An EU funded project

2nd Workshop

Development of the Integrated Hazardous Waste Management Plan

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Expected types and quantities of hazardous waste in Serbia

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Introduction

- Objectives of the estimation:
  - To get a full picture of the hazardous wastes generated
  - To make prognosis of future quantities (2020 →)
- The current status of waste quantities serves as basis
- Future quantities depend above all on:
  - Developments of separate waste collection

  &
  - Developments of economy and population

Extrapolations of specific waste categories based on waste statistics of selected EU MS

- In comparison with the data from other countries, the quantities of 1) spents solvent, 2) acid, alkaline and saline wastes, 3) chemical wastes, 4) industrial effluent sludges and 5) waste oils seem to be low.

→ Extrapolations were made, based on waste statistics of selected countries

Extrapolations of specific waste categories based on waste statistics of selected EU MS

- Based on the data reported in accordance with the EU Waste Statistics Regulation by the following countries: Croatia, Hungary, Slovenia, Poland, Romania
- Extrapolations were based on the number of employees for the different manufacturing sectors and for mining and quarrying and on the number of inhabitants for other economic sectors

Extrapolations of chemical wastes, industrial sludges and used oils - Results

Waste category	Extrapolated based on the waste statistics of Croatia, Hungary, Poland, Slovenia and Romania			
	Hazardous wastes from manufacturing (t)	Hazardous wastes from Mining and quarrying (t)	Hazardous wastes from other sectors (t)	**Extrapolated total**
1 Spent solvents	1.266	1	432	**1.699**
3 Acid, alkaline or saline wastes	3.467	8	1.558	**5.033**
4 Used oils	9.307	4.248	8.761	**22.316**
6 Chemical Wastes	14.798	142	9.094	**24.034**
8 Industrial effluent sludges	3.755	2.881	1.215	**7.850**

Forecasts for other selected waste streams

Waste stream	Method / data source	Results /quantity in t
Healthcare waste (medical waste)	The National Plan for the Management of Waste Originating from Healthcare Facilities and Pharmaceutical	**5,000 t / year**
WEEE	Collection target of the WEEE-Directive (2002/96/EC): 4 kg/ inhabitant from households. Assumption based on data from other countries: 50% of WEEE is hazardous	**13,800 t/ year**
ELV	Calculations based on the statistics on registered passenger cars and extrapolations based on data from other countries.	**45,700 t** / year

Forecasts for other selected waste streams

Waste stream	Method / data source	Results /quantity in t
Lead-acid accumulators	Data reported to SEPA by waste treaters and exporters. Assumption of the future development of the car fleet (+ 2,2% annually)	**17,600 t / year**
Portable batteries and accumulators	Assumption, based on data from other countries, on the annual per capita quantity put on the market (200 g/ inhabitant). Collection target of 25% according to the Batteries and Accumulators Directive	**350 t/ year**
Hazardous construction and demolition waste	Data of the draft Waste Management Plan for hazardous C&D waste	**4,087 t / year**

Challenging waste categories

- Secondary wastes from waste treatment:
  - Quantities depend strongly on the development of the waste management sector, which is difficult to forcast.
  - Assumption: 1 kg / capita of sorting residues and of mineral wastes from waste treatment based on the data from other countries (14,500 t in total)
- Contaminated soils:
  - Quantities depend strongly on the future remediation activities
  - Estimation is not possible!
- Mineral wastes from mining and quarrying
  - It remains unclear, which wastes are covered by the Waste Framework Directive and should thus be taken into account in the IHWMP
  - Assumption: 60.000 t/year
- Asbestos wastes
  - Generation depends strongly on the development of collection systems
  - Assumption: Quantity up to 40,000 t/ year based on the Waste Management Plan for Asbestos-containing waste

Summary and comparison with the current status

	SEPA 2014	Prognosis
1 Spent solvents	98	1.699
3 Acid, alkaline or saline wastes	1.359	5.033
4 Used oils	12.415	22.316
6 Chemical Wastes	11.296	24.034
8 Industrial effluent sludges	2.762	7.850
10 Sludges and liquid wastes from waste treatment	595	699
12 Health care and biological wastes	2.669	5.000
17 Glass wastes	0	0
22 Wood wastes	397	466
24 Wastes containing PCB	72	84
26 Discarded equipment	4.824	13.800
28 Discarded vehicles	1.197	45.700
30 Batteries and accumulators wastes	753	18.000
36 Mixed and undifferentiated materials	3.363	3.952
38 Sorting residues	231	6.897
41 Mineral waste from construction and demolition	335	530
43 Other mineral wastes	155.155	100.000
45 Combustion wastes	10.513	12.400
47 Soils	1.812	3.278
51 Mineral waste from waste treatment and stabilised wastes	32	6.897
TOTAL	**209.877**	**278.635**

Thank you!