the amount of municipal waste and analyse the interrelationships between waste quantity and a set of variables at different regional scale;

iii. MWMS drivers.

The poster introduces a conceptual framework representing these components of MWMS (Fig.1).

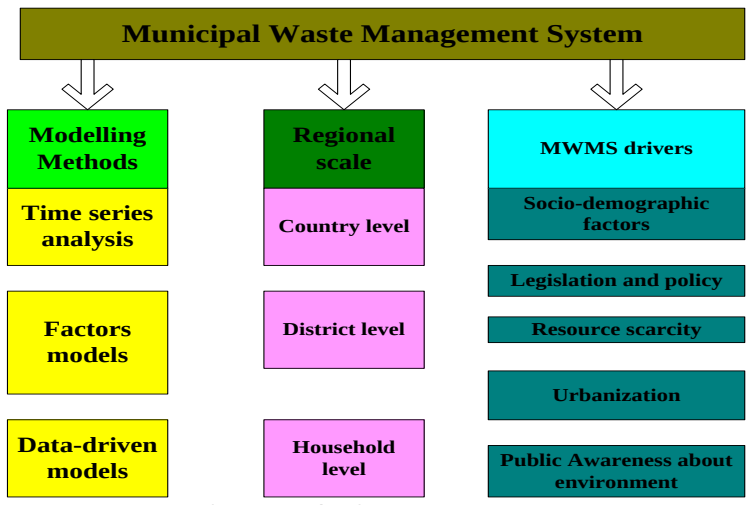

Fig.1. A concept framework of MWMS

Components

1. Regional scale

The regional scale refers to the physical boundary of MWMS. Each level of the regional scale requires different research methods (Fig.2).

Country level: connections between waste quantity and census-related and economic data.

District level: comparison analysis regarding waste quantity and the factors among different states or cities.

Household level: relationships between waste quantity and a set of household characteristics.

Fig.2. Different levels of regional scale and research methods

2. Modelling methods

The optimal model needs to be selected from quantitative methods applied to municipal waste generation. These methods can be classified into three sets: time series, data-driven and factor models (Fig.3).

Time series models	Data-driven models	Factor models
• Deducing variation patterns with time	• Input-output data being able to identify their relationships	• Identify the interrelationships among socio-economic factors with municipal waste generation

Fig.3. Three of the main modelling methods

3. MWMS drivers

Five types of MWMS drivers are socio-demographic factors, legislation and policy, resource scarcity, urbanization, and public awareness about environment. Understanding what has driven the evolution of MWMS in a designated regional scale is significant in understanding how best to promote the sustainable development of MWMS.

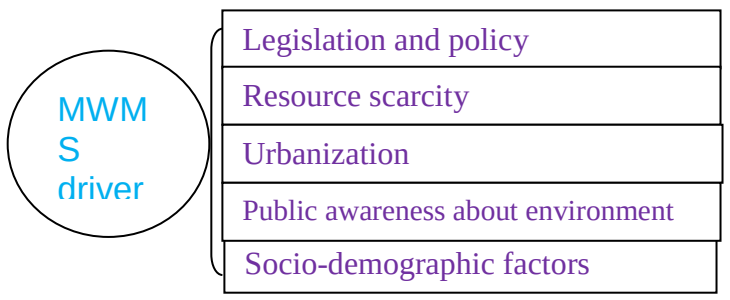

Fig.4. Drivers of MWMS

Conclusion

A successful MWMS requires the combination of the analysis of drivers and the selection of model based on the actual situation of regional scale.

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