Report from
the EUROSAI WGEA Seminar
Auditing Waste Management

Oslo, Norway

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PREFACE

I take great pleasure in submitting the report from the EUROSAI Working Group on Environmental Auditing (WGEA) seminar: *Auditing Waste Management*. The seminar was organised in Oslo, Norway, 3 – 4 May 2011.

Based on participants’ positive evaluation, the seminar was successfully delivered. The participating SAIs’ willingness to share their knowledge on the issue of waste management greatly contributed to this. I am very thankful for contributions from the members of the EUROSAI WGEA in this regard.

I would also like to commend the excellent presentations made by Ms Karolina Fras, the European Commission, Mr Anthony Cox, the OECD, and Mr Nils Bøhmer, the Bellona Foundation. I would also like to thank all participants for their active participation and valuable contributions during the meeting. A special thank to the workshops’ moderators. Your contributions are appreciated and important in order to meet the expectations of a meeting place for sharing of experiences and knowledge in the field of waste management auditing.

The EUROSAI WGEA seminar addressed waste management. I believe the Supreme Audit Institutions have roles to play in informing decision-makers and the public alike about shortcomings and weaknesses associated with waste management at national levels.

Oslo, August 2011

Jørgen Kosmo
EUROSAI WGEA Chair
Auditor General of Norway
1. SUMMARY

In May 2011, the EUROSAI WGEA met for a two-day seminar dedicated to the subject of auditing waste management, at premises provided by the Office of the Auditor General of Norway (OAGN) in Oslo. 51 representatives from 25 Supreme Audit Institutions (SAIs) were gathered in order to exchange knowledge and know-how on auditing waste management.

Auditing waste management has become increasingly significant as waste is recognised as a growing environmental problem. The 2009 INTOSAI WGEA and the 2010 EUROSAI WGEA surveys on environmental auditing showed that EUROSAI WGEA members consider waste management to be one of the most important environmental challenges besides water, natural resources and climate change. Based on this feedback, it was decided to hold an EUROSAI WGEA seminar on waste management and to prepare a paper that would review European audits. The intentions of these initiatives are to share experiences and to encourage and facilitate new audits in this domain.

Day one of the seminar was devoted to waste management in general. Ms Karoline Fras, Head of Sector of DG Environment, European Commission, explained the structure of EU waste legislation. The key priority for the European Commission is at present implementation of existing directives and not so much directed at the elaboration of new legislation. The targets for waste prevention and management are still not met, since infrastructure in some member states is not yet in place and/or public awareness may be low. Waste is not collected separately, the use of landfills continues and illegal shipments of waste still occur. The Commission is therefore assessing the feasibility of a waste implementation body that would provide a platform for member states to facilitate the exchange of best practice.

Echoing the challenges mentioned by the Commission, Mr Anthony Cox, Head of the Environment and Economy Integration Division of the OECD Environment Directorate, pointed out that waste data often tends to be deficient and greatly underestimated, and that ex-ante regulatory impact assessment as well as ex-post analysis are frequently rather poor. He underlined that not a single policy instrument but a coherent mix of policy instruments is key to effective waste management. The economic challenge of waste management requires that costs and benefits of different policy options should be determined. The question of how to take externalities, i.e. the impact on health and environment, into account is here essential. Audits should increasingly look at ex-post analysis in order to find mechanisms for

1 INTOSAI WGEA, 2009: Sixth Survey on Environmental Auditing; EUROSAI WGEA, 2010: Annual EUROSAI WGEA 2010 Survey
refining existing policies, put emphasis on improved data for various types of waste and carry out cooperative audits for control of transboundary waste movements. The OECD itself formulates recommendations based on an analysis of best practice.

Short presentations of planned and ongoing activities in the field of waste management audit filled the rest of the plenary program. Mr Jan Willem van de Wardt from the Netherlands Court of Audit, presented a cooperative audit on enforcement of the EU Waste Shipment Regulation. Participating SAIs are Bulgaria, Greece, Hungary (observer), Ireland, Norway, Poland, Slovenia and the Netherlands.

Attention to the existing INTOSAI WGEA guide "Towards Auditing Waste Management" (2004) was drawn by Dr. Kristin Rypdal from the OAGN. The guide provides useful background information on waste, an overview of international waste related agreements and presents waste management systems for different types of waste. It proposes a step-by-step procedure on how to identify the most pressing areas on which to conduct waste management audits. The INTOSAI WGEA guide on how to integrate fraud and corruption issues into environmental auditing, presented by Mr Kjell Dørum from the OAGN, showed the relevance of fraud and corruption for waste auditing. Mr Tom Næss, the EUROSAI WGEA Secretariat, informed the audience about the ongoing work on a paper on auditing waste management in Europe. The paper reviews waste management audits performed by EUROSAI WGEA members between 2004 and 2010.

The topic of waste management being vast and complex, day two of the seminar was organised in two workshops, one dealing with general waste management issues, the other with hazardous, radioactive and medical waste. SAIs that had performed audits on these topics made short presentations of their audits, i.e. nine presentations in workshop 1 and five in workshop 2. In addition, in workshop 2 a presentation was given by Mr Nils Bøhmer from the environmental NGO Bellona Foundation, on the subject of nuclear safety and management of radioactive waste.

Discussions from the workshops were wrapped up in a final plenary session showing that differing definitions, classifications and rules, as well as lack of unified standards for treatment of different types of waste, are common challenges. Statistics were often considered unreliable with no mechanisms for control, rendering data reported to the European Commission questionable.

The EUROSAI WGEA Secretariat facilitated meetings for participants of the cooperative audit on waste shipment and the Mediterranean subgroup during the seminar.
2. WELCOME SPEECH

Welcome speech by Director General Mr Helge Strand Østtveiten, Office of the Auditor General of Norway

Ladies and gentlemen,

On behalf of the Office of the Auditor General of Norway, it is a great pleasure for me to welcome you all to the EUROSAI WGEA Seminar – Auditing Waste Management here in Oslo.

As you know, from June 2008, Norway took over the Chairmanship and the Secretariat for the Working Group for the period 2008-2011. This is a task we have taken on with great respect and gratitude. And as you also probably know, we will propose to the EUROSAI Congress in Portugal this year to extend the EUROSAI WGEA mandate for another 3-year period.

The vision of the working group is to make Europe a leading region when it comes to good management of natural resources and the environment. If we are to accomplish this vision we need to continue the good auditing work done by all European Supreme Audit Institutions as well as taking use of occasions like this seminar to exchange experiences, discuss common challenges and gain new insight which can be employed in national and cooperative audits in the years to come.

Since the establishment more than ten years ago, the members of the working group have – individually and jointly – carried out a multitude of audits within areas such as air and water protection, protection of biodiversity, climate change, nuclear safety, etc. Today, and tomorrow, we address a topic of global concern – waste management. In the Sixth Survey on Environmental Auditing carried out by INTOSAI WGEA in 2009, the global counterpart of EUROSAI WGEA, waste management was mentioned by SAIs to be one of the most important environmental challenges besides water, natural resources and climate change. In this survey waste was also among the highest ranked issues globally for planned audits in the period 2009-2011.

In addition, in the survey carried out by the EUROSAI WGEA secretariat in 2010, waste was the topic with highest priority for a separate EUROSAI WGEA seminar. This is the reason why we have taken on the task to organise this seminar today.

Waste management has been a major topic both on INTOSAI level and EUROSAI level for several years. The INTOSAI WGEA adopted waste as a central theme of its work plan for the period 2002-2007. One of the tasks carried out by the INTOSAI WGEA in this period was to develop the paper "Towards Auditing Waste Management". The
The number of reported environmental audits, covering different aspects of waste management, demonstrates the priority given to the subject by European SAIs. Altogether, 70 audits have been reported by EUROSAI WGEA members in the period 2004-2010. European SAIs play an important role in overseeing and reporting on governments' management of waste, improving the quality of waste management and thereby benefitting social, environmental and economic development regionally and globally.

Based on the interest and also the large number of environmental audits carried out in Europe, the EUROSAI WGEA Secretariat has therefore reviewed waste management audits performed by its members since 2004. A draft paper covering waste management auditing in the period 2004-2010 will be presented by the EUROSAI WGEA Secretariat later today.

Furthermore, the Office of the Auditor General of Norway has experience with waste management auditing. Formerly, we have looked at contaminated sites and hazardous chemicals in two separate audits, and we have an on-going going audit on the management of hazardous waste which will be presented by Ms Hilde Solli in the workshop on hazardous waste management tomorrow.

Efficient and reliable waste management systems are of great importance to society. When mismanaged, waste may have negative impacts on the environment and the health of human beings. In my opinion, it is our obligation as public sector audit institutions to oversee waste management practices and report shortcomings and mismanagement to our parliaments.

