

EU policies and strategies for municipal waste management. Case study: South Moravia region of the Czech Republic

Zdeněk Horsák, Jiří Hřebíček, Jiří Kalina,
Jana Soukopová
Masaryk University, Brno, Czech Republic

Introduction

New EU policies and strategies for municipal waste management:

COM/2014/0397: Proposal for a Directive of the European Parliament and of the Council **amending** Directives 2008/98/EC on **waste**, 94/62/EC on **packaging and packaging waste**, 1999/31/EC on the **landfill of waste**, 2000/53/EC on **end-of-life vehicles**, 2006/66/EC on batteries and accumulators and **waste batteries and accumulators**, and 2012/19/EU on **waste electrical and electronic equipment**

Circular economy: Towards a circular economy: A zero waste programme for Europe COM/2014/0398 final

This means **re-using, repairing, refurbishing and recycling** existing materials and products. What used to be regarded as 'waste' can be turned into a resource. The aim is to look beyond waste and to close the loop of the circular economy. All resources need to be managed more efficiently throughout their life cycle.

Circular Economy Conference in Brussels on 25 June 2015.

<https://scic.ec.europa.eu/streaming/index.php?es=2&sessionno=9fa83fec3cf3810e5680ed45f7124dce>

Complete recorded lectures and discussion

Fig 1. Overview of scope focusing on 'material resources'



Introduction

Commission proposes for better management of municipal waste to:

- **boost reuse and recycling of municipal waste to a minimum of 70% by 2030;**
- **increase the recycling rate for packaging waste to 80% by 2030**, with interim targets of 60% by 2020 and 70% by 2025, including targets for specific materials;
- **ban the landfilling of recyclable plastics, metals, glass, paper and cardboard, and biodegradable waste by 2025**, while Member States should endeavour to virtually eliminate landfill by 2030;
- further **promote the development of markets for high quality secondary raw materials**, including through evaluating the added value of end-of-waste criteria for specific materials.

A certain proportion of **'residual' waste** is non-recoverable and may therefore **be landfilled**, since no alternative treatment option is currently available. This would be **limited to a maximum of 5 %**.

Introduction

The current situation in the Czech Republic:

- The important role in the Czech Republic with implementation of EU policies and strategies for municipal waste management will play **Public Administration authorities** (PA) and the role of their **Waste Management Plans** (WMP).
- We discuss and introduce how EU policies and strategies for municipal waste management are implemented in the **South Moravia region of the Czech Republic** with the support of its **WMP**. Its **analytical, mandatory and target parts** are discussed together with their roles in the WMP, which will control MSW generation and treatment.
- Finally, model of circular economy in WM is presented

Role of Public Administration





- PA of the Czech Republic is divided into the **state** and **municipal administration**, including the delimitation of competences and responsibilities.
- **Regional PAs are responsible for the performance of waste management (WM)** and provide the methodological support for the municipalities and their local authorities, and to legislative standards proposed by the Ministry of the Environment, which is the central body of PA in the WM of the Czech Republic.
- The municipalities are the generators of the municipal solid waste (MSW) at local level and have direct responsibility for physical treatment of waste on their territory.
- Each **municipality creates the system for the collection, separation, recycling, removal and disposal of waste, which is usually embedded in a municipal decree.**

