MUNICIPAL SOLID WASTE MANAGEMENT IN THE CITIES OF BELARUS AND UKRAINE: LOST SOVIET EFFICIENCY AND WEAKNESS OF MODERN GOVERNANCE INSTRUMENTS

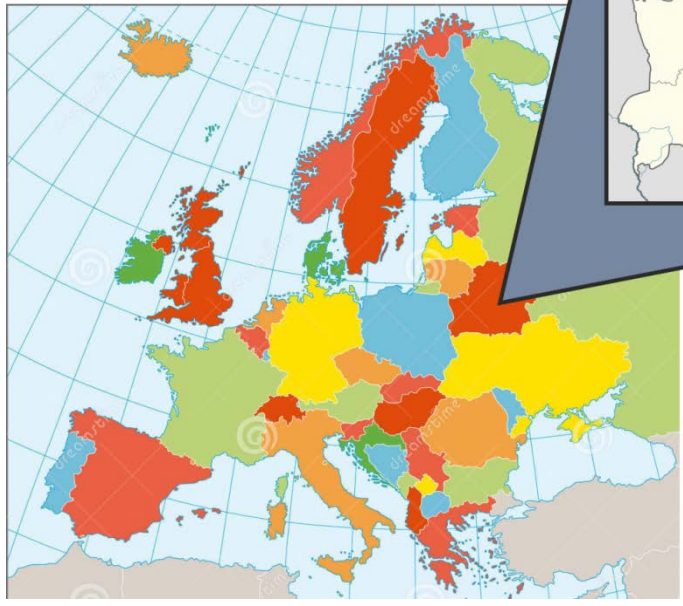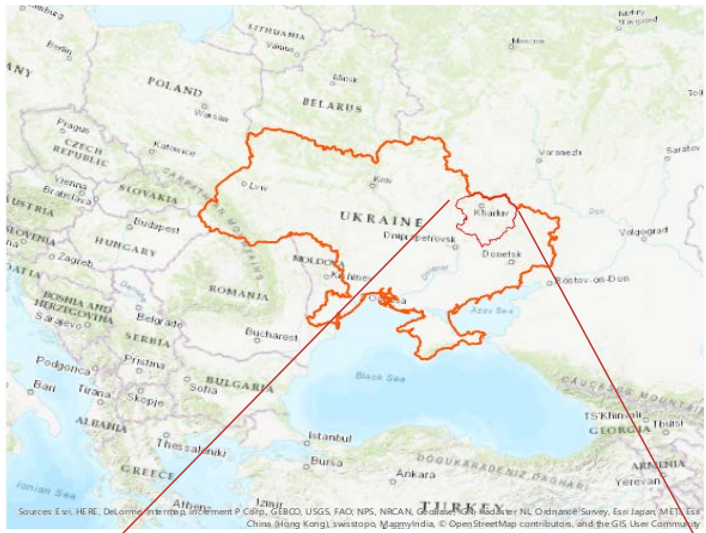Hanna Skryhan[1], Olga Khandogina[2], Irina Shilova[1]

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WaTra

Derhachivskyi Rayon

Kharkiv

Mogilev

INTRODUCTION

Waste-related data for Mogilev and Derhachi

	Unit	Mogilev[1]	Derhachi
MSW per capita	kg/year	484,25	288,4
	kg/day	1,33	0,79
Waste composition[1]:			
Organic	%	39,6	24
Paper	%	8,4	6
Plastics	%	3,1	17
Metals	%	1,71	2
Solid waste density	kg/m^3	150-287	140

[1] Data on morphological composition is according Mogilev communal service plant

- The estimated waste generation for Mogilev is 181 425,1 t/year, for Derhachi – 5 658 t/year.

- The assessment of the annual waste generation based on "*normative of the waste generation*" for population and organizations, and additionally includes the separately collected recyclables at the special collecting points.

- The waste per capita is 484,25 kg/year or 1,33 kg/day in Mogilev and corresponds to the economically developed EU countries. In Derhachi the value is significantly lower and estimated as 288,4 kg/year or 0,79 kg/day per capita.

MSWM system

in Belarusian cities

- (1) separated collection of the MSW at the places of its generation;
- (2) administrative regulation of the collection and recycling the secondary raw materials;
- (3) implementation the extended producer responsibility;

in Ukraine cities

- (1) collection of the mixed waste;
- (2) lack of the capacity of the communal plants for the collection and treatment of the MSW;
- (3) implementation of the private-state partnership;