Considering the number of SAIs participating here today, where 51 auditors from 25 SAIs are present, it is my impression that SAIs will continue to play an important role in auditing waste management in the future.

As to the future, both in the short and the longer term, I can assure you that we also have many important topics and many challenging tasks ahead of us. The agenda for the seminar certainly reflects this. Among the main topics, I would especially like to emphasise cross-national transport of waste, as this is a fundamental environmental issue of our time. I would like to congratulate the Netherlands Court of Audit for taking the initiative to bring SAIs together in a cooperative audit on shipment of waste,
including SAIs from Bulgaria, Greece, Hungary, Ireland, Norway, Poland and Slovenia. As I have understood from my colleagues in the EUROSAI WGEA Secretariat you have had a fruitful working meeting this morning. On the part of the Office of the Auditor General of Norway, I can assure our colleagues from the Netherlands that we will do our best from the Norwegian side to contribute to the success of this cooperative audit. We are also very pleased with the close cooperation you have with the EUROSAI WGEA.

Finally, I would like to express my sincere gratitude to the two keynote speakers from the European Commission, Ms Karolina Fras, and the OECD, Mr Anthony Cox, for their willingness to share their experience with us later. Your participation is of great importance to us as auditors.

Your knowledge of on-going political process, the status of implementation of European and international agreements on waste and your knowledge of the economic aspects of waste management is of high interest to us as auditors. Knowledge of environmental issues and how they are handled nationally is vital for the auditing community. If we are to contribute to the vision of the EUROSAI WGEA, which is to leave a positive legacy for future generations by improving the management of environmental problems, we need knowledge of the challenges related to waste management in Europe in order to do the right things in our audits.

Before I leave the floor to Mr Tom Næss of the EUROSAI WGEA Secretariat, I must also of course thank all SAIs for their interest and participation and for their willingness to contribute to the agenda with presentations of auditing work.

With these words, I welcome you all to this seminar and to Oslo, the capital of Norway!
3. PLENARY SESSION — TUESDAY, 3 MAY

3.1 Challenges related to implementation, enforcement and effectiveness of national waste management policies

3.1.1 Implementation of EU waste legislation

*Presentation by Ms Karolina Fras, Head of Sector of DG Environment at the European Commission*

The structure of EU waste legislation using the example of the Waste Framework Directive, and the importance of good implementation was presented. Underlying the EU waste legislation is a thematic strategy on waste prevention and recycling. Framework legislation sets out the basic concepts of environmentally sound management and definitions, while directives for different waste treatment operations provide regulation about how to handle waste. The last layer of the legislative structure consists of specific waste stream legislation. The key priority for the European Commission at present is the implementation of existing directives and not so much directed at the elaboration of new legislation.

Despite the fact that implementation of waste legislation not only secures environmental benefits, it also offers opportunities for innovation and access to valuable secondary raw materials, and reduces the costs of clean up-operations after illegal dumping and repair of negative environmental impacts. The Commission notes that implementation and enforcement of EU waste legislation remains poor and targets for waste prevention and management are not met as inadequate infrastructure still leads to heavy reliance on landfilling. Illegal shipments of waste continue to occur, waste does not get collected separately and public awareness is still low in a number of countries.

In order to ensure implementation of EU waste legislation, the Commission applies a dual approach, using on one hand legal infringement procedures and on the other hand support and guidance. The Commission is therefore currently assessing the feasibility of a waste implementation body that would provide a platform to facilitate the exchange of best practice.

3.1.2 Economic aspects of waste management; insights from OECD experiences

*Presentation by Mr Anthony Cox, Head of the Environment and Economy Integration Division of the OECD Environment Directorate*

Statistics on waste generation show considerable variation not only across groups of countries, but also within groups. Mr Cox identified three key factors influencing waste generation, that is:

- economic and population growth and structure
• growing urbanisation and change in structure of households
• socio-cultural habits and structure of consumption

An efficient waste management policy depends on the proper adjustment of private sector and individual interests with the common interest. However, if actors are to support prices reflecting the marginal social costs of waste management, it is important to determine costs and benefits of different policy options. A central issue is therefore how to operationalise externalities such as impacts on health and environment.

The policy tool box consists of “command and control” instruments (bans, standards, compulsory take-back schemes), economic instruments (various tax, deposit, subsidy and trading schemes), extended producer responsibility, information provision and control/monitoring mechanism. However, it is not a single policy instrument, but the coordinated mix of policy instruments that is key to effective waste management.

The challenges OECD countries face, is that data on waste generation is poor and patchy, especially in matters of hazardous waste, absence of ex-ante regulatory impact assessment, little ex-post analysis of policy outcomes and lacking adaptation of the regulatory systems to the sustainability approach. Waste management audits should
• evaluate the cost-effectiveness of policies and policy options
• be a mechanism for refining existing policies
• increase pressure for improving data
• focus on transboundary movements of waste using cooperative audits
• exploit the potential of meta-analysis of waste audits.

The aim is to move from environmentally sound management of waste to a sustainable materials management. The OECD itself seeks to identify best practice and provide recommendations.

3.2 Presentations of relevant INTOSAI/EUROSAI WGEA activities

3.2.1 Cooperative Audit on the Enforcement of EU Waste Shipment Regulation

*Presentation by Mr Jan Willem van de Wardt, the Netherlands Court of Audit*

The European Waste Shipment Regulation (EWSR) implements the Basel Convention and the OECD decision which aim at the prevention of illegal shipment and dumping of hazardous waste. Procedures vary depending on the type of waste and the destination. Participating countries in the cooperative audit are Bulgaria, Greece, Hungary, Ireland, the Netherlands, Norway, Poland and Slovenia. The objective of the cooperative audit is to improve the enforcement of the EWSR by looking into how the EWSR is incorporated into legislation and how the enforcement strategy is put into practice, for example if violations are punished and enforcement agencies have adequate resources. The idea is to have a common audit approach with respect to methodology and audit standards.
Results will be communicated in national reports and a joint report. In relation to the cooperative audit, a joint audit on waste streams on a global level for 2012-2013 where a specific waste stream should be followed through several countries will be considered later on. Preliminary discussions with Asian SAIs have been undertaken. Each SAI would audit one part of the chain ranging from production through shipment to recycling and disposal.

3.2.2 Performing audits of waste management — the INTOSAI WGEA guide "Towards Auditing Waste Management"

*Presentation by Dr. Kristin Rypdal, Office of the Auditor General of Norway*

The INTOSAI WGEA guide "Towards Auditing Waste Management" (2004) is meant to be a starting point for SAIs planning an audit in this domain.

The guide provides useful background information on waste; what is waste, how is waste categorised and what kind of problems are caused by waste. Furthermore the guide reviews the international agreements for different types of waste. The guide recommends further a four step approach in order to identify the most pressing areas on which to conduct waste management audits. These are:

- Step 1: Identify environmental and health risk scenarios
- Step 2: Map out the actors and their responsibility
- Step 3: Take account of the waste stream
- Step 4: Consider audit topics and choose focus

The guide presents 9 different audit topics and gives for each topic examples of audits performed by INTOSAI WGEA members.

3.2.3 INTOSAI project on: Guidance material on how to integrate fraud and corruption issues into the auditing of environmental and natural resource management

*Presentation by Mr Kjell Kristian Dørum, Office of the Auditor General of Norway*

Fraud and corruption can be defined as "an intentional act by one or more individuals in order to obtain an unjust or illegal advantage by abusing public funds and/or office" and visualised as part of a continuum ranging from acceptable behaviour to unacceptable and finally criminal behaviour. Fraud and corruption occur in the waste management domain as in many other fields and SAIs have to be attentive to this risk.

The project for an INTOSAI WGEA guide on fraud and corruption in environmental issues was launched in 2010 and is planned for final approval in June 2013. The objective is to place fraud and corruption on the INTOSAI WGEA agenda and provide auditors with a useful reference document where they can find basic concepts and methods, and advice on how to integrate fraud and corruption risk into the design of environmental...
audits. The guide will provide examples from various environmental issues - such as waste - from the INTOSAI WGEA portfolio, which illustrate a particular fraud and corruption aspect. The project involves the external cooperation from organisations such as Transparency International, the World Bank and various United Nations offices in addition to the cooperation from organisation under the INTOSAI umbrella.

3.2.4 The EUROSAI WGEA draft paper on auditing waste management

*Presentation by Mr Tom Næss, EUROSAI WGEA Secretariat, Office of the Auditor General*

The INTOSAI WGEA guide "Towards Auditing Waste Management" provides information and concepts on auditing waste management as well as examples from the INTOSAI WGEA portfolio. Since the publication of the guide in 2004, over 20 EUROSAI members have performed over 70 national audits as well as 3 cooperative audits. In order to share this accumulated experience and inspire other SAIs to perform waste management audits, the EUROSAI WGEA Secretariat is preparing a summary of those audits. The paper will look at what kind of audit topics, audit criteria and methodology were chosen in the reports and which common challenges can be distillated from the audit findings.

