
Environment and Climate Regional Accession Network (ECRAN)

**ECRAN Regional
workshop on Cost
recovery in waste sector
and 2nd Annual Meeting
of Waste Management
and Strategic Planning
and Investments
Working Groups**

18-19 March 2015, Tirana

ENVIRONMENTAL AND LIMA REGIONAL NETWORK FOR ACCESSION - ECRAN

WORKSHOP REPORT

ACTIVITY 1.1 STRATEGIC PLANNING AND INVESTMENTS

ACTIVITY 2.6 WASTE MANAGEMENT

**REGIONAL WORKSHOP ON COST RECOVERY IN WASTE SECTOR AND 2ND ANNUAL MEETING OF
WASTE MANAGEMENT AND STRATEGIC PLANNING AND INVESTMENTS WORKING GROUP**

COMBINED REGIONAL TRAINING WITH WASTE MANAGEMENT WORKING GROUP TO ASSESS THE
SITUATION AND PRESENT POSSIBLE SOLUTIONS FOR THE COST RECOVERY MECHANISAM

18 - 19 MARCH 2015

TIRANA, ALBANIA



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Table of Contents

I. Background/Rationale	1
General information	1
Current state of the affairs in the beneficiary countries in the specific sector	1
Summary of the main topics covered as per Training Needs Assessment	2
II. Objectives of the training	3
General objective.....	3
Specific objectives.....	3
Achieved results/outputs	3
III. EU policies and legislation covered by the workshop	4
IV. Highlights from the training	5
Conclusions and recommendations	17
V. Evaluation	20
ANNEX I – Agenda.....	24
ANNEX II – Participants.....	28
ANNEX III – Presentations (under separate cover).....	33



LIST OF ABBREVIATIONS	
B/C	Benefit/Cost ratio
CBA	Cost Benefit Analysis
DG	Directorate General
EC	European Commission
ENPV	Economic Net Present Value
EPA	Environmental Protection Agency
ERR	Economic Rate of Return
EU	European Union
FNPV	Financial profitability of the investment
MS	Member States
MSW	Municipal Solid Waste
MWM	Municipal Waste Management
PPP	Public Private Partnership
PRO	Producer Responsibility Organisation
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
WtE	Waste to Energy



I. Background/Rationale

General information

Waste Framework Directive requires that, in accordance with the polluter-pays principle, the costs of disposing of waste must be borne by the holder of waste, by previous holders or by the producers of the product from which the waste came. Also the cost shall be allocated in such a way as to reflect the real costs to the environment of the generation and management of waste. This

Landfill directive requires that Member States shall take measures to ensure that all of the costs involved in the setting up and operation of a landfill site, including as far as possible the cost of the financial security and the estimated costs of the closure and after-care of the site for a period of at least 30 years shall be covered by the price to be charged by the operator for the disposal of any type of waste in that site.

Such requirements call for sound cost recovery mechanisms and use of economic instruments to reflect real environmental costs.

Countries in the region still lack well established methodologies for cost recovery. This problem is growing with each new investment into waste management operations. Economic instruments, except of packaging charges, are almost not used. Landfill taxes or similar instruments, which would support recycling and divert waste from landfilling are still to be developed.

Considering situation in the region, Strategic Planning and Investments WG and Waste Management WG convenes joint workshop to better assess the situation and propose ways for strengthening of cost recovery policies and provide wide range of economic instruments in support of source separation and achieving recycling targets.

Current state of the affairs in the beneficiary countries in the specific sector

Cost recovery issues in the beneficiary countries are at early stage of development. Main identified problems include:

1. There is lack of experience in designing financing packages for waste management projects and understanding of relation between financing sources and cost recovery demands;
2. There is lack of systematic national level approach for cost recovery system design and operation;
3. There is no sufficient guidance from central to regional and municipal level regarding tariffs policy;
4. Approaches differ how the cost recovery system shall be enforced and if tariffs setting for waste sector shall be supervised by the national level regulator;
5. Cost recovery systems are mainly addressed when developing Feasibility studies for investment projects;
6. Lack of experience assessing CBA studies;
7. Lack of understanding how cost recovery issues are related to decision regarding size of grant (in particular for EU financing);
8. Economic instruments used for waste management lack systematic approach;
9. Economic instruments are not always related to achievement of national waste management targets;



10. Orientations to cheapest waste management solutions do not encourage recycling system development. Role of landfill tax is not sufficiently addressed.

Summary of the main topics covered as per Training Needs Assessment

Main topics presented and discussed during regional workshop on Cost recovery in waste sector included:

1. Investment planning and cost recovery;
2. Cost recovery and tariffs setting. Experience in Estonia, Italy and Lithuania;
3. Economic instruments. Experience in Estonia, Italy and Lithuania;
4. Cost benefit analysis;
5. Financial analysis. Analysis of real project in waste management sector.



II. Objectives of the training

General objective

To provide practical knowledge on experience of other countries and support establishment of cost-recovery mechanisms in the region.

Specific objectives

- To establish common understanding on main terms, definitions and principles for cost recovery in waste sector.
- To provide information on economic incentives for better waste management supporting achievement of waste recycling, biodegradable waste diversion and other targets as required by the EU waste management law.
- To present and discuss legal basis and institutional mechanisms for tariff setting
- To analyse impacts of cost recovery for investment projects and process planning.
- To familiarise with cost – benefit analysis and application of it in waste management sector
- To agree on next steps.

Achieved results/outputs

- Delivery of presentations as foreseen in the agenda;
- Established/ improved knowledge base regarding cost recovery mechanisms;
- Established/ improved knowledge base regarding economic instruments in waste management sector;
- Increased experience in cost benefit analysis;
- Practical knowledge and experience in financial analysis.



III. EU policies and legislation covered by the workshop

Main directives covered by the workshop are Waste Framework Directive, Landfill Directive and Packaging and packaging waste Directive in particular articles requiring cost recovery and establishing producers responsibility.

Waste Framework Directive. Preamble:

- It is appropriate that costs be allocated in such a way as to reflect the real costs to the environment of the generation and management of waste.
- Member States may also take action to recover the costs of non-compliance and remedial measures, without prejudice to Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage

Waste Framework Directive Article 14:

- In accordance with the polluter-pays principle, the costs of waste management shall be borne by the original waste producer or by the current or previous waste holders
- Member States may decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came and that the distributors of such product may share these costs

Landfill directive. Article 10:

- Member States shall take measures to ensure that all of the costs involved in the setting up and operation of a landfill site, including as far as possible the cost of the financial security and the estimated costs of the closure and after-care of the site for a period of at least 30 years shall be covered by the price to be charged by the operator for the disposal of any type of waste in that site.