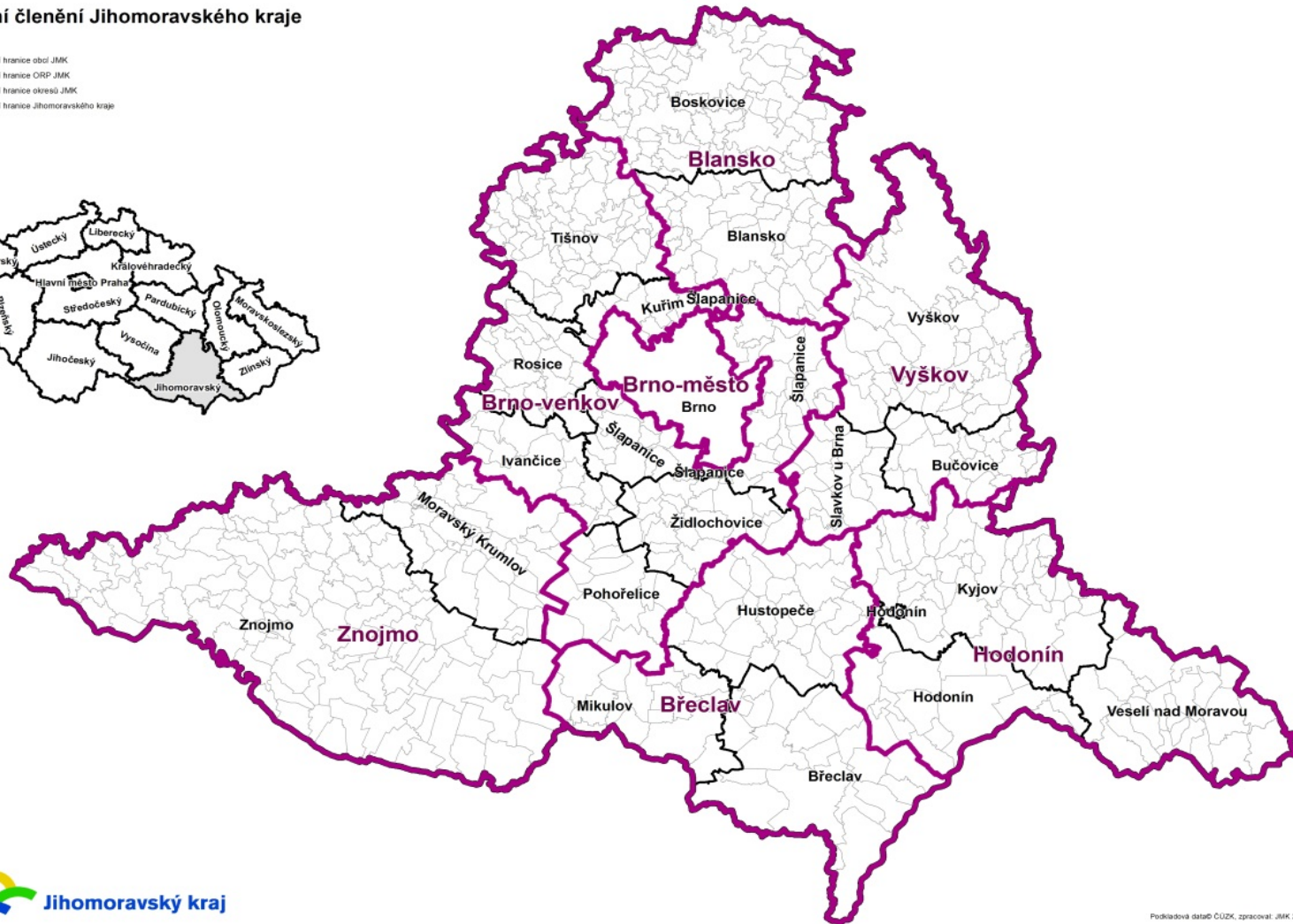
Role of Plan of waste management

- Nowadays, regional PA authorities of Czech counties are required by the *Waste Act* to make and approve in the form of generally binding decrees the authentic part of their **Waste Management Plans (WMP)**.
- Their regional WMPs must be based on the **Government Regulation** of the WMP of the Czech Republic and above main elements of the proposal **EC COM/2014/0397 final** for municipal waste.
-
- We focus to the implementation of EU policies and strategies for municipal solid waste (MSW) at regional level of the South Moravia province (SMR).

PA of the South Moravia region

Správní členění Jihomoravského kraje

-  správní hranice obcí JMK
-  správní hranice ORP JMK
-  správní hranice okresů JMK
-  správní hranice Jihomoravského kraje