The examination of available reports or summaries has shown that a combination of performance and compliance audit is the most common audit approach. Audits on waste management at regional and local level are frequent, partly due to the federal structure of some member countries. Audits on non-hazardous types of waste as for example packaging waste are also carried out. Audit criteria deriving from international agreements as the Basel Convention or Kyoto Protocol, EU directives/regulations and corresponding national legislation, play a dominant role as revision criteria. In addition, national policy documents and legislation form part of the evaluation basis.

Audit findings reveal legal and practical implementation gaps, lack or deficiency of good data, as well as challenges related to coordination between authority levels, producer responsibility and cost-effectiveness.

SAIs present at the seminar were asked to comment on the draft paper and to forward audit reports or report summaries not yet made available to the Secretariat, so as to make the paper as all-inclusive as possible.
4. WORKSHOPS — WEDNESDAY, 4 MAY

The second day of the seminar, two workshops were held, one on general waste management issues and the other on hazardous, radioactive and medical waste. SAIs made short presentations of their audit experience, followed by questions and discussions. A plenary session summoned up discussion and questions from the workshops. Finally, the EUROSAI WGEA Secretariat gave an update on its activities.

4.1 Workshop 1: General waste management issues

*Moderated by Ms Airi Andresson, the National Audit Office of Estonia*

4.1.1 Polish experiences in waste management auditing

*Presentation by Ms Alicja Gruszecka, the Polish Supreme Audit Office (PSAO)*

In Poland, the yearly amount of waste generated is approximately 120.3 million tons, of which 13 million tons are imported while 0.2 million tons get exported. Depositing waste in landfills, remains still the most common way of waste disposal.

National Polish legislation has supplemented the provisions of the Basel Convention and EU legislation, which bind the country respectively since 1992 and 2004. During the past decade, the PSAO has conducted some 15 coordinated audits. The auditees included governmental organisations at different levels, economic entities connected to hazardous waste, customs offices and the regional Inspectorates for Environmental Protection. The main findings of these audits can be summarised as follows:

- Regional and local authorities were slow to develop waste management plans and implement selective waste collection. Dumping sites were found dissatisfactory.
- Hazardous wastes’ records and reports were unreliable.
- A considerable number of hazardous waste generators and disposer entities operate without proper permits.
- Medical waste was not properly separated, collected, recorded or reported.
- Border guard units neglected to inspect and record waste transports; customs offices showed slack control of export/import documents and respective bills, and the Chief Inspectorate for Environmental Protection adjudicated transboundary movements' permits in disaccord with legal proceedings and ineffectively collected information on the use of permits.
- Entities engaged in international waste movements were lacking waste management permits, moved waste via border checkpoints, from suppliers and to recipients other than those indicated in permits and presented dishonest or untimely information on imported/exported wastes.
The PSAO plans to participate in the cooperative audit on the enforcement of EU Waste Shipment Regulation, coordinated by the Netherlands Court of Audit. Answering a question from the audience, Ms Gruszecka thought that following the waste chain was quite a challenge.

### 4.1.2 Austrian experience in waste management auditing

*Presentation by Dr. Carolin Heiss-Ziegler, the Austrian Court of Audit*

The Austrian experience in waste management is made up of audits on the implementation of the Austrian Landfill Directive (6 Länder and 1 overall report), and audits on municipality associations, recycling centres, separate waste collection and sureties for landfill aftercare.

The Austrian Landfill Directive required that from 1 January 2004 only non-reactive waste must be landfilled. Waste incineration and mechanical-biological pretreatment are regarded as equivalent. The Länder could ask for a deferment if necessary. The results of the audits are:

- **Not all Länder lived up to landfill criteria in 2004, 2 Länder asked for an extension to finish plants and 1 Land did not have any treatment option.**
  
  *Recommendation*: check landfill prohibitions in time, inform landfill operators and control landfill input continuously.

- **There was no coordination at federal level and only a few Länder cooperated on waste treatment solutions. Several plants turned out to be of uneconomic size. The Mechanical-biological Pre-treatment Guideline was not legally binding.**
  
  *Recommendation*: have a legally binding directive.

- **The Austrian Federal Waste Management Plan 2001 required a 65 % minimum energy efficiency of waste incineration plants. In some regions energy efficiency percentages were far below this minimum.**
  
  *Recommendation*: waste heat recovery should be a fundamental criterion for selecting waste incineration sites.

- **Waste management plans of the Länder were of differing quality.**
  
  *Recommendation*: Describe and analyse the present situation, define and quantify targets, set measures for target achievement, evaluate target achievement.

Waste management audits on municipality associations for the collection and pre-treatment of municipal solid wastes, recycling centres showed that:

- **Regulations between Länder differ with both optional and compulsory establishment of associations. The result is that many municipalities still operate collection of waste independently and inefficiently.**
  
  *Recommendation*: establish municipality associations and delegate tasks extensively.

- **Recycling centres are not available area-wide in some Länder and their service is heterogeneous (opening hours, types of waste, costs). In addition, settlement of accounts between member municipalities proved to be complicated.**
Recommendation: aim at area-wide availability, simple settlement of accounts, finance by disposal fees, regulate services through subsidies.

Waste management audits on separate waste collection established that:
- Organic waste collection in one Land varied greatly depending on costs, paper collection from bring to collect system resulted in less paper in residual waste, bulky waste collect systems were problematic and only 1/3 of collected plastics is recyclable resulting in additional expenses for municipalities. Recommendation: develop fees to support separate collection, change collection of bulky wastes to bring system, pass on cost savings from the separate collection of plastics on to municipalities and carry out residual waste analysis.

Waste management audits on sureties for landfill aftercare:
- Some landfill operators do not or only insufficiently provide sureties although this is an operator obligation. Recommendation: Administrations should demand sureties, operators should quantify declarations of liability to inform on future financial obligations, Länder should establish a fund to which operators contribute on the basis of their share of landfilled waste; sureties should be asked for treatment plants as well.

On being asked if there was a follow-up of the audit's recommendations, Ms Heiss-Ziegler answered that a questionnaire was sent to the auditee.

4.1.3 Swiss experiences in (municipal) waste management auditing

Presentation by Dr. Martin Koci, the Swiss Federal Audit Office (SFAO)

The overall quantity of recycled household waste amounted to 2.8 million tons in 2009, which represents 360 kg/capita. Since 2000 a new federal act demands that no landfills and no use of taxpayers' money is allowed, that waste has to be disposed as far as possible/reasonable within Switzerland and that waste management should be based on the polluter pays principle. The system for waste management in Switzerland is based on public private partnership. Quotas for separate waste types are defined by the Federal Office of Environment (FOEN), while private organisations are in charge of waste collection and disposal.

The SFAO performed an audit looking into existing separate waste collections schemes using prepaid fees or municipal taxes.

The purpose of the audit was:
- whether the individual solutions have a clear objective and collection of performance data;
- to see to what extent effectiveness and efficiency are checked for the individual solutions;
• to see the role the Confederation plays.

The audit revealed:
• the existence of a multiplicity of collection chains for separate waste types with little coordination;
• that very few environmental reviews were conducted which also take costs into account, but that there are numerous control mechanisms ensuring minimal effectiveness;
• satisfied producers, importers and traders, high acceptance by the authority;
• that the basis for calculating and determining recycling quota is weak;
• that car recycling is (still) unsolved;
• but overall an effective and efficient system.

Audit recommendations:
• to draw up standards for comparing the financial data of the waste management organisations as well as an overall cost comparison for all separate collections using prepaid fees
• to transparently give account of its own control activities in relation to separate collections
• to fix priorities for its study policies and define a corresponding strategy
• to try to summarise the financial resources used for campaigns to do with the public, as well as taking a more professional approach with the measures involved
• to provide incentives for the stakeholders concerning mergers and realignments
• to examine if present car recycling voluntary sectorial agreements should be converted into a legislative solution

According to Mr Koci, the challenge in auditing the Swiss waste collection scheme was that policies are vague (recycling quotas) and surveillance complex, procedures not well known being private initiatives and recycling of cars still unsolved. On the methodological side, the evaluation of effectiveness is a complex task and the reliability of technical and performance data always a question. A follow-up evaluation/audit may address specific waste types.