Packaging and packaging waste directive. Article 4:

- Member States shall ensure that, in addition to the measures to prevent the formation of packaging waste taken in accordance with Article 9, other preventive measures are implemented.
- Such other measures may consist of national programmes, projects to introduce producer responsibility to minimise the environmental impact of packaging or similar actions adopted, if appropriate in consultation with economic operators, and designed to bring together and take advantage of the many initiatives taken within Member States as regards prevention. They shall comply with the objectives of this Directive as defined in Article 1(1).



IV. Highlights from the training

First day topic: Cost recovery mechanisms. Cost benefit analysis.

Following topics have been covered during first day:

1. Investment planning and cost recovery (Arunas Kundrotas, ECRAN SPIWG Coordinator);
2. Cost recovery and tariffs setting. MS experience. Estonia (Peeter Eek, Ministry of Environment, Head of Waste Management Department, Estonia);
3. Cost recovery and tariffs setting. MS experience. Italy (Francesco Loro, Waste management expert at Environmental Protection Agency of Veneto, Italy);
4. Cost recovery and tariffs setting. MS experience. Lithuania (Rasa Uselyte, European Union Funds Management Division, Ministry of Environment, Lithuania).

1. Investment planning and cost recovery.

Main principles influencing cost recovery system in waste sector are established in the Waste Framework Directive (in accordance with the polluter-pays principle, the costs of waste management shall be borne by the original waste producer or by the current or previous waste holders) and Landfill Directive (Member States shall take measures to ensure that all of the costs involved in the setting up and operation of a landfill site, including as far as possible the cost of the financial security and the estimated costs of the closure and after-care of the site for a period of at least 30 years shall be covered by the price to be charged by the operator for the disposal of any type of waste in that site).

Two main principles to be considered when developing cost recovery system:

- The Polluter Pays Principle - costs of pollution should be borne by those who cause it
- The User Pays Principle - costs related to the use of a natural resource or the treatment of pollution should be covered by revenue generated by users

Good solid waste management requires reliable, regular and adequate cash flow. Adequate cash flow allows to:

- Ensure sustainability of investment done in the sector,
- Borrow funds from IFIs for capital investment,
- Attract private sector to invest or (and) operate waste management infrastructure

If adequate cash flow through cost recovery is not possible because of affordability or political acceptability, other sources (for example, state budget, local budgets, funds, EU and other donor support) shall be involved.

Service charges shall cover full costs of the services provided. Tariffs in long term shall reflect the costs associated with providing the service, including:

- Operating and maintenance,
- Capital,
- Replacement,
- Financing costs.



In short term, tariffs must at least reflect operating and maintenance costs.

Grants can serve important positive role in the financing of municipal services in order to achieve governmental targets. Grant support policies shall come together with clear targets for recycling, biodegradable and other as defined in the directives. Role of Cost-Benefit Analysis (CBA) shall be increased when deciding about ratio of financing among grant and loan sources.

Private sector participation in waste management across the EU is increasing. Government policy shall be to “crowd in” market sources of finance. It is commonly mentioned, that the transaction costs for private sector participation in waste infrastructure investments co-financed by EU funds are high. In addition, uncertainty in political priorities in local and regional authorities reduces willingness of the private sector to be involved in waste management infrastructure projects. PPPs need to correspond to well-prepared strategic-level waste plans, rather than individual perceived project opportunities. Administrative capacity to deal with PPP shall be well developed.

Role of economic instruments in waste management is very important. They can be used as a tool to:

- Reduce the amount of waste generated;
- Minimize adverse environmental impacts related to solid waste collection, transport, treatment and disposal systems;
- Encourage recovery, reuse and recycling of wastes;
- Encourage to use preferred treatment methods;
- Reduce the proportion of hazardous waste in the waste generated;
- Generate revenues to cover costs.

2. Cost recovery and tariffs setting. MS experience. Estonia.

The 100 % ‘cost recovery’ is not always possible in short term.

Costs recovery could be looked from two sides:

- Waste holder’s fees -> initial collection costs incl. separate collection on site, transport, transfer stations, recycling yards -> treatment facilities -> recovery and disposal facilities;
- Recovery and disposal facilities ‘gate fees’ -> amortisation of the initial investments, operational costs, closure and aftercare of landfills.

New landfill were built on 1999-2006 with the large financial support from the State. Gate fees of the landfills are 25-30 €/t + landfill tax 30 €/t = 55-60 €/t. Gate fee is paid to the landfill company by company, who delivers the waste to the landfill. Gate fees are not controlled by the public authorities, but set by landfill companies, which are mostly under the control of Municipalities. Landfill price of 25-30 €/t in average covers the costs of landfilling on new landfills, if the landfilling capacity is >100 thousand t/y.

No significant investment support was delivered to the energy recovery solutions or MBT. Market prices (landfilling costs) was driving market for other solutions. The gate fees of the Waste-to-Energy (WtE) and MBT facilities are in direct competition about 30-35 €/t (WtE gets also green energy and co-generation subsidies – without it would be 40-45 €/t). It’s cheaper, then landfill gate fees, hence is economical not to landfill. The result is that 2014 only 6 % from the total MSW was landfilled while in 2010 it was 70 %.



Bio-waste treatment for high-quality composting costs about 40 €/t (i.e. more, than incineration). The market price of compost –about 5 €/t, when in sold in bulk.

Under Waste act, are Municipalities obliged to organize a municipal waste collection scheme, based on tenders. Municipality defines service packages and technical conditions (types of containers (or other equipment used for collection), size of containers, collections frequency minimum (minimum once per 4 weeks).

Within 10 years, only couple of cases occurred, where Collection Company have not been able to offer the service on the contracted conditions, i.e. Offered too low price.

Examples have been provided for waste collection in Tallinn municipality.

Municipal Waste Collection is organised as three layer system:

1. Collections on the site of generation- responsibility of the waste owner : typically containers, on some cases plastic bags (mixed municipal waste, optionally source separated paper and cardboard, kitchen- and garden waste);
2. Bring-points, 500 m in towns, some km in rural areas – packages, in some places paper and cardboard, clothes. Packaging containers is responsibility of packaging organizations;
3. Waste stations/ recycling yards – in towns about 1-4 km, in country side 10-15 km : Bulky waste (furniture, C&D waste, WEEE tires, garden waste, metals, paper, packaging, HazW from households etc.

Average municipal waste station/recycling yard cost for investment is about 300 thousand euro, running costs are about 20-30 thousand euro per year.

Conclusions:

1. Costs recovery of the municipal waste management is possible, but needs step by step approach
2. The Basic treatment facilities should be considered as 'normal companies' and their service fees be set accordingly
3. Investments supports scheme should be targeted to the issues which will have positive impact to the future – more for recycling, less for disposal

3. Cost recovery and tariffs setting. MS experience. Italy.

In the beginning of the presentation legal basis for establishing cot recovery system has been provided.