(4) littering of the urban ecosystems;
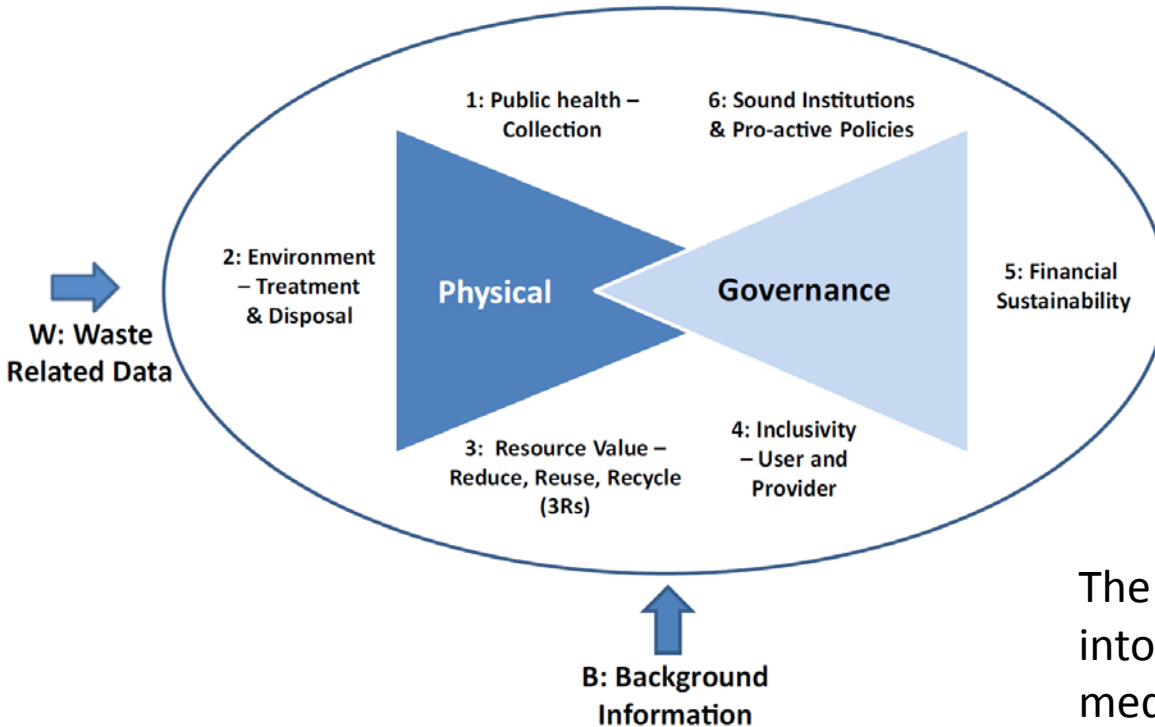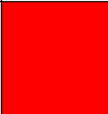(5) undeveloped capacity of the recycling plants;
(6) development of informal and illegal sector of the waste collection and recycling;
(7) landfills as a main way of the MSW treatment

Data and methodology

The methodological approach is a concept of integrated sustainable waste management in cities developed by UN-Habitat (Scheinberg et al., 2010).
The way of their calculation is described in (Wilson, D.C. et al., 2015a).

The values of each indicator are divided into five levels (low, low/medium, medium, medium/high and high) and have standard color identification.

- Indicators have different threshold values depending on the way of the calculation. Qualitative indicators could have next meaning: 0, 5, 10, 15 or 20 points which are then summarized.
- The basic data for calculation of quantitative indicators is statistic data and analytical reports.
- The result of the assessment is represented in radar including all groups of the indicators.

Results of the assessment

No	Category	Data/ Benchmark Indicator	Mogilev	Code		Derhachi	Code	
Physical Components								
1	Public health - Waste collection	1.1 Waste collection coverage	100 High			50% Low/Medium		
		1.2 Waste captured by the system	59,69 Medium			50% Medium		
1C		Quality of waste collection service	79,22 Medium / High			33% Low/Medium		
2	Environmental control - waste treatment and disposal	Controlled treatment and disposal	59,69 Low/ Medium			100% High		
2E		Quality of environmental protection of waste treatment and disposal	50,04 Medium			75% Medium/ High		
3	Resource Value - 3Rs: Reduce, Reuse, Recycle	Recycling rate	26,07 Medium			0 % Low		
3R		Quality of 3Rs - Reduce, reuse, recycle - provision	37,53 Low/ Medium			13 % Low		

Results of the assessment

No	Category	Data/ Benchmark Indicator	Mogilev	Code		Derhachi	Code	
Governance Factors								
4U	Inclusivity	User inclusivity	*54,2 Medium*			*29% Low/Medium*	🟥	
4P		Provider inclusivity	*29,19 Low/ Medium*	🟥		*50 % Medium*		
5F	Financial sustainability	Financial sustainability	*37,53 Low/ Medium*	🟥		*63 % Medium/High*		🟩
6N	Sound institutions, proactive policies	Adequancy of national solid waste management framework	*50,04 Medium*			*42 % Medium*		
6L		Local institutional coherence	*50,04 Medium*			*17 % Low*	🟥	🟥

Mogilev: Derhachi

- The cost of the waste landfilling is very low, and does not cover the maintain costs of the landfill as well as environmental protection measures.

- The low price of the landfilling does not induce to change landfilling to other kind of the waste treatment.

- Economic instruments aimed to induce the recycling, to decrease or prevent the waste generation are not applied.

- There is a cross-subsidizing of the services on the waste collection and disposal.

- The tariff policy is not transparent.

- The budget money barely covers the necessary current expenses. Investments in the sector are predominantly state-owned and small.

- The participation of private and foreign companies is insignificant.

Waste collection coverage

Local institutional
coherence

Adequacy of national solid
waste management
framework

Financial sustainability

Provider inclusivity

User inclusivity

Quality of 3Rs – Reduce,
reuse, recycle - provision

Recycling rate

Quality of environmental
protection of waste
treatment and disposal

Controlled treatment and
disposal

Quality of waste collection
service

Waste captured by the
system

100
90
80
70
60
50
40
30
20
10
0

Monrovia
Maputo
Guadalajara
Belfast
Derhachi
Mogilev

Conclusions

- The improvement of the MSWM system links to:
  - involving the population and NGOs in the decision-making process;
  - raising public awareness and environmental culture;
  - implementation forecasting and strategic planning tools for the calculation of the formal and informal waste sector as well as illegal dumps and recycling;
  - implementation of the integrated MSWM systems at the local level;
  - improving waste legislation at the national level;
  - setting up new statistic reporting documents.

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