4.1.4 Turkish experience in waste management auditing
Presentation by Dr. Omer H. Köse, the Turkish Court of Accounts (TCA)

The Turkish Court of Audit evaluated the national waste management strategy and its implementation results in 2007. Waste is the most problematic environmental area in Turkey which demands the highest investment rate among environmental issues. Approximately 52 million tons of waste is generated per year. While half of the waste is recyclable, the recycling rate is too low and landfills are neither appropriate nor environmentally safe. Due to rapid urbanisation, landfill areas are getting part of urban
life. As the mass of waste increases, the need for new landfills and the need to rehabilitate old landfills increases.

**Audit criteria:**
EU regulations, environmental law and other legislation, national development plans and environmental strategies. Best practices and experiences from other countries, scientific reports.

**Audit objectives:**
To assess the effectiveness and efficiency of the waste management strategy and its instruments; to assess its implementation by responsible institutions and to evaluate the institutional capacity in place to manage waste issues effectively.

**Audit scope:**
To evaluate the waste management policies and their success in the implementation, mainly the Ministry of Environment and Forestry and the Ankara Metropolitan Municipality were audited (Ankara is the second biggest city of Turkey with serious problems regarding waste management).

**Audit methodology:**
- Reviewing national policy documents such as legislation, national development plans, EU Adaptation Programme, Outputs of the EU Twinning Project
- Reviewing EU Regulations and international organisations’ documents
- Examination of files of the Ministry and the Municipality
- Observation on three different landfills, two private hospitals, medical waste treatment area
- Interviews with key and top person in the Ministry and in the Municipality;
- Dialogue with academics and NGOs
- Benchmarking with other countries
- A wide range of searches and reviews on web, literature, other SAIs reports
- Using a reference partner (Professor Ü. Yetis from the Middle East Technical University)
- Using an expert from SAI of UK for Twinning Project

**Main audit findings:**
- A wide range of arrangements in line with EU regulations that ensure a strong base for a sound waste management exists, but these have mostly not been reflected in implementation
- Repetitions and gaps in sharing roles and responsibilities among different agencies exist, that affect the effectiveness of application process
- Lack of high quality data to formulate and implement waste policies
- Lack of a specific national strategic plan on waste management
- Weak technical and institutional capacity of municipalities, which are the main actors in the area.
Monitoring and control activities by the Ministry are very limited.
Financing system does not take into consideration the polluter-pays principle sufficiently, so economical tools are weak to deter pollution and financial sources are inadequate for investments.
Various projects applied with foreign partners aimed to develop waste management systems, are not efficient (duplications and repetitions in studies, outputs mostly composed of simple situation analysis, feasibility studies and some general recommendations, many of them not finalised or implemented), so, many efforts, long time period and other resources had been wasted.

Audit recommendations:
- A comprehensive national strategic plan on waste management should be improved and put into practice to lead the implementation.
- Tools to support local authorities by central government should be improved.
- The Ministry (MoEF) should promote its facilities to guide, control and enforce the local authorities and other actors from both public and private sector.
- To increase the number and capacity of sanitary landfills, a national plan should be prepared and put into practice under a concrete programme.
- Waste hierarchy based recommendations (minimising waste, encouraging relevant technologies, effective implementation of fines etc.)
- To improve recycling, waste sector should be encouraged and recycling facilities should be expanded to all provinces.
- Polluter-pays principle should put into practise effectively and economical tools to financing the investments should be developed.

Progress in the area:
- A national waste management strategy has been adopted.
- Regulations on waste management have been revised.
- Private companies have been encouraged to develop recycling sector.
- A plan has been adopted to recover old landfills and to construct new landfills (the deadline is end of the year 2012).
- Investments of Municipalities are being supported by the Ministry (% 50 of cost for relevant projects).
- Tools for segregation of waste at source have been developed and Municipalities are enforced by the Ministry for implementation.
- Awareness of the public and institutions is much higher than before.

4.1.5 Effectiveness of collection and recovery of packaging waste
Presentation by Ms Viire Viss, National Audit Office of Estonia (NAOE)

The Performance Audit Department of the National Audit Office of Estonia has an environmental team consisting of 5 people working in groups of two and audit manager. One of the audits the NAOE has carried out in 2009-2010, dealt with the
effectiveness of collection and recovery of packaging waste in Estonia in the period from 2004 to 2009. Generation of packaging waste has been increasing during the last decade both in total and per capita together with Estonia’s economic growth. There exist two packaging waste collection systems, a deposit system for beverages and a nationwide container collection system for other packaging, free of charge for the population. The producer responsibility principle is a relatively new approach, therefore many packaging companies are not aware of their obligations. Packaging companies have an obligation to submit data on generation and recovery of packaging in the Packaging Register and the General Waste Reporting Register. The economic instruments are made up of the obligation to collect packaging waste, a packaging deposit on beverages and an excise duty on packaging (if the company does not meet the packaging recovery target indicators).

**Audit question:**
- Do state activities contribute to the recovery of packaging waste?
- Does recovery of packaging waste meet the European Union target indicators?
- Does the system of collecting packaging waste from households ensure separate collection of packaging and municipal waste?
- Main auditees: Ministry of the Environment, Environmental Inspectorate, Tax and Customs Board

**Audit methodology:**
- Data analysis and comparison of Packaging Register and General Waste Reporting Register
- Questionnaire to the population on their packaging sorting awareness and habits (10 "omnibus" questions: results differed from questionnaires made by recovery companies)
- Observations on packaging containers network – involvement of NAO staff
- Document analysis of:
  - legislation, research and projects
  - annual reports of recovery organisations
  - contracts between local authorities and recovery organisations
  - infringement proceedings by Environmental Inspectorate and Tax and Customs Board
- Interviews

**Main audit findings:**
- It is unclear how much packaging is placed on the market (quantities calculated by the Ministry of Environment and those declared by packaging companies and recovery organisations differ by half).
- National supervision is weak > 60 million EUR of excise duty was not claimed.
- Verification of recovery is not sufficient.
- Population is not aware of packaging waste sorting options.
- Packaging collection network is insufficient and inconvenient for the public to
Experiences:

- It was not possible to audit recovery organisations (NGOs, private entities) and packaging undertakings directly.
- There might be a greater need for regulating the producer responsibility issues (incl. packaging waste) in "young" democracies.
- Pay attention to methodology on how waste amounts (released on the market, recovered) are calculated and controlled.
- It was difficult to prove what happened with collected packaging waste (including exported waste).
- Communicate the doubts and concerns to registry holders and supervisory agencies.
- Keep in mind the waste hierarchy.

4.1.6 Audit on producer responsibility on packaging waste

*Presentation by Mr William Peplow, National Audit Office of Malta*

This audit sought to gauge the extent to which producers have assumed the responsibility to recycle a set percentage of the packaging waste put on the market, as required by law.

The audit found that Government has provided adequate legislative and infrastructural frameworks to enable producers to implement their packaging waste recycling responsibilities. It has also undertaken the role of facilitator and carried out regular educational campaigns.

The audit report concludes that Government initiatives have enabled producer recycling of packaging waste to take off, particularly since 2009. Nonetheless, such recycling is still significantly below the legally-set target for 2009, which obliges producers to recycle 50 percent of the packaging waste arising from the packaging they put on the market.

Packaging waste recycling by producers is significantly below target for a number of reasons. Generally, Government and producer efforts to date have been start-up in nature and, consequently, more time likely needs to pass for these efforts to bear fruit. Recycling opportunities were limited until 2008, since the Government-owned Material Recovery Facility was built behind schedule. Additionally, collective producer recycling schemes only started collecting packaging waste from local councils in 2009.

Moreover, the Eco-Contribution system, which was set-up in 2004, generated sufficient revenue to offset the costs borne by Government due to producers’ non-compliance in packaging waste recycling and played a positive role in the modest packaging waste recycling achieved. However, the majority of the producers subject to Eco-Contribution
on packaging waste-related items still do not recycle the packaging waste in question.

**Audit aim and objectives:**
Evaluate the extent to which Malta was being effective in implementing packaging waste producer responsibility through the following:
- management of the implementation process
- regulation and enforcement of producer responsibility
- economic instruments used to incentivise producer responsibility

**Methodology:**
- review of the legislative framework
- examination of the relative records and data, maintained by various organisations
- interviews with key officials at various entities

**Main audit findings:**
- The implementation of producer responsibility is gathering momentum.
- Despite progress attained the amount of packaging waste recycled is still below EU and national targets.
- Implementation is hindered through various administrative capacity constraints.
- Economic instruments used to boost recycling by producers have been marked by slow implementation.

4.1.7 **Solid waste management projects financed from the Cohesion Fund and national budget**

*Presentation by Mr Gergely Tóth, State Audit Office of Hungary*

Hungary faces considerable challenges in the area of waste management with respect to adoption and implementation of EU regulations, but also with respect to a new way of thinking.