In Veneto the evaluation of gate tariff is a mandatory part of the permit and required for:

- All urban waste landfills
- All public recovery plant
- All disposal plant (public and private management)

At national level:

- National law 549/1995 Special tribute for urban waste in landfill
- National decree 36/2003 on landfill
- National decree 1/2012 on competitiveness



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The gate fee is composed from three parts:

- Conferral tariff;
- Environmental duty as compensation to Municipality where the plant is located;
- Environmental duty related to the treatment of waste outside the province (application of self-sufficiency principle at local level).

Gate fee is calculated and presented as a financial plan each year (before the end of June). The company that manage the plant have to:

- Present a financial plan where is proposed a new gate fee
- The gate fee have to consider these aspects:
 - National inflation (based on the evaluation of National Statistics Institute)
 - Final balance evaluations

Within 3 month after the last conferment to a landfill, the landfill manager have to present to competent authority a final balance where all the management costs are showed. The final balance have to be written and undersigned by an independent evaluation company. The Regional administration will decide the use of the possible extra amount collected by the layaway plan

Environmental fee to Municipality is established in order to reduce the environmental pressure in the Municipality where the plant/landfill is located. The regional administration has established that the amount of the fee is 10,33 €/t (urban waste) and 5 €/t (industrial waste) dumped in landfill. Criteria for setting of the fee has been defined by competent authority on the basis of the evaluation of local situation (e.g. a landfill close to another municipality, direct and indirect environmental pressures, geographical situation).

The self-sufficiency principle is defined at province level. Each province must be able to treat all the urban waste produced by citizens in the region. In order to supply to emergency situation or to request of waste treatment from other provinces, the Regional administration collects the income from a dedicated part of the gate fee. The amount of this part of the tariff is established yearly. The money collected must be used in environmental projects based in the province that receive the waste from other areas.

The law 549/1995 established a specific tribute for urban waste dumped in landfill. The amount of this tribute is 25, 82 €/t

- Urban waste
- Industrial waste dumped in urban waste landfill

If the level of Separate collection of the Municipality that dump the urban waste is higher than 50%, the tribute will be 30% of the maximum tribute. If the level of Separate collection of the Municipality that dump the urban waste is higher than 35%, the tribute will be 65% of the maximum tribute.

Legislation requires to have bank guaranty. The amount of the minimum bank guarantee is defined by a Regional decree. Without a bank (or Insurance institute) guarantee isn't possible to obtain a permit.



For collection of waste, the Municipality chooses the waste management company. Each year waste management company shall propose the financial plan and the tariff. The City Council approves the Tariff and the waste management company shall collect the tariff.

To enforce a tariff system it is necessary to create a reliable database. Information collected by the local fiscal office is usually used.

4. Cost recovery and tariffs setting. MS experience. Lithuania (Rasa Uselyte, European Union Funds Management Division, Ministry of Environment, Lithuania).

Municipalities are responsible for organisation of municipal waste management systems.

“Traditional” system:

- Waste collection service is provided according to contracts with municipal or private waste management company;
- Fees are collected by the companies providing services;
- (Maximum) tariffs are approved by municipalities;
- Fee is based on residual waste amount (volume) or number of residents (based on registration);
- Municipal waste management service covers only collection and landfilling of residual municipal waste;
- There are no sanctions for not having a contract or waste;
- Compared with water supply or electricity, ceasing the waste collection service does not build up as pressure to pay.

According to the National strategic waste management plan (31/10/2007) solidarity principle means that the municipal waste management tariff should not depend on the distance to the regional waste management facilities. The price should be the same for all municipal waste holders of the region if they have the same scope and quality of the services. Possible ways to apply solidarity principle in practice:

- Full solidarity: all costs distributed among all municipalities in the region based on one parameter (e. g. per tonne of residual municipal waste);
- Partly: only disposal costs distributed in (landfill gate fee is set based on the distance to the landfill).

Advantages and disadvantages when collection of fees is established by municipality or by waste management company:

- Municipality:
 - Municipalities get more influence on waste management services
 - Fewer default of payment
 - Financing of all waste management services (not only collection and treatment of residual municipal waste)
 - Securing a waste collection from each household/facility
 - Securing the same price for everybody, even for distant areas
 - Securing a uniform waste management system in an area
- Company:



- Public sector loses the influence in the manner how waste management will be done
- People resign from signing contracts
- Securing, that each facility has a waste management contract, is difficult
- Securing that each household gets an affordable contract, is difficult

Most of regions in Lithuania using local tax system compared to tariffs system.

Tariff setting for municipal waste (Amendment of Waste management act (19/04/2012)):

- Tariff is determined in accordance with the solidarity, proportionality, non-discrimination, cost recovery and “polluter pays” principles;
- The tariff of municipal waste management must be based on the municipal waste management costs;
- The tariff of municipal waste management must ensure the long-term operation of the waste management infrastructure;
- The price of municipal waste management services and the tariff for municipal waste collection from waste holders and waste management is determined by the municipality, taking into account the methodology approved by the Government.

Methodology for setting taxes or other tariffs for municipal waste collection from waste holders and waste management:

- Calculation of necessary municipal waste management costs:
 - Costs of all waste management services
 - Fixed and variable costs have to be identified
- Calculation of two-component tariff for municipal waste management:
 - Basic fee based on fixed costs
 - Service fee based on waste amount

Flat rate fees (not based on waste amount).

- Advantages:
 - No incentive for illegal dumping
 - Easy to administrate if the fee is linked to known data like area of the house, number of residents...
 - Predictable revenues.
- Disadvantages:
 - Polluter pays principle is not realised
 - Not fair, no incentive for reducing waste quantity i. e. by separate collection
 - Difficult to administrate if no data is available, or numbers are changing often (number of residents).

Fees based on waste amount (*volume or weight*):

- Advantages:
 - Fair system: the more waste generated, the more to pay (Polluter Pays Principle)
 - Enforcement of the waste management hierarchy: motivation for waste prevention, home composting, sorting of recyclable



- Higher transparency of service and thus promotion of a more reliable public image of waste services
- Disadvantages:
 - People can try to avoid paying by illegal dumping
 - Each house has to have its own container to be used only by residents of this house
 - Implementation barriers in multi-family buildings
 - Uncertain revenues because of the uncertain waste generation
 - Possible increase of administrative, managerial and operational cost
 - Possible social unfairness towards families with kids, low income citizens

Lessons learnt:

- Financial support does not solve the long-term and continuous operation of the system. The main source of financing – waste management tariff.
- Polluter pays principle should be implemented, however tariffs for waste management services are constrained by affordability and political acceptability.
- There is no ultimate fee fairness.
- Additional costs of sophisticated measurement systems might be higher than individual savings.
- Pay as you throw systems can be applied only if separate waste collection systems established (in other words - if legal waste reduction paths exist).
- Municipal waste management costs might be reduced if:
 - Extended producer responsibility principle is implemented and some costs are paid by producers (ultimately by the users of the products at the moment of buying);
 - Industrial waste is separated from municipal waste.
- Payment scheme for waste collection companies also has a steering effect:
 - if payment is based on waste amount brought to the landfill (per tonne of waste), waste management companies are motivated to collect as much of residual municipal waste as possible (no motivation for recycling);
 - If landfill gate fee is different based on distance to landfill, suddenly more waste might be collected in municipalities having lower gate fees.