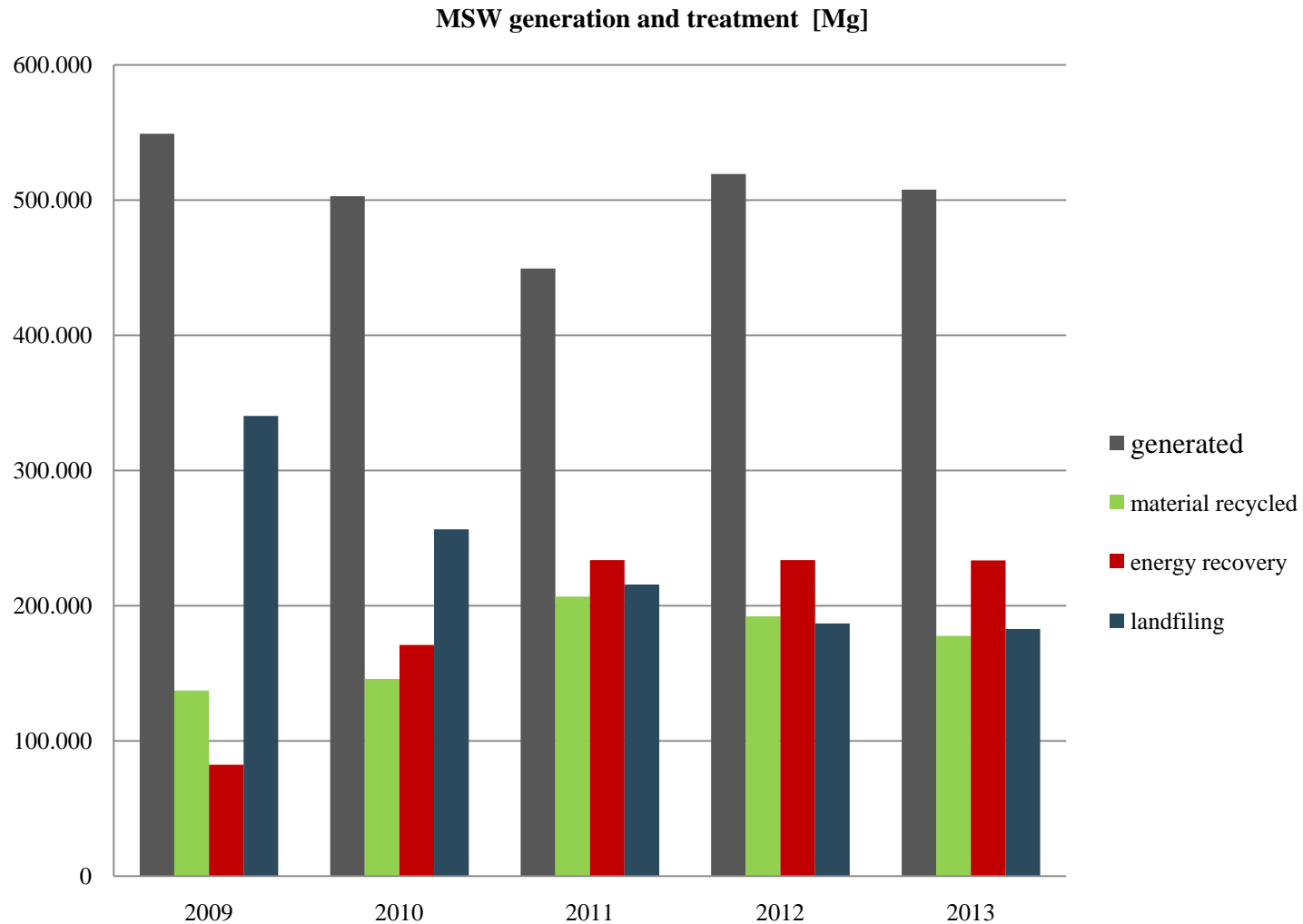


Plan of waste management od SMR

The WMP SMR consists of three parts:





- **the analytical part** (it describes the current status and development of WM at the SMR from the point of generation and the treatment together with WM facilities);
- **the mandatory part** (It lays down the basic principles for WM in the SMR, with an emphasis on respect for the waste treatment hierarchy. It establishes objectives, principles and measures, in particular, for selected groups of waste, which are of fundamental importance for the WM of the SMR in terms of its production, or properties) and
- **the target part** (It provides an overview of the tools for the fulfilment of the set WMP objectives. It deals with the system of management of changes in WM.).