**Audit objectives:**
The goal of the audit was to assess, whether the implementation of regional development projects for the complex treatment of municipal solid waste, funded from ISPA/Cohesion Fund and national sources, has effectively and efficiently promoted the achievement of the goals of Hungarian environmental protection and waste management and an adequate utilisation of the grants.

Furthermore, the audit was to establish whether:
- the system of the existing legal and financial conditions and requirements allowed for an achievement of the goals;
- the preparatory measures for the regional systems of waste treatment contributed to the effective and efficient achievement of the goals, issues of economy were
asserted during the implementation process;

- the local governments involved provided their respective tasks under the public service “municipal solid waste management” effectively and efficiently, and whether the quality of this public service had improved.

**Audit methodology:**

- on-site audits at 3 regional development projects, 39 local governments, 7 organisations performing waste treatment public service
- information from 10 regional development projects, 30 local governments, 7 regional environmental directorates

**Main audit findings:**

- Hungary fulfilled its goals entirely in 2008, but only partially in 2009. On the positive side it was noted that equipment for selective waste collection was available for 60% of the population; the amount of municipal solid waste was stagnating; illegal dumps were closed by mid-July. On the negative side it was noted that the ratio of municipal solid waste utilization did not increase; the ratio of waste deposition did not decrease and the deposited organic matter in waste did not decrease either.
- The product-fee regulation was not effective to prevent the generation of waste.
- Waste utilisation is defined by market prices and was negatively affected by the economic crisis.
- Waste pre-treatment techniques for energetic utilisation are not available (not enough incinerators, unsolved agricultural usage of waste composts, insufficient selective waste collection).

**Audit recommendations:**

For the Hungarian government

- to investigate whether EU regulations are observable beside current regulations of waste management;
- to create regulations for the usage of composts made out of waste.

For the Minister for National Development and Economy

- to make sure that EU operational programmes are written in a way that supports the fulfilment of EU obligations.

For the Minister of Environmental Protection and Water Management

- to create a program to prevent the production of waste, in which all stakeholders are interested;
- to arrange for a "four eyes" concept during the implementation of projects and reconsider the viability of calculations and the sustainability of waste management systems also during the realisation of projects.

For local governments

- to complete waste management with selective collection services;
- to refine contracts with public service providers to fix fee calculations in order to secure long-term operations;
• to unify the handling of waste management facilities and related accounting records

4.1.8 **Waste management in the Slovak Republic**

*Presentation by Mr Igor Blasko, Supreme Audit Office of the Slovak Republic*

The presentation highlighted three audit subjects:

- the Slovak waste management legislation
- audits of the Ministry of environment, focusing on waste management (Audit period 2006 – 2010)
- the Waste Management Programme of SR 2006 – 2010

In 2006 the full text of Act on Waste no. 223/2001 Coll. was published. It included the process of the Slovak legislation harmonisation with EU legislation in the field of waste management. Market oriented economic instruments were implemented in the environmental legislation. They include the fund for landfills closure, the new local fee by means of which municipalities better organise waste management and the Recycling Fund that created new conditions for the waste recycling support. This act was mended 32 times by 2010 as two main waste directives were adopted by the EU during the audit period. For failure to comply with European legislation the European Commission sent 4 reasoned opinions to Slovakia for 1) undue transposition of the PCB/PCT directive of 1996, 2) undue transposition of the landfill directive of 1999, 3) the incorrect application of the landfill directive in the national strategy for the implementation of the reduction of biodegradable waste going to landfills and 4) the undue transposition of the WEEE-Directive, the latter opinion is still open.

In addition to looking into the cases of reasoned opinions, the participation of the Slovak Ministry of Environment in the Supervisory Board and in the Management Board of the Recycling Fund was audited. The Waste Act established the Recycling Fund and defined the obligation to contribute to the Recycling Fund of producers of 11 types of products/commodities. The Fund prepared “Commodity Programmes” for all commodities. The fees are based on the anticipated costs of collection and recovery, to which 88% of the income from the Fund is devoted.

As to the audit on the Waste Management Programme of the Slovak Republic, it was approved in 2006 and was meant to be a basic planning document for waste management. However it was not published in the Journal of the Ministry of Environment and did not enter into force. Regional plans were also elaborated with the aim to define principal needs and goals at the regional level. These plans did neither enter into force. The audit found that this had a negative impact to waste producers and persons engaged in the waste management and process control and inspection of state administration.
4.1.9 The improvements of the regulations in management and solid waste disposal in Republic of Moldova are needed

Presentation by Ms Olesea Djurenco, Court of Accounts of the Republic of Moldova

The goal of the audit on solid waste disposal was to determine the effectiveness of the current waste management system, to identify the gaps and the shortcomings of waste management and to submit some recommendations for the corrective actions. The audit questions were therefore if the system for management, regulation, collection and disposal of solid waste used in Moldova is efficient and does it contribute to minimising the adverse environmental impacts caused by the waste disposal? If not, what changes are needed? Several ministries and local administration authorities were included in the audit.

Main audit findings:

- An overall strategy for optimising the use of disposal sites is missing.
- There is a need for regulations in order to ensure that the waste disposal sites are selected, constructed (equipped) and authorised in a proper manner.
- There are no limits and standards defined for controlling the volume of generated and stored waste.
- Waste disposal management does not have the necessary structure and resources.
- Responsibilities regarding waste disposal monitoring need to be specified.

Recommendations:

- to develop a waste management strategy based on the assessment of the situation in the country, together with the other government bodies involved in these tasks, defining the priority areas, identifying the sources of funds for its implementation, etc.;
- to prepare and to implement an action plan (stipulating measures, persons in charge, completion dates) concerning the LAA training on the waste management problems;
- to determine the procedures for the landfills equipping, including the comprehensive regulatory actions, documents, etc., starting with the phase of lands selection and allocation to waste disposal, basing on the types of waste to be stored, as well as to establish the requirements for their design and construction;
- to determine the responsibilities of bodies in charge of waste management and monitoring at central and local levels, by submitting the relative proposals meant to amend the legislative framework in the established way;
- to define the financial and non-financial tools, as well as the methodology of their use, that should support the execution of the tasks by LAAs
4.2 Workshop 2: Hazardous, radioactive and medical waste

**Moderated by Ms Jerneja Vrabic, the Court of Audit of the Republic of Slovenia**

### 4.2.1 The future of nuclear energy in Europe: nuclear safety and radioactive waste

**Presentation by Mr Nils Bøhmer, Bellona Foundation, Norway**

The Bellona foundation is a Norwegian environmental NGO founded in 1986. It has offices in Oslo, St. Petersburg, Murmansk, Brussels and Washington DC. Bellona has a special focus on carbon capture and storage (CCS) and nuclear energy and radioactive waste in Russia and Sellafield.

Nuclear energy today is generated by 439 nuclear reactors in 31 countries around the world, of which 195 reactors are situated in 17 European countries. The share of nuclear energy in the EU represents 14% of energy production.

Radioactive waste and spent nuclear fuel (SNF) is divided into low-level waste (paper, tools, filters, etc. from hospitals and industry and is short-lived), intermediate-level waste (resins, chemical sludge and fuel cladding) and high-level waste (spent nuclear fuel and high-level vitrified waste). 95% of radioactivity is to be found in the high-level waste, mostly SNF; Europe produces 40,000 m$^3$/year of radioactive waste. The global amounts of SNF are estimated now to be 270,000 tonnes, increasing by 10,000 tonnes per year and for Europe 60,000 tonnes and 2400 tonnes per year. Storage of SNF involves long term storage, a repository in deep geological formations and reprocessing.

The major nuclear accidents in the history of nuclear energy are:
- Windscale (1957, UK)
- Three Mile Island (1979, USA)
- Chernobyl (1986, Ukraine)
- Fukushima (2011, Japan)

New nuclear plants are mainly planned in Asia. There are at present 35 concrete plans in a number of countries like Finland, France, South-Korea, Japan, China, India and Iran. Plans in countries as Egypt, Turkey, Pakistan, North-Korea and Russia are less documented. The Fukushima-accident will lead to a new round of discussion about nuclear energy.

Conclusion:
- Nuclear energy produces radioactive waste.
- There is a short link between civilian and military use.
- The unthinkable can happen.
- The IPPC climate targets can be achieved without nuclear energy.
4.2.2 Experiences with auditing radioactive waste management and end-of life vehicles in Slovenia  
*Presentation by Ms Jerneja Vrabič, the Court of Audit of the Republic of Slovenia*

After carrying out an in-depth analysis of managing hazardous waste in Slovenia the Court of Audit established that the two major risks areas are:

- Radioactive waste is not managed properly because there is no permanent repository for low and intermediate level radioactive waste (hereinafter: LILW) in Slovenia; this may cause safety problems in managing radioactive waste in the near future;
- Only 10 percent of all vehicles in Slovenia are being recycled properly at the end of their useful lives; hazardous components are not treated properly and may cause problems to the environment and have harmful effects on humans' and other creatures' lives.