Second day topic: Economic instruments to support achievement of waste management targets. CBA. Practical application of financial analysis.

Following topics have been covered during second day:

1. Economic instruments. MS experience. Estonia (Peeter Eek, Ministry of Environment, Head of Waste Management Department, Estonia).
2. Economic instruments. MS experience. Italy (Francesco Loro, Waste management expert at Environmental Protection Agency of Veneto, Italy).
3. Economic instruments. MS experience. Lithuania (Rasa Uselyte, European Union Funds Management Division, Ministry of Environment, Lithuania).
4. Cost benefit analysis. Financial analysis. Analysis of real project in waste management sector (Assoc. Professor, Dr. Sarunas Bruzge).



1. Economic instruments. MS experience. Estonia

Environmental Charges, incl. Landfill tax was introduced 1991. Mainly as fiscal instrument. The landfill tax was applied to all type of waste (incl. industrial, thus with differentiated tax levels. Paid to the Environmental Investments Centre Fund. The landfill tax revenue is not 'earmarked' for waste projects only. The income from total landfill tax approx. 15M€ (> 10 €/inhabitant/year), allocated for the waste projects about 7-8 M€ (remaining part to environmental awareness, nature conservation etc.). 75 % from the landfill tax for municipal waste, was paid back to the municipality, where it was collected, for the waste management related costs (first of all the costs related to the recycling yards).

Subsidizing landfilling, keeping gate fees on low level, means as well contra-subsidizing recovery.

The Environmental Programme (landfill tax revenues etc.) finances following activities related to non-hazardous waste:

1. Construction of waste management plants and reloading plants, if the cost does not exceed 300 thousand euro, on the basis of local government waste management plans;
2. Construction of waste collection points on the basis of local government waste management plans;
3. Development and implementation of newer waste treatment systems and waste handling technologies.

EU Cohesion fund financed development of waste collection, sorting and recycling. The following activities are supported:

1. construction of a waste management centre or transfer station or waste management plant, the eligible costs of which are at least 300 th €
2. recycling of source-separated bio-waste;
3. development of the recycling capacities, where recovery options have formerly been non-existent or limited, related to the fulfilment of the waste recovery and recycling targets established by legal acts.

EU Cohesion Fund 2014-2020 based on waste management hierarchy supports:

1. Waste reductions (on industrial production)
2. Reuse of products, including catering on public events
3. Preparation for reuse
4. For listed waste streams also recycling and pre-treatment for recycling

Packaging excise tax rates calculated initially to be about 4-5 times higher compared to collection and recovery service prices on the market.

Deposit systems can collect between 80-95%, container systems 40-60% as average. Deposit system covers product groups (beer, low alcohol beverages ($\leq 6\%$), cider, perry, soft drinks (incl. water), and packaging materials (plastic bottles, metal cans and glass bottles – both refillable and one-way packages).

Investment into system:

1. Initial Starting investments – about 4 M€ (counting Centre etc.)



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2. Reverse Vending Machines – by retailers about 8 M€ (no state support)
3. New counting and material treatment centre 6 M€, from that 50 % EU Funds.

Lessons learnt. Deposit system:

- PRO: very effective, collection rates 80-90 %, very clean material, suitable near 100 % for high quality recycling;
- Visibly reduces littering in public places, but also in nature;
- Gives an option to keep also refillable bottles on the market;
- Producers fees have changed in time, and on certain period been on €/kg bases even higher, then in container collection, but currently are remarkably cheaper (0 – for all packages since 2014) due to the efficiency of work, higher material prices and unredeemed deposit;
- CONTRA: retailers disliked the take back obligation in shops at the starting phase, strong economic motivations could motivate also fraud.

Conclusions:

- There are many possible options to choose from;
- If carefully prepared and implemented, could provide a very essential support for the waste management aims;
- Modern waste management system, based on the principle of the EU waste hierarchy is difficult to adopt without Economic Instruments.

2. Economic instruments. MS experience. Italy

Ecological taxes Is a part of the gate tariff. In Veneto there are 3 ecological taxes:

- On the basis of the National Decree 594/1995: Landfilled waste tribute;
- Regional law 3/2000: tax to reduce the environmental pressure on the Region and Municipality where the landfills are located (Location tax);
- Regional law 3/2000: tax for urban waste disposed in plants located outside the provincial boundaries (Self-sufficiency tax).

Revenues have to be used to reduce the impacts on the environment:

- New treatment plants (also wastewater treatment plant)
- Remediation of polluted areas
- Development and draft of regional waste management plan
 - a. Waste analysis costs
 - b. Technical support with experts and Universities
- Development of separate collection
 - a. Creation of green centres
 - b. Infrastructures and vehicles
- Information campaigns
- Management of abandoned waste

Revenues are distributed through tendering procedures.



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There are several regional decrees that define the details of each tax. The use of the revenues are the same of the national tax, but part of the revenues are managed at local level (Municipality, Province).

Location tax at the moment is paid only for landfills. Part of the revenue is addressed to municipalities that are adjacent to the municipality where the plant is located (20% max). Every year the Regional administration define the amount of the tax.

Self-sufficiency tax currently is 0,00 because there aren't emergency situation. In 2007 due to some technical problem in two big landfills the Regional administration defined these taxation levels:

- 0€/t if duration of the emergency situation is less than 90 days
- 5 €/t if duration of the emergency situation is more than 90 d and less than 183 days
- 10 €/t if duration of the emergency situation is more than 183 days

The bank guarantee is a system to prevent ecological disaster. All treatment plant have to present a bank guarantee to obtain the permit. The bank guarantee is returned after the closure of the plant after the remediation and environmental clean-up. In case of non-compliance of the permit the bank guarantee will cover the costs of waste management.

There were also examples of producers' responsibility presented for packaging waste but also other products.

3. Economic instruments. MS experience. Lithuania

Currently collection costs are higher than the treatment costs. There were also other cost categories presented in the presentation.

Economic instruments used in Lithuania are:

- Taxes on environmental pollution by products and packaging waste
- Producer's responsibility
- Deposit scheme for reusable beverage packaging functioning since 2006
- Administrative liability
- Subsidies from EU and national funds

Generated revenue are managed through Products and packaging waste management programme under the Ministry of Environment.

Landfills tax is planned to be introduced from 2016 at rate €21.72 and increased to €27.51 in 2017, €33.31 in 2018, €39.10 in 2019, €44.89 in 2020.