MSW generation and treatment in the SMR during 2009 -2013







Map of energy recovery facilities in the SMR




ZÁŘÍZENÍ PRO ENERGETICKÉ VYUŽITÍ ODPADU V JIHOMORAVSKÉM KRAJI

-  Bioplynová stanice
-  Cementárna
-  Spalovna komunálního odpadu
-  Spalovna nebezpečného odpadu

Správní členění

-  Krajské město
-  Obec s rozšířenou působností
-  Hranice Jihomoravského kraje
-  Hranice obcí s rozšířenou působností

Fyzicko-geografické prvky

-  Vodní toky
-  Vodní plochy
-  Lesy

Komunikace

-  Dálnice
-  Rychlostní
-  1. třída
-  2. třída
-  Železnice



Brno 2015

Map of landfills in the territory of the SMR



WMP SMR: Mandatory part

- **Waste prevention** and reducing the hazardous properties of the MSW;
- **Reuse of product end-of life;**
- **High quality and maximum utilization of appropriate recycling MSW facilities** (material, energy, biological) in particular collaboration with the surrounding regions;
- **Optimize treatment of biodegradable municipal waste (BMW)** with an emphasis on mandatory introduction of separate collection BMW;
- The mandatory introduction of separate collection of at least for MSW from: **paper, metal, plastic and glass by 2015;**
- **Prefer energy recovery** of MSW, particularly MMW;
- The fundamental **limitations of the landfilling;**
- **Optimization of all activities in municipal WM system, with regard to the costs incurred and the economic and social sustainability.**

WMP SMR: Target part

The basic conditions of the functioning of sustainable waste management in the SMR are integrated systems for specific commodities.

One important objective:

Creation of a cluster of municipalities, universities, and companies solving **biodegradable** and **plastic waste**.

Hrebicek J., Horsak Z. (2014) in the paper „Is the Czech policy of biodegradable waste management the correct one?“ specified „It is necessary to find a logistically interconnected system of best available technologies (BAT) based optimally on specifications groups of biological waste, needs of customers, and possible sales of the final product and/or energy“

How to implement mandatory and target part?

- It is possible to take advantage of the **organizational arrangement** in the form of product-based cluster.
- A basic condition for success is the quality of **the business plan**.
- The intention must be in accordance with the above definition, and should also be sufficiently effective and sustainable.
- The monitoring indicators: **the average number of cluster members participating on a common project; expenditure on research and development; the added value of the cluster including all entities associated in the cluster; the number of institutions of tertiary education and research institutions involved in the activities; the cluster cooperation between institutions of tertiary education, research institutes and enterprises; joint meeting minutes most of the members of the newly created cluster of converted jobs.**

