

# Assessment and recommendation report

Analysis of Serbian legislation about specific waste streams, gap analysis and recommendations for improvement of environmental legislative framework



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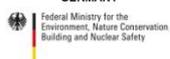
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Twinning Project SR 13 IB EN 02

Improvement of hazardous waste management in the Republic of Serbia – IHWMS

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# 1 MAIN REQUIREMENTS OF THE EUROPEAN DIRECTIVES/REGULATIONS WITH REGARD IMPLEMENTATION

## 1.1 Directive 2000/53/EC on End-of Life Vehicles (ELV)

This report is on the Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on End-of Life Vehicles (ELV) as amended.

The main target of the Directive in general is the harmonization of different national measures concerning end-of life vehicles in order to minimize the impact of end-of life vehicles on the environment, thus contributing to the protection, preservation and improvement of the quality of the environment and energy conservation as well as to ensure the smooth operation of the internal market and avoid distortions of competition in the Community.

A Community-wide system should be established in order to ensure coherence between national approaches in attaining the objectives stated above, especially with a view to the design of vehicles for recycling and recovery, to the requirements for collection and treatment facilities, and to the attainment of the targets for reuse, recycling and recovery, taking into account the principle of subsidiarity and the polluter-pays principle.

This means for Serbia in particular the implementation of the following requirements:

- Definitions mentioned in the Directive should be transposed into Serbian law (e.g. ELV, treatment, economic operators).
- Measures should be taken up to reduce and control hazardous substances in vehicles (e.g. lead cadmium, chrome), in order to prevent their release into the environment, to facilitate recycling and to avoid the disposal of hazardous waste.
- Recycling of all fractions from end-of life vehicles should be continuously improved (e.g. plastic, metal).
- Targets for reuse and recovery set by the directive should be met.
- Collection systems should be established in order to ensure that end-of life vehicles are discarded without endangering the environment.
- Requirements for the de-registration of end-of life vehicles, should be introduced.
- Certificate of destruction when end-of life vehicle is transferred to a treatment facility should be designed and implemented.
- Requirements for storage and treatment operations in order to prevent negative impacts on the environment should be laid down in the national law.
- Data collection system should be installed to monitor the fulfilment of targets.
- Agreements between the competent authorities and the economic sector concerned have to be made to ensure that the main objectives of the Directive on prevention, collection, treatment and recovery of ELV will be achieved.
- Obligations for the requested reports to the Commission should be addressed

## 1.2 Directive 96/59/EC on PCB/PCT

- Definition of PCB, PCB-devices, PCB-wastes
- Definition of possible disposal operations
- Forbidden actions:
  - Recovery of PCB
  - Recharging/topping of transformers with PCB

- Temporary use of PCB-containing transformers only if they do not leak and fulfil technical standards
- Incineration of PCB and PCB-wastes on ships
- Content of an inventory; exceptions for parts of the content for devices containing PCB in a concentration between 0,05 and 0,005 %
- Duties for holders:
  - labelling devices and places where these devices are operating
  - information of such devices and changes to the competent authority
  - decontamination of PCB and PCB containing devices as well as disposal of PCB, PCB containing devices and PCB-Waste up to 2010 at latest
  - decreasing of PCB content in transformers up to less than 0,05 % or if possible to less than 0,005 %
  - disposal of PCB-devices which are not part of the inventory on the end of their life at latest
- Duties for PCB disposing enterprises:
  - to obtain a permit according Waste-Framework-Directive 2008/98
  - incineration plants have to fulfil the requirements of the Incineration-Directive 2000/76;
  - all other disposal operations have to be operated according to the state of the art (BAT)
  - keep records for a register and inform the competent authority; the register is public
  - hand out documents on the proper disposal to the former holder
- Duties for the authorities:
  - Elaboration of an inventory by MS for devices > 5 dm<sup>3</sup> PCB on basis of the holder`s information
  - Elaboration of a decontamination plan for registered PCB devices
  - To build capacities for the proper disposal of PCB-waste under consideration of the possibilities of EU-Waste-Shipment-Regulation 1013/2006
  - supervision by the competent authority concerning the amounts of PCB and the waste management

### 1.3 Regulation (EC) 850/2004 on POPs

In connection with this activity, just the waste related provisions in Article 7 in connection with Annexes I, IV and V of this regulation were checked.