System of product charges is in place from 2001. The system and examples of product charges were presented and related to achievement of waste management targets.

Advantages and disadvantages of "old" (in operation until 2013) and "new" product charges system has been presented. Main features of the new system include:

- Packaging and Packaging Waste Management Act, amendment of 22/12/2011:
 - a. Obliges producers to organise packaging waste management collectively by joining licensed producer responsibility organizations (PROs), except when packaging is for own use (individually).



- b. PROs must sign:
 - i. cooperation agreement with all municipalities (or regional waste management centres);
 - ii. contracts with municipalities (or regional waste management centres) and companies collecting municipal waste;
 - iii. contracts with companies collecting non-municipal waste.
- c. Costs for collection of municipal waste should be shared between PROs based on market share, calculated by the EPA.
- d. PROs must have at least 10% of market share to get a licence (from 2014)
- Waste Management Act, amendment of 22/12/2011:
 - a. PROs may be established by producers only.
 - b. one PRO can have only one license (e.g. only for packaging) with some exception (e.g. for WEEE and batteries).
 - c. Provisions regarding accreditation of recyclers/exporters and issuing evidence notes.

Examples and requirements for allocation of generated revenue has been presented.

Conclusions and lessons learnt:

- Application of economic instruments is essential to start shifting waste from landfills.
- Introduction of packaging waste tax encouraged a rapid development of packaging recycling sector.
- Failures of trade market of recovery notes for packaging waste:
 - a. There is a risk that there could be insufficient number of potential buyers and sellers in environmental trading market (e. g. packaging evidence notes) for the market to be fully competitive.
 - b. High transaction costs of trades if there is no internet platform (e.g. like provided by the broker Environmental Exchange in UK).
 - c. Lack of transparency (need for control).
 - d. Collection of lowest cost waste streams only (commercial packaging).
 - e. Low cost solutions do not ensure meeting environmental targets in long term perspective.
- Generated revenue from environmental taxes is an additional source for financing environmental projects.

4. Cost benefit analysis. Financial analysis. Analysis of real project in waste management sector

Main CBA questions for evaluator are:

- assess whether the project is worth co-financing (from an economic point of view);
- assess whether the project needs co-financing (from a financial point of view).

Important aspects for financial analysis include:

- Incremental costs and revenues
- Reference period
- Replacement costs and residual value
- Discount rate



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The Financial analysis shall include:

- Financial profitability of the investment (FNPV/C; FRR/C)
- Determination of contribution from the Funds
- Financial sustainability of the project
 - a. Aspects of loan financing;
 - b. PPP and cost-recovery;
 - c. Impact of affordability level.

The Economic analysis shall include:

- Fiscal corrections
- Conversion of market to accounting (shadow) prices
- Evaluation of non-market impacts and corrections for externalities

Financial revenues in the form of user fees, charges and tariffs shall be excluded from the economic analysis, and replaced with estimation of the direct effects on users, either through 'willingness to pay' or accounting prices.

Considering the economic performance indicators, attention shall be paid to

- Social discount rate
- Economic Net Present Value (ENPV) (ENPV should be more than 0)
- Economic Rate of Return (ERR) (ERR should be more than 5 %);
- Benefit/Cost ratio (B/C) (B/C ratio should be more than 1);

Compliance with the polluter-pays principle requires that:

- user charges recover the full cost of environmental services;
- the environmental costs of pollution and preventive measures are borne by those who cause pollution;
- charging systems are proportional to the costs (capital costs, costs of pollution, costs of preventive measures, costs of resources).

Compliance with the full-cost recovery principle includes that:

- tariffs aim to recover the capital cost, the operating and maintenance cost, including environmental and resource costs;
- the tariff structure maximises the project's revenues before public subsidies, while taking affordability into account.

When considering affordability issues for environmental projects, it is important to pay attention that:

1. Users do not pay more than what they can afford.
2. In order to ensure that the service or good is affordable for the most disadvantaged groups states may cap the level of charges or subsidise the tariff for these groups.
3. Where affordability is a relevant aspect, the requirement for minimum-cost recovery should enable covering at least the operating, maintenance and replacement costs.



4. Provision of information on the affordability ratios for average and low-income groups is advisable.

Practical calculation of main parameters of the CBA have been made using regional waste management project example.

Conclusions and recommendations

Conclusions of the workshop include:

- Things are possible (Estonia):
 - a. 70% of landfilling in 2010 and
 - b. 6% landfilling in 2014;
- There is no single model for cost recovery and how it shall be established. Very much depends on national situation, traditions, waste management goals, market maturity, etc.;
- Polluter pays principle implementation step by step starting with O&M costs and later adding investment costs (affordability and political acceptability);
- Financial support does not solve the long-term and continuous operation of the system. The main source of financing – waste management tariffs;
- There are differences among countries how environmental costs (landfill tax or other instruments) are applied and impact cost recovery;
- Getting prices right can encourage development of infrastructure using private funds – e.g., MBT and incinerator in Estonia;
- It is important to have various services as economic units – landfill, incinerator, MBT, collection – with full costs accountancy and recovery;
- Selection of waste collectors based on tenders. Allows reducing costs;
- Investments supports scheme should be targeted to the issues which will have positive impact to the future – more for recycling, less for disposal;
- Regional solidarity principle:
 - a. municipal waste management tariff should not depend on the distance to the regional waste management facilities
 - b. price should be the same for all municipal waste holders of the region if they have the same scope and quality of the services
- It is important, that municipalities continue being involved into collecting tariffs:
 - a. They are better informed about the situation
 - b. Municipalities get more influence on waste management services
 - c. Better acceptance for people.
- Regional authorities my support municipalities in implementation of their functions:
 - a. to present the calculation of tariffs for MWM to municipality and collect them after approval of the council of municipality;
- Some countries have methodologies for setting tariffs for municipal waste collection from waste holders and waste management;
- Pay as you throw systems can be applied only if separate waste collection systems established and enforcement of waste legislation is ensured;
- Economy of scale is important for reducing costs;



- In order to have economically viable solution for landfilling, delivery of about 100 thousand tons per year is needed. Service area has to be carefully calculated taking into account targets for recycling and biodegradable waste, which will reduction landfilling;
- Municipal waste management costs might be reduced if extended producer responsibility principle is implemented and some costs are paid by producers;
- Attention shall be paid to costs of waste collection. Collection of waste may make up to 60% of total costs, while landfilling – only about 10%;
- Flat fee rates are more easy to control, but they do not provide economic interest for minimisation of landfilling;
- Economic incentive to shift from landfilling to other methods of treatment is not possible without landfill tax;
- Landfill tax shall be considered at early stage. Delay in introduction of landfill tax delays achievement of recycling targets;
- There might be regional and local charges needed in order to ensure self-sufficiency or proximity principles or to assist increasing acceptability of treatment facilities (tax for municipality where landfill is located);
- Deposit systems might be very effective, allowing 80 – 90% collection rates;
- Modern waste management system, based on the principle of the EU waste hierarchy is difficult to adopt without economic instruments;
- It is important (and not easy) to ensure proper environment for functioning of economic instruments. Good control system is essential;
- Application of economic instruments generate additional revenue for waste management.