The Court of Audit therefore conducted an audit on radioactive waste management in 2010 and 2011, and an audit on managing end-of-life vehicles in 2010.

*Audit on efficiency of choosing location for the permanent repository of LILW from nuclear power plant*
Slovenia is one of few countries in the European Union with operating nuclear power plant which hasn’t yet taken care for final disposal of medium and low radioactive waste (LILW) from the nuclear power plant. The temporary repository in the power plant is more than 90 % full; the safety of further storing of medium and low radioactive waste there is at risk. The location for permanent storage of radioactive waste should have been chosen by 2009 and the repository should start to operate at the latest in 2013. The main impact of the audit on radioactive waste management was to estimate the quantities of LILW again before starting building the permanent repository, considering the newest technologies of their compacting, to evaluate the selected location with respect to all set safety criteria and to re-evaluate the compensations to the local communities in vicinity to the repository against the initially set criteria.

*Main audit question:*
Was the procedure for choosing location for permanent storage of low and intermediate low radioactive waste (LILW) from the nuclear power plant efficient?

*Sub-questions:*
Was the planning and carrying out the procedures for the location for the LILW repository efficient? Were the procedures to assure social acceptability of the repository planned and carried out efficiently?
Main audit findings and recommendations:
The costs of the repository were not planned efficiently:
- The data used for planning the size of the repository were obsolete – the newest procedures for compacting the LILW were not taken into account; this affected also the choice of the location → we demanded to estimate the quantities of LILW again, considering the newest technologies of their treatments before preparing investment plan.
- It was not taken into the account to provide repository for the whole quantity of the LILW from the nuclear power plant (Slovenian and Croatian share), which will cause 50% higher costs → we demanded to start immediate negotiations with Croatian authorities to build joint repository.
- The procedure of choosing the location was not transparent – the criteria initially established were changed several times during the procedure – thus there were not the same conditions throughout the procedure for all the competing locations → because also the size of the repository is not irrevocably established we demanded to estimate the results of evaluating competing locations once again.
- The Agency for the radioactive waste does not have proper controls over managing contracts for building the repository, thus we found costs that exceeded the costs agreed in contracts up to 50 % → we demanded to establish proper controls over implementing contracts and to determine employees, responsible for implementation of contracts.

The methods to assure social acceptance of the repository were not planned and carried out efficiently:
- Final costs of different measures (compensations and other investments into local communities) to assure social acceptance of the repository exceed the planned ones by more than 300 %; there are some measures approved which were not planned, others are much higher as initially arranged; besides high compensations to local communities local population oppose the installment of the repository in the chosen location → we demanded to re-evaluate the compensations to the local communities under initially set criteria and to harmonise disbursements to the set criteria.

Audit on managing end-of-live vehicles
Only 10 % of end-of-life vehicles and their components generated in Slovenia each year are recycled and recovered properly, according to official data collections. 90% of all end-of life vehicles are managed improperly; they are illegally disposed or exported; handling with hazardous components is therefore not according to set standards and rules which cause unnecessary threat to environment. Official data collections about number of end-of-life vehicles, means and methods of managing them are not accurate, complete and up-to date. Data about end-of-life vehicles provided to European Commission are therefore unreliable and do not reflect actual state.

Main audit question:
Is managing of end-of-life vehicles in Slovenia efficient?
Sub-questions:
Is there an efficient and transparent system of managing end-of-life vehicles, which enables reaching set objectives in place?
Is there an efficient system of controls over managing end-of-life vehicles in place?

Recommendations:
- to establish the register of vehicles which will enable better and complete review and control over all registered vehicles from the purchase till the end of their functioning;
- to establish comprehensive data base over means and methods used for dismantling and recycling of all end-of-life vehicles in Slovenia;
- to establish comprehensive data base of persons authorised for dismantling and extracting hazardous components from end-of-life vehicles;
- to establish more efficient controls over extracting components which cause threat to environment, their managing and methods of recycling;
- to establish better controls over the data about end-of-life vehicles transmitted to European Commission to ensure correct and reliable figures about methods of dismantling and recycling end-of-life vehicles in Slovenia

The impact of the audit on end-of-life vehicles is a currently established registry of vehicles, which enables better and completes review and control over all registered vehicles from their purchase till the end of their useful lives, and a comprehensive data base of means and methods used for dismantling and recycling of all end-of-life vehicles.

4.2.3 Audit of the Government’s Management of the Handling of Hazardous Waste

Presentation by Ms Hilde Solli, Office of the Auditor General of Norway

Objective of the audit:
To evaluate the national management to ensure safe and effective handling of hazardous waste. The national target is that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or that sufficient treatment capacity is provided within Norway.

Audit questions:
- To what extent does the governance of the Ministry of Environment and the Climate and Pollution Agency contribute to safe and proper handling of hazardous waste?
- To what extent is the collection of hazardous waste effective?
- To what extent is hazardous waste dealt with in a safe and proper manner in facilities dedicated for reception and treatment?
- To what extent does the government have control of import and export of hazardous waste?
Audit criteria:
• Basel Convention, London Convention, OSPAR Convention, Stockholm Convention
• EU regulation on waste shipment
• National legislation, i.a.
  ➢ deliver duty and duty of enterprises to file a declaration on the content of waste
  ➢ responsible storage, etc., of hazardous waste and permit for the handling and treatment of hazardous waste
  ➢ economic incentives (e.g. reimbursement on waste oil)
  ➢ producer (and importers) responsibilities

Methodology:
• interviews with various representatives of government and organisations and different private companies.
• analysis of policy documents and case documents (regulation documents and inspection reports) and of specialists’ reports
• analysis of administrative databases used by the environmental authorities
• analysis of official statistics
• study of physical waste flows conducted by external consultants.
  ➢ To shed light on the hazardous substances in focus; how much and where are they?
  ➢ To investigate handling of hazardous waste in local facilities (collection sites and waste oil)
  ➢ To recalculate the amount of electrical and electronic waste
  ➢ To look into the system of registration of waste
• juridical study of regulation documents
• household survey
• output from the cooperation with municipal auditors in four major cities

As the audit is still ongoing, conclusions are not yet drawn.

4.2.4 Audit on Hazardous Medical Waste

Presentation by Ms Snezhina Dimitrova, Bulgarian National Audit Office

In 2002, possibilities for hazardous hospital waste disposal in Sofia were limited. Hospitals disinfected part of their infectious waste in autoclaves or incinerated another part in facilities that did not meet the environment protection requirements. Huge amount of hazardous medical waste was heaped and improperly stored in hospitals.

In 2003, a test operation started of a new pyrolytic incinerator. Facilities for microwave treatment of waste were put into operation in two big hospitals in Sofia. The projects led
to better waste segregation and collection and better conditions for on-site storing in hospitals. The study covered ministries, regional control institutions, hospitals, research centre on parasitology and epidemiology, waste treatment facilities.

**Audit questions:**

Is the management of hazardous medical waste in Sofia sufficient? Do regulations, strategic and programming documents on the national level provide for safe and environmentally conscious management of hazardous medical waste? Is the management of hazardous medical waste in hospitals efficient and effective? Do the operators carry out an ecological and safe treatment of medical waste? Is monitoring and control by the different governmental bodies effective?

**Methodology:**

- observations on hazardous healthcare waste management activities in hospitals and incineration facilities
- observations how control checks are carried out
- structured questionnaires to all of the auditees and other 20 hospitals
- interviews

**Challenges:**

- clear definition of hazardous healthcare waste
- development of comprehensive guidelines
- improvement of planning
- reduction of waste generation
- waste recycling and reuse
- efficient use of treatment facilities’ capacity
- sufficient and reliable information on the amount, composition and features of healthcare waste
- effectiveness of controls

The study covered ministries, regional control institutions, hospitals, research centre on parasitology and epidemiology, waste treatment facilities.

The overall conclusion of the auditors was that the conditions created, measures undertaken and activities of audited entities ensure largely a safe and environmentally sound medical waste management in Sofia. The audit contributed to improving the at-source waste segregation in hospitals and the conditions for proper on-site storing of hazardous waste. Improvement of accounting in hospitals and treatment facilities could result in better quality of the information on national level. In one of the incinerators, action was taken to utilise the energy from waste incineration. All audited entities ensure more secure work conditions for the employees handling waste.
4.2.5  Russian experience with auditing radioactive waste management

Presentation by Ms Elena Chernet, The Accounts Chamber of the Russian Federation

In Russia competent government bodies control the handling of spent nuclear fuel and radioactive wastes, including their disposal and development of new technologies and facilities for disposal, recycling and reuse of accumulated spent nuclear fuel and radioactive wastes.