- Definition of POP also in connection with the management of POP-Wastes (Annex I)
- Duties of the holder
  - To avoid mixing of wastes with POP (separation)
  - To recover or recycle POP is strictly forbidden
  - Disposal or recovery by means of destruction or irreversible transformation (reaction that changes the chemistry) of PCB; Directive 96/59/EC on PCB is not affected
  - Derogating from the obligation to destroy/transform POP, it is possible:
    - To recover or dispose of POP-Wastes with a POP-content of less than the lower limit values (Annex IV) without any restrictions
    - To dispose of POP-Wastes with a POP-content of less than the upper limit values (Annex V) without the duty of destruction/transformation
  - In case of Annex V, to prove that the destruction/transformation is not possible
- Duties of the authorities:
  - Approval in case of Annex V; information of other Member States and EU-Commission
  - If necessary (not determined by Regulation), determination of lower and upper limit values.

## 1.4 Directive 2012/19/EU on waste electrical and electronic equipment

Directive 2012/19/EU on waste electrical and electronic equipment (hereafter called WEEE Directive) has the main objective to minimise the negative impact of waste electrical and electronic equipment, thus contributing to the protection, preservation and improvement of the quality of the environment. This new WEEE Directive entered into force on 13 August 2012, repealing the old WEEE Directive, 2002/96/EC. There are other pieces of EU legislation with relevance for the management processes of the WEEE,

a) Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). This Directive is not analysed in this report.

b) Commission Decision of 11 March 2004 concerning a questionnaire for Member States reports on the implementation of Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) (2004/249/EC)

c) Commission Decision of 3 May 2005 laying down rules for monitoring compliance of Member States and establishing data formats for the purposes of Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (2005/369/EC).

The purpose of the WEEE Directive is to contribute to sustainable production and consumption by, as a first priority, the prevention of WEEE and, in addition, by the re-use, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste and to contribute to the efficient use of resources and the retrieval of valuable secondary raw materials. It also seeks to improve the environmental performance of all operators involved in the life cycle of EEE, e.g. producers, distributors and consumers and, in particular, those operators directly involved in the collection and treatment of WEEE. Different national applications of the 'producer responsibility' principle may lead to substantial disparities in the financial burden on economic operators. Having different national policies on the management of WEEE hampers the effectiveness of the recycling policies. For that reason, the essential criteria are laid down at the level of the Union and minimum standards for the treatment of WEEE should be further developed.

The provisions of WEEE Directive should apply to products and producers irrespective of selling technique, including distance and electronic selling. In this connection, the obligations of producers and distributors using distance and electronic selling channels should, as far as is practicable, take the same form, and should be enforced in the same way as for other distribution channels, in order to avoid other distribution channels having to bear the costs resulting from this Directive that are incumbent to the WEEE that result from the equipment sold by distance or electronic selling.

Separate collection is a precondition for ensuring specific treatment and recycling of WEEE and it is necessary to achieve the proper level of protection of human health and the environment in the Union. Consumers have to actively contribute to the process of collection and should be encouraged to return WEEE. For this purpose, convenient facilities should be set up for the return of WEEE, including public collection points, where private households should be able to return their waste at least free of charge. Distributors have an important role in contributing to the success of WEEE collection. Therefore, collection points set up at retail shops for very small WEEE should not be subject to the registration or permit requirements of Directive 2008/98/EC.

All producers as defined by WEEE Directive should be registered. Producers should finance the costs of collecting, treating and recycling all collected WEEE minus the profit made by selling the materials recovered.

Basic principles with regard to the financing of WEEE management are set at the level of the Union, and financing schemes have to contribute to high collection rates, as well as to the implementation of the principle of producer responsibility.