Topics recommended for national roundtables:

- Waste management sector financing system,
- Cost recovery system: main elements,
- Setting waste management tariffs: market versus regulated tariff system,
- Tariffs methodology, structure of tariffs,
- Economic instruments in waste management sector,
- Cost recovery: full or sustainable,
- Affordability in waste sector,
- Cost Benefit Analysis: practical approach,
- Financial analysis,
- Impacts of cost recovery system on grant share of investment funding.

Cost Benefit Analysis has been identified as interesting sector for specialists working both for water and waste management. Therefore it is proposed to elaborate special training program.

Objective of the training would be to familiarise with Cost Benefit Analysis and its application for waste sector, increase practical experience in evaluation of Cost Benefit Analysis of investment projects.

It is proposed, that the first day of training is devoted to more theoretical and dedicated for all participants while the second day will be practical and is dedicated for practitioners/evaluators. The second day work will concentrate on the analysis of an existing project (provided by the country) with discussions, recommendations.





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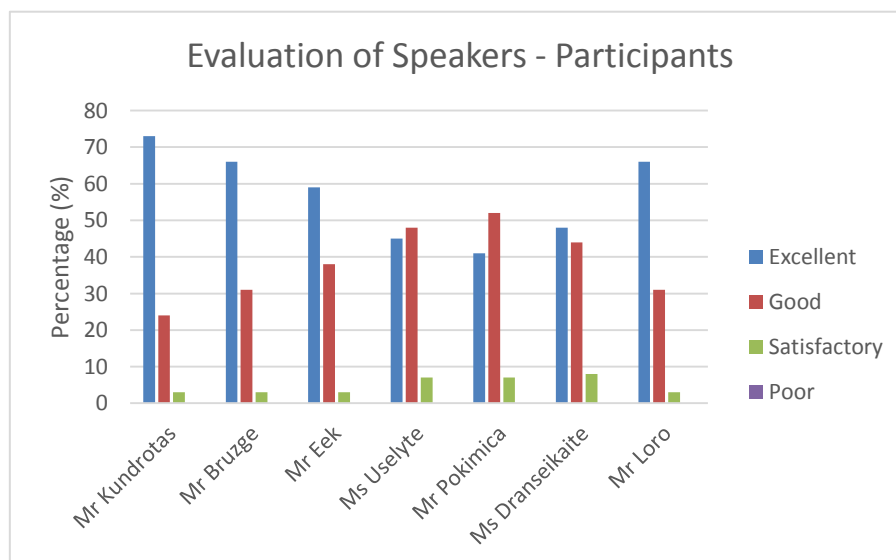
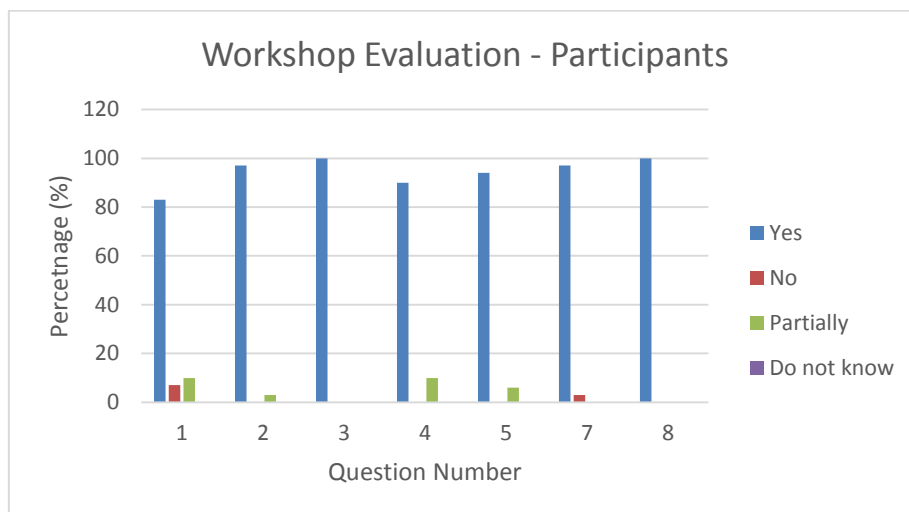
V. Evaluation