Radioactive wastes, irrespective of the form of ownership, are subject to state accounting and control in the system of state accounting and control of radioactive substances and radioactive waste for the purpose of determining the available amount of these wastes in the places of their location, preventing losses, unauthorised use and misappropriation, providing authorities and agencies for nuclear power use management with information on availability and removal of nuclear wastes, as well as on export and import thereof.

At present, the federal target-oriented program “Provision of Nuclear and Radiation Safety for 2008 and for the Period up to 2015” is being financed at the expense of the federal budget funds; about ten ministries and agencies of Russia are involved in this program execution.

The use of federal budgetary funds allocated, in particular, for implementation of measures for management of hazardous and radiation wastes and for implementation of federal target-oriented programs, is controlled by the Accounts Chamber of the Russian Federation. The audit of target and effective use of budgetary funds is carried out in the frame of annual checks of execution of budgets of Ministries and Agencies, thematic inspections and analytical surveys.

The Accounts Chamber of the Russian Federation in 2010, in the frame of the audit of execution of budgets of ministries and agencies, audited the use of budget funds for implementation of the Program measures in 2009 and made a conclusion on their effective use.

4.2.6  Auditing risk based inspections regarding waste shipments by the Dutch customs

Presentation by Ms Louise van Loon, the Netherlands Court of Audit

The port of Rotterdam is the biggest port of Europe. Annually, around 11 million containers are transferred in Rotterdam, including containers with waste. As it is impossible to inspect each of the 11 million containers, the Dutch environmental inspectorate and Customs have developed a strategy for the selection of waste shipments. Rules for waste shipments are laid down in the European Waste Shipment Regulation (EWSR) and are implemented in Dutch environmental law.
The Netherlands Court of Audit (NCA) has executed an audit in 2009-2010 on the implementation of the European waste shipment directive, specifically in the port of Rotterdam.

One of the audit subjects was the ‘risk-based inspection strategy’, sometimes referred to as intelligence-led inspections. This risk based inspection strategy in the port of Rotterdam is embodied in risk profiles with different risk levels. The higher the risk level, the more often such shipments are inspected. Risk profiles are shipment characteristics, such as the waste code (like metal scraps of electronic waste), the destination of the shipment or the exporter (company). Risk profiles are constructed and updated, in order for the inspections to be as efficient and effective as possible. The environmental inspection estimates that due to risk-based inspections 15% of the shipments include violations, while the percentage violations in random inspection is estimated much lower.

The main findings of the NCA regarding the inspection strategy included that the communication between the environmental inspection and customs functions well, and also the learning cycles (keeping profiles updated) works well in Rotterdam.
5. PLENARY SESSION — WEDNESDAY, 4 MAY

A concluding plenary session summarised discussions from the two workshops. The EUROSAI WGEA secretariat informed about ongoing projects and upcoming events.

5.1 Workshop 1: General Waste Management

The nine presentations in this workshop were made by countries which have come more or less far in the implementation of well-functioning waste management structures. Thus the Swiss and Austrian audit offices could look into overall efficient and effective waste management systems while SAIs from other countries still are in the progress of adopting new ways of thinking and developing necessary infrastructure. There are also differences as to the SAIs’ mandate, reflecting various legal structures as is the case for federal countries, or different auditing practices as for countries mainly accustomed to financial audits.

The audits revealed:
- The accuracy of data and reports on waste types and streams is questionable, if available at all, is a general problem for all countries. Poor data has its repercussions on policy development and refinement not only on the national level, but also as input on the European level. Working for better data and monitoring is therefore an issue for all countries.
- Landfills are still a major headache in many countries, where both unsatisfactory dumping sites have to be sanitised and new pre-treatment facilities have to be created.
- Lack of coordination between administrative levels (national/regional/local) and agencies threatens both efficiency and effectiveness of waste management systems. This is also the case when waste collection schemes with a multiplicity of parallel or overlapping collection chains give rise to uneconomic and environmentally unsound solutions on the ground, with respect to information efforts and user-friendliness.
- Transboundary movements of waste are a challenge as waste management permits are often lacking, hold misleading information and border control is inefficient.

A recurring recommendation to auditees was to formulate comprehensive strategic plans on waste management, defining and quantifying targets and measures for target achievement and assure evaluation of adopted policies thus creating learning cycles.

On the methodological side, it was recommended to pay special care to how data on
waste amounts are calculated and controlled, and communicate weaknesses to concerned registers and supervisory agencies.

5.2 Workshop 2: Hazardous, Radioactive and Medical Waste

The presentation by Bellona on the future of nuclear energy in Europe showed on one hand the renewed interest nuclear energy has received in relation with the climate change issue, and on the other hand the dangers of nuclear power plant accidents, and the unsatisfactory handling of spent nuclear fuel and radioactive waste. A challenge with respect to audit is that no unified classification of radioactive waste for different categories of radioactivity exists.

In addition to remarks that were pertinent for waste management in general such as lack of good data and the importance of clearly defined strategic plans and policies, the five presentations in this workshop pointed to the challenge of differing definitions and classification for hazardous, medical and radioactive wastes.

As to transboundary movement of waste, the economic possibilities that lie in exporting/important hazardous waste make these types of waste a lucrative business as waste is transported to countries with less strict regulation and lower labour costs. Transboundary movements are often difficult to follow across borders when several actors are implicated in the waste management chain. Risk-based inspections such as the Netherlands practices in the port of Rotterdam are an example of efficient strategy in order to cope with this problem.

5.3 EUROSAI WGEA – Ongoing initiatives and upcoming events

Ms Herdis Laupsa, EUROSAI WGEA Secretariat

The EUROSAI Secretariat reported on the progress of the cooperative audit on adaption to climate change that got kicked-off in Oslo, February 2011. 9 SAIs participate i.e. Austria, Bulgaria, Cyprus, ECA, Hungary (observer), Malta, the Netherlands, Norway, Russia and Ukraine. The project’s design matrix and framework is scheduled ready by May 2011, a short session will take place at the annual meeting in Stockholm and the next meeting is due in Cyprus, December 2011. The project is planned to be completed by the end of 2012.

Prior to the 9th annual EUROSAI WGEA meeting in Stockholm, Sweden, 11—13 October 2011, a training seminar on best practice in environmental auditing will be organised on 10 October 2011. The aim is to focus on audit evidence and audit criteria in the light of the new ISSAI standards, adopted at INCOSAI last year. Experts on ISSAIs will make presentations.

The topics of the annual EUROSAI WGEA meeting are

- Transport related environmental issues
• Auditing of the 3 Es (Economy, Efficiency and Effectiveness).

The EUROSAI WGEA chair will make a progress report on EUROSAI WGEA activities from 2008-2011 and issue a booklet to the EUROSAI Congress in Portugal, May/June 2011. A draft of the 2012—2014 Strategy and Activity Plan has been made. Climate change is proposed as the main topic along with sustainability. The 2012—2014 Strategy and Activity Plan will be adopted at the 9th EUROSAI WGEA annual meeting in Stockholm, October 2011 and revised annually. Meanwhile the Secretariat will keep you informed through the EUROSAI newsletter and website.
APPENDIX 1: AGENDA

EUROSAI WGEA SEMINAR: AUDITING WASTE MANAGEMENT

Oslo, Norway 3-4 May 2011

VENUE
Office of the Auditor General of Norway

PARTICIPANTS
Representatives of SAIs of EUROSAI WGEA and invited guests

HOST
The Office of the Auditor General of Norway

MAIN TOPIC:
Waste management

SUB TOPICS (WORKSHOPS):
1. Waste management in general (management of non-hazardous waste types)
2. Hazardous, radioactive and medical waste

EXPECTED OUTCOME OF THE SEMINAR
The seminar should contribute to exchange of knowledge and experience in the field of auditing waste management.