Users of EEE from private households should have the possibility of returning WEEE at least free of charge. Producers should finance at least the collection from collection facilities, and the treatment, recovery and

disposal of WEEE. Member States should encourage producers to take full responsibility for the WEEE collection, in particular by financing the collection of WEEE throughout the entire waste chain, including from private households, in order to avoid separately collected WEEE becoming the object of suboptimal treatment and illegal exports, to create a level playing field by harmonising producer financing across the Union and to shift payment for the collection of this waste from general tax payers to the consumers of EEE, in line with the 'polluter pays' principle. In order to give maximum effect to the concept of producer responsibility, each producer should be responsible for financing the management of the waste from his own products. The producer should be able to choose to fulfil this obligation either individually or by joining a collective scheme.

Each producer should, when placing a product on the market, provide a financial guarantee to prevent costs for the management of WEEE from orphan products from falling on society or the remaining producers. The responsibility for the financing of the management of historical waste should be shared by all existing producers through collective financing schemes to which all producers that exist on the market at the moment when the costs occur, contribute proportionately.

Collective financing schemes should not have the effect of excluding niche and low-volume producers, importers and new entrants. Collective schemes could provide for differentiated fees based on how easily products and the valuable secondary raw materials that they contain could be recycled.

Regarding the visible fee according to WEEE Directive, the producers could be allowed to show purchasers, on a voluntary basis at the time of sale of new products, the costs of collecting, treating and disposing of WEEE in an environmentally sound way.

Information to users about the requirement not to dispose of WEEE as unsorted municipal waste and to collect WEEE separately and about the existing collection systems and their role in the management of WEEE is indispensable for the success of WEEE collection. Such information necessitates the proper marking of EEE which could end up in rubbish bins or similar means of municipal waste collection.

Member States should provide for effective, proportionate and dissuasive penalties to be imposed on natural and legal persons responsible for waste management, where they infringe the provisions of this Directive. Member States should also be able to 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.

## **1.5 Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators**

Directive 2006/66/EC on Batteries and accumulators and waste batteries and accumulators (hereafter called Directive) has the main objective to minimise the negative impact of batteries and accumulators and waste batteries and accumulators on the environment, thus contributing to the protection, preservation and improvement of the quality of the environment.

The WBA Directive has been submitted to an amending process several times and there are a number of other pieces of EU legislation with relevance for the management processes of the waste batteries and accumulators.

The relevant EU legislation is the Directive 2006/66/EC, as amended by:

- a. Directive 2008/12/EC of the European Parliament and of the Council of 11 March 2008;
- b. Directive 2008/103/EC of the European Parliament and of the Council of 19 November 2008;
- c. Directive 2013/56/EU of the European Parliament and of the Council of 20 November 2013,

And as corrected by:

d. Corrigendum, OJ L 311, 10.11.2006, p. 58 (2006/66/EC);

Other EU legal texts with relevance:

e. Commission Decision 2008/763/EC establishing, pursuant to Directive 2006/66/EC of the European Parliament and of the Council, a common methodology for the calculation of annual sales of portable batteries and accumulators to end-users;

f. Commission Decision 2009/851/EC establishing a questionnaire for Member States reports on the implementation of Directive 2006/66/EC of the European Parliament and of the Council on batteries and accumulators and waste batteries and accumulators;

g. Commission Regulation (EU) No 1103/2010 establishing, pursuant to Directive 2006/66/EC of the European Parliament and of the Council, rules as regards capacity labelling of portable secondary (rechargeable) and automotive batteries and accumulators;

h. Commission Regulation (EU) No 493/2012 of 11 June 2012 laying down, pursuant to Directive 2006/66/EC of the European Parliament and of the Council, detailed rules regarding the calculation of recycling efficiencies of the recycling processes of waste batteries and accumulators.

It should be noted that the WBA was most recently amended by Directive 2013/56/EU. The deadline for transposition of this amending Directive was 1st of July 2015.

### **1.5.1 General description of the provisions of the Directive:**

In order to achieve its environmental aims, this Directive prohibits the placing on the market of certain batteries and accumulators containing mercury or cadmium. It also promotes a high level of collection and recycling of waste batteries and accumulators and improved environmental performance of all operators involved in the life cycle of batteries and accumulators, e.g. producers, distributors and end-users and, in particular, those operators directly involved in the treatment and recycling of waste batteries and accumulators. The specific rules needed to achieve this goal are supplementary to existing Community legislation on waste.

