

# RECO

REGIONAL COOPERATION IN WASTE MANAGEMENT



## Hazardous waste management system in Lithuania: current situation and improvement opportunities



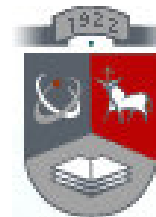
WOJEWÓDZKI FUNDUSZ  
OCHRONY ŚRODOWISKA  
I GOSPODARKI WODNEJ  
W GDAŃSKU

Jurgita Ulinskaitė  
Institute of Environmental Engineering,  
Kaunas University of Technology



Project part-financed by the European Union

1



The International Conference "Entrepreneurship for Waste  
Management", Gdansk, Poland



## General information

- HZW represents ~ 1% of all waste generated in Europe
- 40 million t of HZW generated in the EU each year
- The total amount of HZW in Lithuania in 2005 was ~ 190 thousand t



## Content of presentation

- Definition and classification of HZW
- Legislation and institutional framework
- Waste information collection
- Technologies for HZW treatment and their capacity
- Conclusions and recommendations



## Definition

- Hazardous waste (HZW)** defined as liquid, solid or combination of solid waste →
- whose **concentration**, due to its **quantity, physical, chemical or infectious characteristics** →
  - **may cause or significantly contribute** to an increase in **mortality** or an increase in **serious, irreversible, or incapacitating reversible illness** →
  - or **pose a substantial hazard** to **human health** or the **environmental** →
  - when **improperly treated, stored, transported, disposed, or otherwise managed.**

*Environmental glossary: <http://www.lrb.usace.army.mil/fusrap/glossary-gh.htm>*



## Classification

- Waste classification in Lithuania is specified in the following documents:
  - The Lithuanian list of wastes
  - The statistical classification of wastes



## Legislation (1)

- Council Directive on hazardous waste 91/689/EEC (with amendments)
- Waste List Decision 2000/573/EC (with amendments)

Requirements of the Directives are transformed to Lithuanian waste legislation.



## Legislation (2)

- Framework for waste legislation – Law on Waste Management, 1998
- Waste management activities regulated by the Waste Management Regulation, 1999 (WMR)
- Provisions on:
  - waste management plans
  - registration of waste managers
  - waste statistics
  - HZW management
  - documentation of waste management activities



## Legislation (3)

### Permit and licenses

- All enterprises engaged in waste collection, transportation, recovery and disposal activities shall be registered in waste management register
- The enterprises have to specify their activities according to the types of waste managed
- HZW collection, transportation, sorting, disposal and recovery enterprises must have a license for HZW management