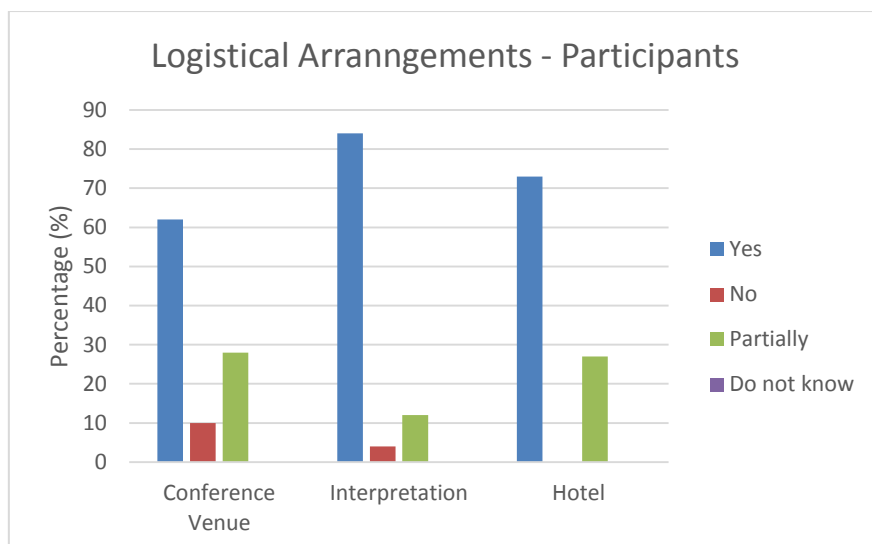
Workshop - participant Evaluation

Question		N°. Responses	Yes	No	Partially	Do not know
1. Was the workshop carried out according to the agenda		29	24 (83)%	2 (6)%	3 (10)%	N/A
2. Was the programme well structured?		29	28 (97)%	0 (0)%	1 (3)%	N/A
3. Were the key issues related to the topics addressed?		29	29 (100)%	0 (0)%	0 (0)%	N/A
4. Did the workshop enable you to improve your knowledge?		29	26 (90)%	0 (0)%	3 (10)%	N/A
5. Was enough time allowed for questions and discussions?		29	27 (94)%	0 (0)%	2 (6)%	N/A
6. How do you assess the quality of the speakers?	Speaker/Expert	N°. Responses	Excellent	Good	Satisfactory	Poor
	Mr Kundrotas	29	21 (73)%	7 (24)%	1 (3)%	0 (0)%
	Mr Bruzge	29	19 (66)%	9 (31)%	1 (3)%	0 (0)%
	Mr Eek	29	17 (59)%	11 (38)%	1 (3)%	0 (0)%
	Ms Uselyte	29	13 (45)%	14(48)%	2 (7)%	0 (0)%
	Mr Pokimica	29	12 (41)%	15 (52)%	2 (7)%	0 (0)%
	Ms Dranseikaite	27	13 (48)%	12 (44)%	2 (8)%	0 (0)%
	Mr Loro	29	19 (66)%	9 (31)%	1 (3)%	0 (0)%
Question		N°. Responses	Yes	No	Partially	Do not know
7. Do you expect any follow-up based on the results of the workshop (new legislation, new administrative approach, etc.)?		29	28 (97)%	1 (3)%	N/A	N/A
8. Do you think that further TAIEX assistance is needed (workshop, expert mission, study visit, assessment mission) on the topic of this workshop?		25	25 (100)%	0 (0)%	N/A	N/A
9. Were you satisfied with the logistical arrangements, if applicable?						
	Conference venue	29	18 (62)%	3 (10)%	8 (28)%	0 (0)%
	Interpretation	25	21 (84)%	1 (4)%	3 (12)%	0 (0)%
	Hotel	26	19 (73)%	0 (0)%	7 (27)%	0 (0)%

Comments:

- I need more study visit;
- Thanks for all;
- Thank you;
- Ok.



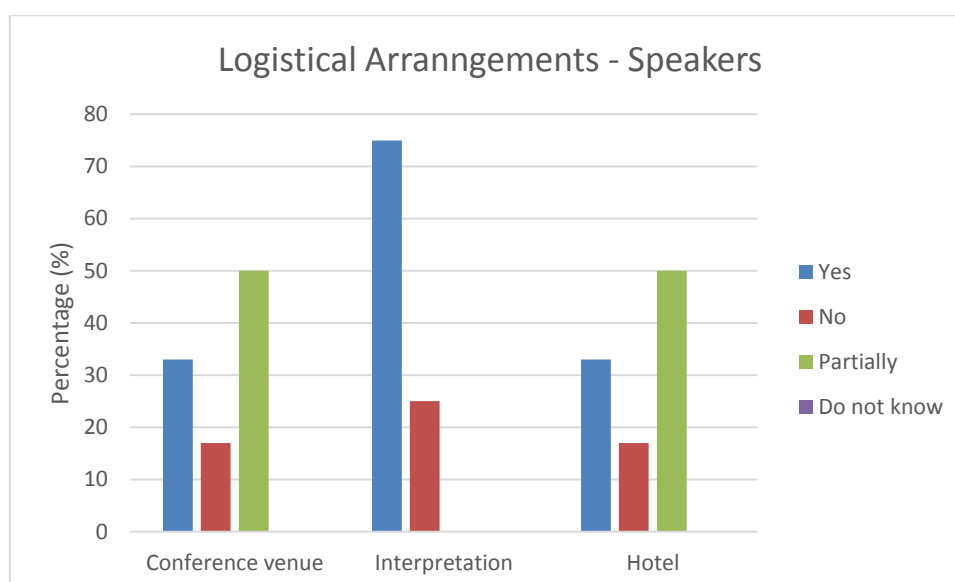
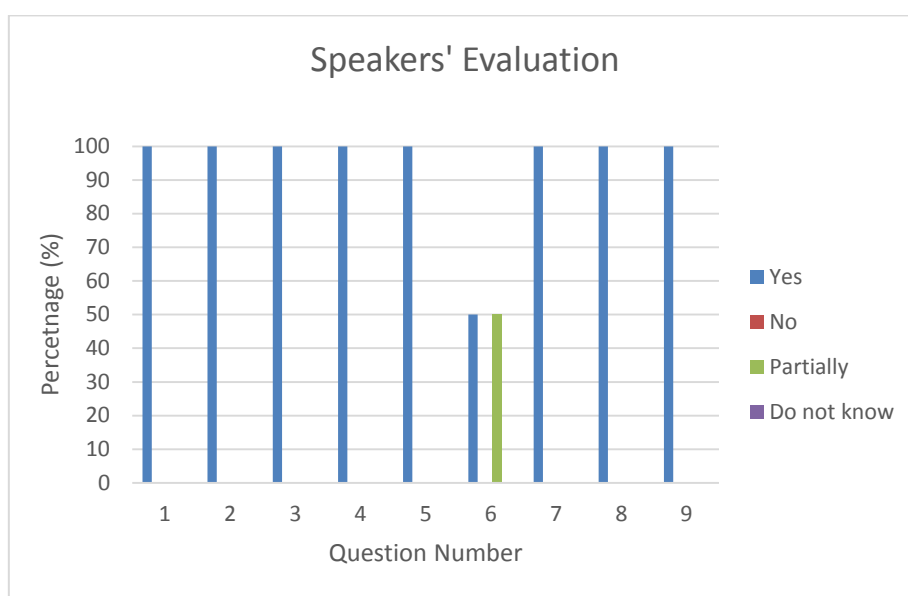


Workshop - speaker Evaluation

Question	N°. Responses	Yes	No	Partially	Do not know
1. Did you receive all the information necessary for the preparation of your contribution?	6	6 (100%)	0 (0%)	0 (0%)	N/A
2. Has the overall aim of the workshop been achieved?	6	6 (100%)	0 (0%)	0 (0%)	N/A
3. Was the agenda well structured?	6	6 (100%)	0 (0%)	0 (0%)	N/A
4. Were the participants present throughout the scheduled workshop?	6	6 (100%)	0 (0%)	0 (0%)	N/A
5. Was the beneficiary represented by the appropriate participants?	6	6 (100%)	0 (0%)	0 (0%)	N/A
6. Did the participants actively take part in the discussions?	6	3 (50%)	0 (0%)	3 (50%)	N/A
7. Do you expect that the beneficiary will undertake follow-up based on the results of the workshop (new legislation, new administrative approach etc.)	6	6 (100%)	0 (0%)	N/A	N/A
8. Do you think that the beneficiary needs further TAIEX assistance (workshop, expert mission, study visit, assessment mission) on the topic of this workshop?	6	6 (100%)	0 (0%)	N/A	N/A
9. Would you be ready to participate in future TAIEX workshops?	6	6 (100%)	0 (0%)	N/A	N/A
10. If applicable, were					
Conference	6	2 (33%)	1 (17%)	3 (50%)	0 (0%)



you satisfied with the logistical arrangements?	venue					
	Interpretation	6	3 (75)%	1 (25)%	0 (0)%	0 (0)%
	Hotel	6	2 (33)%	1 (17)%	3 (50)%	0 (0)%
Comments: <ul style="list-style-type: none"> Workshop achieved fully overall objectives. Rooms in the hotel was no adequate, to fair from four starts hotel; Venue could have at least some windows. 						