LANGUAGE
English
### TUESDAY 3 MAY
### PLENARY SESSION 13.30-17.00

<table>
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<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>13.00 - 13.30</td>
<td>Registration</td>
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<tr>
<td>13.30 - 13.50</td>
<td>Opening by Director General Helge Strand Østtveiten, the Office of the Auditor General of Norway</td>
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<tr>
<td>13.50 - 15.15</td>
<td>Challenges related to implementation, enforcement and effectiveness of national waste management policies</td>
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<td><strong>Moderator:</strong> Deputy Director General Anne Fikkan, the Office of the Auditor General of Norway</td>
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<td><strong>Keynote speeches:</strong></td>
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<td>Ms Karolina Fras, Head of Sector, DG Environment Directorate C Industry, European Commission: <em>Status and Challenges – EU Waste Policies</em></td>
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<td>Mr Anthony Cox, Head of Division, OECD Environment Directorate: <em>Economic Aspects of Waste Management: Insights from OECD Experiences</em></td>
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<td>15.15 – 15.40</td>
<td>Coffee break</td>
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<tr>
<td>15.40 – 17.00</td>
<td>Presentations of relevant INTOSAI WGEA/EUROSAI WGEA activities</td>
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<td><strong>Moderator:</strong> Head of the EUROSAI WGEA Secretariat, Herdis Laupsa</td>
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<td>Mr Jan Willem van de Wardt, the Netherlands Court of Audit: <em>Cooperative Audit on Shipment of Waste</em></td>
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<td>Dr Kristin Ryndal, the Office of the Auditor General of Norway: <em>The INTOSAI WGEA paper &quot;Towards Auditing Waste Management&quot;</em></td>
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<td>Mr Kjell Kristian Dørum, the Office of the Auditor General of Norway: <em>The INTOSAI WGEA Guide on Fraud and Corruption – Focus on Waste</em></td>
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<td>Mr Tom Næss, the EUROSAI WGEA Secretariat: <em>Paper on Auditing Waste Management in Europe</em></td>
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<td>19.00</td>
<td>Informal dinner hosted by the Office of the Auditor General of Norway</td>
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# WEDNESDAY 4 MAY
## WORKSHOP SESSIONS 09.00-13.00

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>09.00 – 09.05</td>
<td>Welcome by the EUROSAI WGEA Secretariat</td>
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</table>
| 09.05 – 10.10 | **Session 1**<br>Ms Alicja Gruszecka, the Supreme Audit Office of Poland: *Polish experiences in waste management auditing*
Dr Carolin Heiss-Ziegler, the Austrian Court of Audit: *Austrian experience in waste management auditing*
Dr Martin Koci, the Swiss Federal Audit Office: *Swiss experiences in (municipal) waste management auditing*
| 10.10 – 10.30 | Coffee Break                                                                                     |
| 10.30 – 11.35 | **Session 2**<br>Dr Omer H. Köse, the Turkish Court of Accounts: *Turkish experience in waste management auditing*
Ms Viire Viss, the National Audit Office of Estonia: *Effectiveness of collection and recovery of packaging waste in Estonia*
Mr William Peplow, the National Audit Office of Malta: *Audit on producer responsibility on packaging waste*
| 11.35 – 11.55 | Coffee Break                                                                                     |
| 11.55 – 13.00 | **Session 3**<br>Mr Tóth Gergely, the State Audit Office of Hungary: *Solid waste management projects financed from the Cohesion Fund and national budget*
Mr Igor Blasko, the Supreme Audit Office of the Slovak Republic: *Waste management in the Slovak Republic*
Ms Olesea Djurenco, the Court of Accounts of the Republic of Moldova: *The improvements of the regulations in management and solid waste disposal in Republic of Moldova are needed* |
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<tr>
<th>Time</th>
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<tr>
<td>09.00 – 09.05</td>
<td>Welcome by the EUROSAI WGEA Secretariat</td>
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<tr>
<td>09.05 – 09.50</td>
<td>Mr Nils Bøhmer, Bellona Foundation, Norway: &quot;The future of nuclear energy in Europe: Nuclear safety and management of radioactive waste in Europe&quot;</td>
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<td>09.50 – 10.10</td>
<td>Coffee break</td>
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<td>10.10 – 11.10</td>
<td>Session 1: Ms Jerneja Vrabic, the Court of Audit of the Republic of Slovenia: &quot;Experiences with auditing radioactive waste management and end-of life vehicles in Slovenia&quot;</td>
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<td>Ms Hilde Solli, the Office of the Auditor General of Norway: &quot;Audit of the Government's Management of the Handling of Hazardous Waste&quot;</td>
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<td>11.10 – 11.30</td>
<td>Coffee break</td>
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<tr>
<td>11.30 – 13.00</td>
<td>Session 2: Ms Snezhina Dimitrova, the Bulgarian National Audit Office: &quot;Audit on Hazardous Medical Waste&quot;</td>
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<td>Ms Elena Chernet, the Accounts Chamber of the Russian Federation: &quot;Russian experience with auditing radioactive waste management&quot;</td>
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<td>Ms Louise van Loon, the Netherlands Court of Audit: &quot;Auditing risk based inspections regarding waste shipments by the Dutch customs&quot;</td>
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<td>Summary of discussions – preparation for plenary session after lunch</td>
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<td>13.00 – 14.00</td>
<td>Lunch</td>
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**PLENARY SESSION 14.00 – 16.00**

Summary and conclusions from the workshops

General discussion on evolution and trends in auditing waste management – input to EUROSAI WGEA paper on Auditing Waste Management in Europe

Reporting on on-going activities and up-coming events of the EUROSAI WGEA
APPENDIX 2: LIST OF PARTICIPANTS

Auditoría General de la Nación – Argentina
Dr Vicente M. Brusca, Auditor General
Ms Vilma Castillo, Auditor General

Austrian Court of Audit:
Dr Carolin Heiss-Ziegler, Auditor, Deputy for Head of Department

Court of Audit of Belgium
Mr Christian Leflere, Senior Auditor
Mr Xavier Dubois, Junior Auditor

Bulgarian National Audit Office
Ms Snezhina Dimitrova, Chief Auditor
Ms Ivanka Kesyakova, Chief Auditor

Croatia State Audit Office
Ms Ines Stegić, Senior State Auditor
Ms Silvija Dorotić, Auditor

Supreme Audit Office of the Czech Republic
Ms Jiřina Rosenkrancová, Auditor
Mr Michal Rampír, Head of the State Property Management Unit

Rigsrevisionen, Denmark
Mr Søren Bak, Auditor/Head of section
Ms Philippa Krogh-Lund, Auditor

European Court of Auditors
Mr Armando do Jogo, Team Leader Auditor
Mr Francois Osete, Head of Cabinet
Mr Fernando Pascual Gil, Auditor

National Audit Office of Estonia
Ms Airi Andresson, Audit Manager
Ms Viire Viss, Auditor

The Chamber of Control of Georgia
Mr Giorgi Kapanadze, Auditor
Hellenic Court of Audit
Mr Antonios Froudas, Judge of First Instance

State Audit Office of Hungary
Mr Gergely Tóth, Auditor

State Audit Office of the Republic of Latvia
Ms Aija Feldmane, Head of Audit Sector

National Audit Office of Malta
Mr William Peplow, Audit Manager

Court of Accounts of the Republic of Moldova
Ms Olesea Djurenco, Auditor

Netherlands Court of Audit
Mr Jan Willem van de Wardt, Audit Manager
Ms Louise van Loon, Auditor

Office of the Auditor General of Norway
Mr Helge Strand Østtveiten, Director General
Ms Anne Fikkan, Deputy Director General
Mr Kjell Kristian Dørum, Senior Audit Adviser
Dr Kristin Rypdal, Assistant Director
Ms Hilde Solli, Audit Adviser
Mr Erlend Skjørsæter, Audit Adviser
Ms Gisela Hytten, Higher Executive Officer

Supreme Audit Office of the Republic of Poland
Ms Alicja Gruszecka, Technical Advisor

Romanian Court of Accounts
Mr Miron Nica, Director
Ms Beatrice Carlogea, External Public Auditor

The Accounts Chamber of the Russian Federation
Ms Elena Chernet, Chief Inspector
Ms Svetlana Shilovskaya, Chief Inspector

Supreme Audit Office of the Slovak Republic
Mr Igor Blasko, Auditor

The Court of Audit of the Republic of Slovenia
Ms Jerneja Vrabič, Assistant to the Supreme State Auditor
The Swedish National Audit Office
Mr Fredrik Engström, Audit Director
Ms Madeleine Nyman, Senior Auditor

Swiss Federal Audit Office
Dr Martin Koci, Project Manager

Turkish Court of Accounts
Mr Zekeriya Yalçınkaya, Chair of Sixth Chamber (TCA)
Dr Haci Ömer Köse, Principle Auditor
Mr Serhat Köksal, Auditor

EUROSAI WGEA Secretariat
Ms Herdis Laupsa, Head of Secretariat
Mr Tom Næss, Audit Adviser
Mr Søren Swensen, Senior Audit Adviser

Invited speakers
Ms Karolina Fras, Head of Sector, DG Environment, European Commission,
Mr Anthony Cox, Head of Division, Environment Directorate, OECD
APPENDIX 3: RESULTS OF THE MEETING EVALUATION

On a scale from 1 to 5, the participants at the seminar awarded the meeting an overall score of 4.8. The rating for information received prior to the meeting was 4.8, for the presentations 4.6, for the workshops 4.6, for the relevance to participants' daily work 4.7 and for the quality of the meeting facilities 4.9.