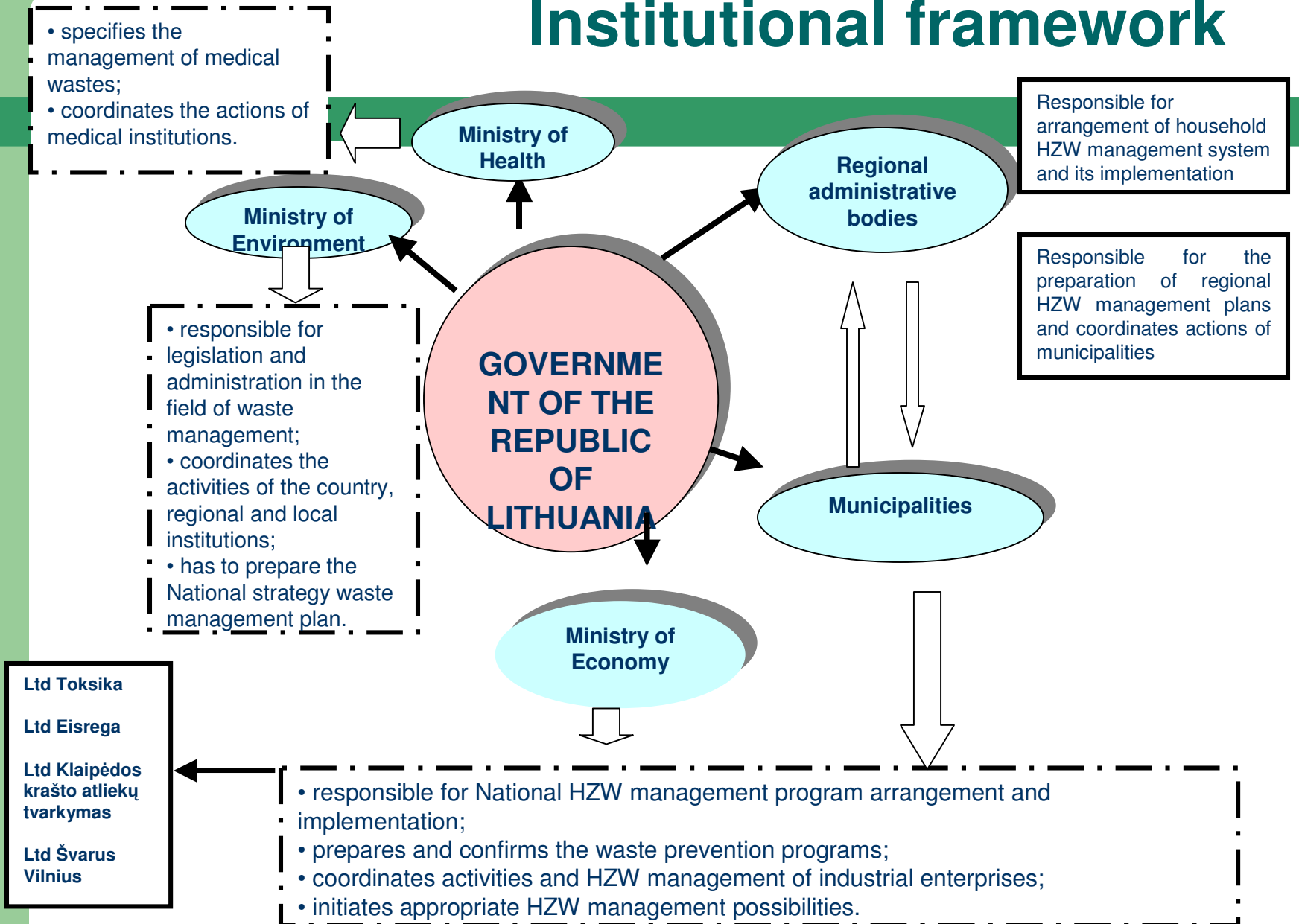
## Legislation (4)

### Records keeping and reporting obligations

- Companies engaged in waste management activities must keep a primary waste recording log (separate log for HZW)
- Companies are obliged to report annually on waste management issues



### Institutional framework





## Waste information collection

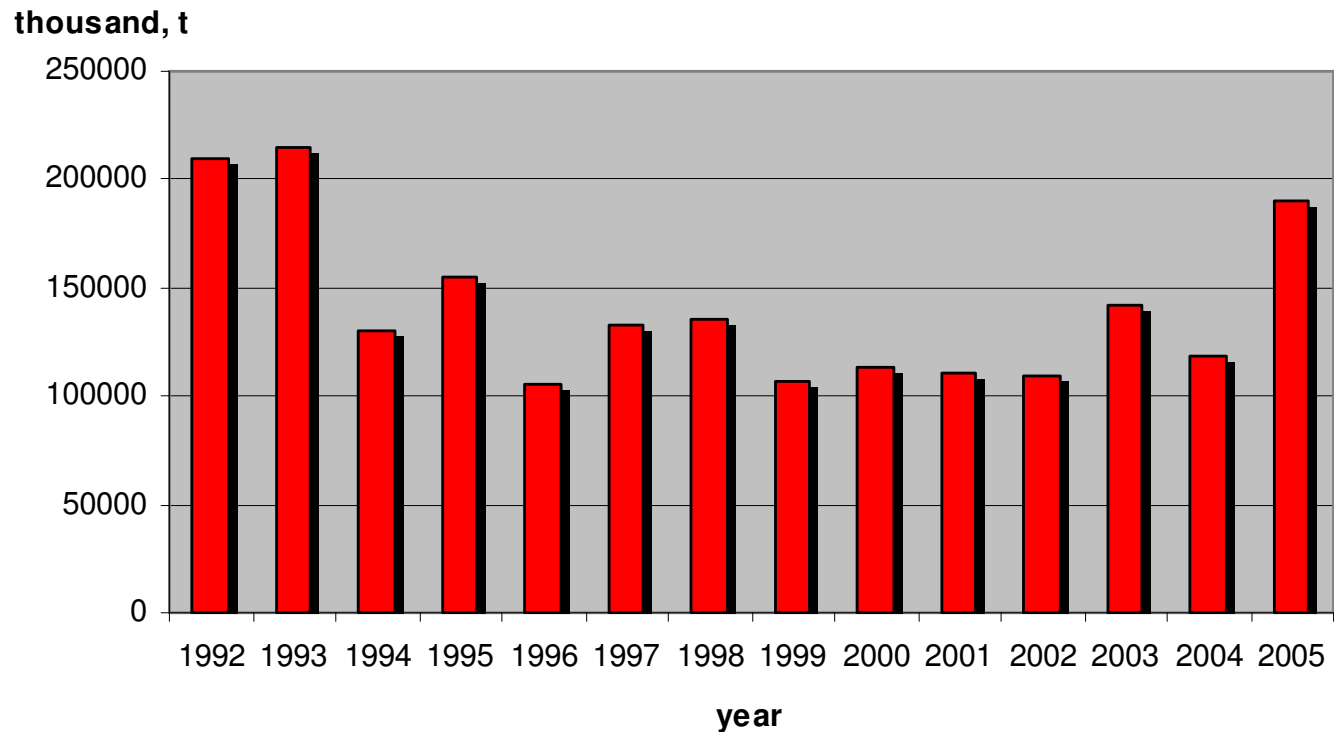
### Currently, the Lithuanian waste data collection system faces several problems:

- It is difficult to assign the waste to the generating sectors
- Lithuanian waste data collection system does not perform the main function: it does not give the information about the real amount of HZW generated in the country
- the definitions of recovery and disposal operations in WMR are not in line with the definitions of the Waste Framework Directive



# HZW generation and treatment (1)

Hazardous waste generation in Lithuania





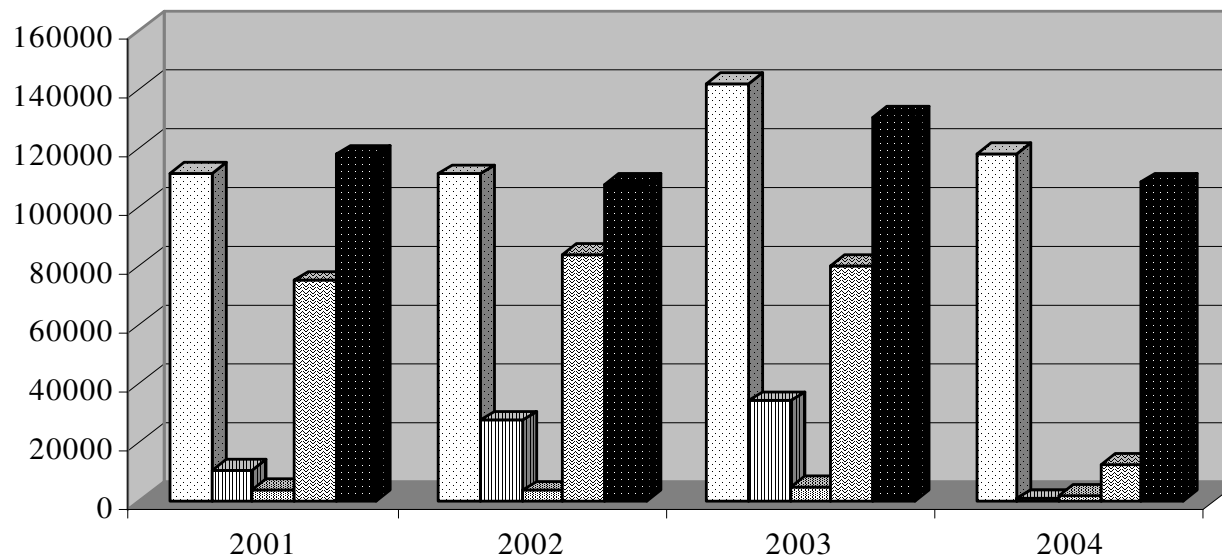
## HZW generation and treatment (2)

### Major HZW flows 2005:

- Petroleum refining, natural gas purification, pyrolytic treatment (~ 46 %)
- Oil wastes and wastes of liquid fuel (~ 33 %)
- Chemical surface treatment and coating of metals and other materials (~ 6 %)
- Construction and demolition wastes (including excavating soil from contaminated sites) (~ 5 %)



### HZW generation and treatment (4)



Total amount generated
  Landfill or other deposit
  Incineration
  Recovery operations total
  Storage

Treatment and disposal of HZW in Lithuania 2001 - 2004



## HZW generation and treatment (4)

- There are no official operational hazardous waste incineration plants in Lithuania
- The incineration plant for HZW is under construction



## Landfill management

- Landfills are divided into 3 classes:
  - hazardous
  - non-hazardous
  - inert waste
- In accordance to the National Strategic Waste Management Plan, all landfills have to be closed by 2012
- It is planned to establish eleven regional waste landfills: ten for non-hazardous and one for hazardous waste.