ANNEX I – Agenda

Day 1 : 18 March 2015

Topic: Cost recovery mechanisms. Cost benefit analysis.

Chair and Co-Chairs: Nebojsa Pokimica, Arunas Kundrotas

Venue: Hotel Doro City****

Start	Finish	Topic	Speaker	Sub topic/Content
08:30	09:00	Registration		
09:00	09:10	Address by EC	TBD	
09:10	09:20	Address by the representative of the host country	TBD	
09:20	10:20	Presentation and discussion of the results outputs achieved in 2014	Nebojsa Pokimica, WMWG Coordinator Arunas Kundrotas, SPIWG Coordinator	Presentation of the of the activities with the output and results achieved in 2014
10:20	11:00	Discussion and agreement on the approach, contents and time schedule of follow-up training programs for 2015	Nebojsa Pokimica, WMWG Coordinator Arunas Kundrotas, SPIWG Coordinator	General work plan with the specifics for 2015 - 2016 adopted. Materials provided: - Detailed draft work plan for 2015 Method : PPP and Q&A
11:00	11:30	Coffee Break		
11:30	12:30	Discussion and agreement on the approach, contents and time schedule of follow-up training programs for 2015	Nebojsa Pokimica, WMWG Coordinator Arunas Kundrotas, SPIWG Coordinator	General work plan with the specifics for 2015 - 2016 adopted. Materials provided: - Detailed draft work plan for 2015



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				Method : PPP and Q&A
12:30	14:00	Lunch Break		
14:00	14:20	Investment planning and cost recovery	Arunas Kundrotas, ECRAN SPIWG Coordinator	Presentation <ul style="list-style-type: none"> - Defining scope - Areas to pay attention
14:20	15:00	Cost recovery and tariffs setting. MS experience. Estonia	Peeter Eek, Ministry of Environment, Head of Waste Management Department, Estonia	Presentation and questions <ul style="list-style-type: none"> - Investment financing mechanisms - Cost recovery system – what shall be recovered? - Tariffs setting - Institutional system for cost recovery
15:00	15:30	Coffee Break		
15:30	16:00	Cost recovery and tariffs setting. MS experience. Italy	Francesco Loro, Waste management expert at Environmental Protection Agency of Veneto, Italy	Presentation and questions <ul style="list-style-type: none"> - Investment financing mechanisms - Cost recovery system – what shall be recovered? - Tariffs setting - Institutional system for cost recovery
16:00	16:30	Cost recovery and tariffs setting. MS experience. Lithuania	Rasa Uselyte, European Union Funds Management Division, Ministry of Environment, Lithuania	Presentation and questions <ul style="list-style-type: none"> - Investment financing mechanisms - Cost recovery system – what shall be recovered? - Tariffs setting - Institutional system for cost recovery
16:30	17:00	Cost benefit analysis	Assoc. Professor, Dr. Sarunas Bruzge	Presentation and questions <ul style="list-style-type: none"> - Revenue generating projects - Assessing projects for financing from IPA - Cost benefit analysis of investment projects in waste sector: where to pay attention - Impact of tariffs on sustainability of project
17:00	17:30	Conclusions and closure of the first day	Nebojsa Pokimica Arunas Kundrotas	



Day 2 : 19 March 2015

Topic: Economic instruments to support achievement of waste management targets. Practical application of financial analysis

Chair and Co-Chairs: Nebojsa Pokimica, Arunas Kundrotas

Venue: Hotel Doro City****

Start	Finish	Topic	Speaker	Sub topic/Content
08:30	09:00	Registration		
09:00	09:15	Summary of previous day findings	Arunas Kundrotas Nebojsa Pokimica	
09:15	10:00	Economic instruments. MS experience. Estonia	Peeter Eek, Ministry of Environment, , Head of Waste Management Department, Estonia	Presentation and questions - Economic instruments used to support achievement of targets - Management of generated revenue
10:00	10:30	Economic instruments. MS experience. Italy	Francesco Loro, Waste management expert at Environmental Protection Agency of Veneto, Italy	Presentation and questions - Economic instruments used to support achievement of targets - Management of generated revenue
10:30	11:00	Economic instruments. MS experience. Lithuania	Rasa Uselyte, European Union Funds Management Division, Ministry of Environment, Lithuania	Presentation and questions - Economic instruments used to support achievement of targets - Management of generated revenue
11:00	11:30	Coffee Break		
11:30	12:30	Financial analysis. Analysis of real project in waste management	Assoc. Professor, Dr. Sarunas Bruzge	Presentation and questions - Principles of the financial analysis of a project – identification of project costs and revenues



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		sector		<ul style="list-style-type: none"> - Theoretical background – discounting, calculation of financial indicators - Calculation of net revenue for revenue generating operations - Determination of EU grant rate - Financial sustainability
12:30	14:00	Lunch Break		
14:00	15:00	Exercise	CBA. Financial analysis and cost recovery	
15:00	15:30	Coffee Break		
15:30	16:00	Cont. exercise	All participants	
16:00	16:30	Presentation and discussion of results	All participants	
16:30	17:00	Identification of bilateral activities. Closing of the workshop	Arunas Kundrotas Nebojsa Pokimica	



ANNEX II – Participants

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* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.



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ANNEX III – Presentations (under separate cover)

Presentations can be downloaded from:

[http://www.ecranetwork.org/Files/Annual Meeting of WMWG SPIWG and Waste Workshop, March 2015, Tirana.zip](http://www.ecranetwork.org/Files/Annual_Meeting_of_WMWG_SPIWG_and_Waste_Workshop_March_2015_Tirana.zip)

Waste Management Working Group Annual Report can be downloaded from:

[http://www.ecranetwork.org/Files/Waste Managment Annual report 2014.pdf](http://www.ecranetwork.org/Files/Waste_Managment_Annual_report_2014.pdf)

Waste Management Working Group Work plan 2015 can be download from:

[http://www.ecranetwork.org/Files/Waste Managment Work Plan 2015 final.pdf](http://www.ecranetwork.org/Files/Waste_Managment_Work_Plan_2015_final.pdf)

Strategic Planning and Investment Working Group Annual Report can be downloaded from:

[http://www.ecranetwork.org/Files/SPIWG Activities Report 2014.pdf](http://www.ecranetwork.org/Files/SPIWG_Activities_Report_2014.pdf)

Strategic Planning and Investment Working Group Work plan 2015 can be download from:

[http://www.ecranetwork.org/Files/Waste Managment Annual report 2014.pdf](http://www.ecranetwork.org/Files/Waste_Managment_Annual_report_2014.pdf)



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