KOMPOSTÁRNY V JIHMORAVSKÉM KRAJI

- Kompostárna
- Komunitní nebo malá kompostárna

Správní členění

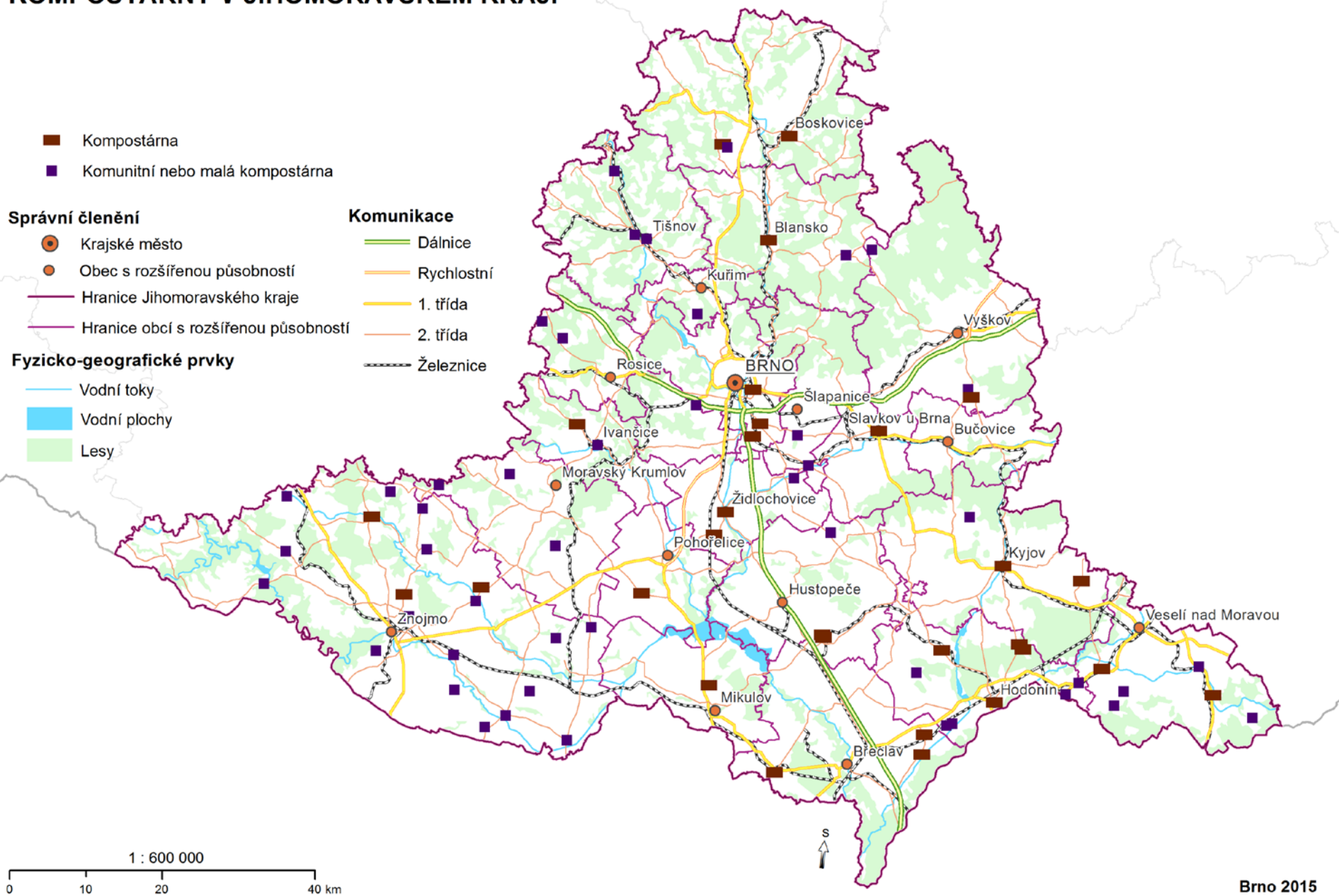
- Krajské město
- Obec s rozšířenou působností
- Hranice Jihomoravského kraje
- Hranice obcí s rozšířenou působností

Fyzicko-geografické prvky

- Vodní toky
- Vodní plochy
- Lesy

Komunikace

- Dálnice
- Rychlostní
- 1. třída
- 2. třída
- Železnice



Process of implementation WMP SMR



- Reduce the amount of waste deposited in landfills.

- Evaluation of raw materials of sorted mixed household waste (increasing income for secondary raw materials from the collective system and the waste collection company).

- Meaningful development of the necessary technologies in the Czech Republic – a balanced MIX of (regional and national technology).

- **The maintenance costs of waste management in municipalities and increase the cost of disposal of waste.**

- **Modern and sustainable waste management environmentally friendly.**

- **The fulfilment of the objectives set by the WMP of the Czech Republic in the area of management of municipal waste – for positive change in the WM is necessary an increase in fee for CZ crown 850/t MMSW.**

Road to Circular economy in municipalities

Current municipal WM

Collection of MSW

Landfilling

Basic treatment
at source

Transfer to the
further use of



**The increase in cost of
treatment operations min.
140,-CZ crown for the
citizen**

Integrated system of WM

Cooperation with municipalities on the
analysis of the current state of WM and
solution proposal

Cooperation with municipalities on the
optimization of the system in the regional
WMP

Collection of waste, sorting waste, support
public awareness activities, co-financing of
projects of WMP target

Energy
recovery

Composting,
digestion

Processing
sources

Other
technology

MBT



**Sustainable cost of WM.
Municipal WM corresponding to
the modern trends in WM.**

Conclusions

Thank you for your attention Questions?

Prof. Dr. Jiří Hřebíček

Institute of Biostatistics and Analyses

Masaryk University

Brno, Czech Republic

hrebicek@iba.muni.cz