### HZW generation and desirable treatment technologies (1)

Technological flow of hazardous waste	Stored, t	Annual amount, t 2005	Desirable technology	Comments
Oil wastes (non halogenic)	2 000	3600	1. Regeneration - 60% 2. Recycling for fuel - 30% 3. HAZ incineration - 10%	1. Capacity is enough 2. Requires capacity improvement 3. Requires capacity improvement o
Oil wasted soil, sludge etc.	126 000	82 000	1. Biodegradation - 99% 2. Other physical – chemical processes - 1%	1. Capacity is enough 2. Not enough capacity
Bilge oils	5 000	52 000	1. Oil catchers - 95% 2. Other physical – chemical processes - 5%	Improvement of physical - chemical processes operation
Halogenic oils and other hydrocarbons wastes	100	150	1. Export or incineration in Lithuania	1. No capacity 2. Export is feasible 3. Export of tainted equipment
Medical wastes	?		Incineration	Necessary to incinerate disinfected medical wastes (about 2 000 t)
Pharmaceutical wastes	100	?	Incineration	Capacity is



### HZW generation and desirable treatment technologies (2)

Technological flow of hazardous waste	Stored, t	Annual amount, t 2005	Desirable technology	Comments
Wastes containing heavy metals or other HAZ chemical substances	2 000	2 000	<ol style="list-style-type: none"> <li>1. Thermostabilisation-50%-60%</li> <li>2. HAZ landfill -30%-35%</li> <li>3. Stabilisation, HAZ landfill - 10%-15%</li> </ol>	<ol style="list-style-type: none"> <li>1. Capacity is, enough, the quality of atmosphere protection is to be improved</li> <li>2. Set up landfill for HAZ waste</li> <li>3. Set up stabilization equipment</li> </ol>
Batteries and accumulators	100	6 000	<ol style="list-style-type: none"> <li>1. Regeneration and export - 60%</li> <li>2. Export without regenerations - 40%</li> </ol>	<ol style="list-style-type: none"> <li>1. Development of capacities effectiveness</li> <li>2. Development of export accounting</li> </ol>
Discarded electrical and electronic equipment, cars equipment	?	?	<ol style="list-style-type: none"> <li>1. Physical – chemical processes - 70%</li> <li>2. HAZ landfill - 30%</li> </ol>	<ol style="list-style-type: none"> <li>1. Development of capacities effectiveness</li> <li>2. Development of new regeneration capacity</li> <li>3. Landfill for HAZ waste</li> </ol>
Tainted soil (excluding oil products)	?	100?	<ol style="list-style-type: none"> <li>1. Physical – chemical processes</li> </ol>	No capacity. After the stabilisation possible limited usage.



## Conclusions

There are some problems in Lithuanian HZW management system:

- incomplete HZW identification system →
  - Prognosis of the HZW amount is complicated →
    - Planning of HZW treatment (technologies and capabilities) is hardly possible
- HZW is not accurately estimated in Lithuania - the amount of properly treated HZW is not accurate
- Sorting of HZW in the source is not performed
- There are some cases of illegal disposal due to high treatment costs and lack of technical possibilities



## Recommendations (1)

- HZW management system should be based on three principles:
  - *Waste prevention*: Reduction of the amount of generated HZW is of most importance. Reduction of dangerous substances in products automatically simplifies their disposal.
  - *Reuse and recycling*: In cases when hazardous waste cannot be prevented or reused, materials should be recycled.
  - *Improvement of final disposal and monitoring*: In case hazardous waste cannot be prevented, reused or recycled, it should be safely incinerated. Disposal in a landfill is the last option.



## Recommendations (2)

- Implementation of preventive measures in industry should be promoted.
- A system of taxes and fines should be balanced, for example the waste management costs in landfills should be higher than those in recycling companies.
- Training, information should be provided to participants of the HZW management system, general environmental awareness has to be raised.

**RECO**

REGIONAL COOPERATION IN WASTE MANAGEMENT



**Thank you for your attention!**