In order to protect the environment, waste batteries and accumulators should be separately collected. For portable batteries and accumulators, collection schemes achieving a high collection rate should be established. This means setting up collection schemes so that end-users can discard all waste portable batteries and accumulators conveniently and free of charge. Different collection schemes and financing arrangements are appropriate for the different battery and accumulator types. The Directive sets minimum collection and recycling targets for Member States. It is appropriate to calculate the collection rate on the basis of average annual sales in preceding years.

Basic principles for financing the management of waste batteries and accumulators are set through this Directive. Financing schemes should help to achieve high collection and recycling rates by applying the “producer responsibility” principle.

All producers as defined by this Directive should be registered. Producers should finance the costs of collecting, treating and recycling all collected batteries and accumulators minus the profit made by selling the materials recovered.

The producers shall provide information to end-users on the need of separate collection, the collection schemes available and the end-users' role in the management of waste batteries and accumulators for a successful collection of waste batteries and accumulators.

In case a Member State uses economic instruments, such as differential tax rates, in order to achieve the objectives of the Directive, it is necessary to inform the Commission. This obligation falls under the notification obligation provided by Article 9 of the Directive.

Reliable and comparable data on the quantities of batteries and accumulators placed on the market and waste batteries and accumulators that are collected and recycled are necessary for monitoring whether the

objectives of the Directive have been achieved.

As regards the producer responsibility, producers of batteries and accumulators and producers of other products incorporating a battery or accumulator are responsible for the waste management of batteries and accumulators that they place on the market.

## **1.6 Requirements for Collection and Recycling of Construction & Demolition Wastes**

In 2006 the European Council adopted a review of the EU Sustainable Development Strategy (SDS). One goal of the SDS is the reduction of resource consumption by implementing recycling and resource efficiency. Main tool for the implementation of the Strategy with regard to recycling is the Waste Framework Directive.

### **1.6.1 Directive 2008/98/EC**

#### **1.6.1.1 End of Waste Status**

The Waste Framework Directive from 2008 introduced two new instruments to enhance the re-use/recycling of waste materials.

Article 6 of Directive 2008/98/EU refers to the “end of waste” of recovered materials.

Certain specified waste shall cease to be waste provided that

- a) the substance or object is commonly used for specific purposes;
- b) a market or demand exists for such a substance or object;
- c) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and
- d) the use of the substance or object will not lead to overall adverse environmental or human health impacts.

The main issue of this provision is to ease the use of certain recovered materials by reducing the bureaucratic burden that is connected with the waste status, provided this doesn't jeopardize the goals of the Waste Framework Directive.

Recital 22 of the Directive refers inter alia to C&D wastes as well as to recovered aggregates (construction material derived from C&D wastes as well as from other mineral wastes like fired clay, BOF-slag, etc.)

Several End of Waste – Regulations were enacted during the last few years (iron and aluminium scrap, copper scrap, glass culets). Neither for C&D waste nor for recovered aggregates a proposal for an “end of waste regulation” was prepared yet (2015). In the absence of an EU regulation for the end of waste status of recycled C&D wastes and aggregates from recovered waste MS may fill this gap with national regulations which comply with the four conditions above. Examples from the United Kingdom and from Austria are given in the Annex no 2.

#### **1.6.1.2 By-Product/non-Waste Status**

Article 5 of Directive 2008/98/EU refers to the notion “by-product”.

A substance or object, resulting from a production process, the primary aim of which is not the production of that item, may be regarded as not being waste provided that

- a) further use of the substance or object is certain;
- b) the substance or object can be used directly without any further processing other than normal industrial practice;

- c) the substance or object is produced as an integral part of a production process; and
- d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

Aggregates generated (recovered) from mineral production residues (especially blast furnace slag) and meeting relevant technical and environmental standards are regarded as by-product in most MS. However other types of slag (e.g. from waste incineration, from BOF) are in most cases still regarded as waste.

### 1.6.1.3 Other relevant EU Regulations

Besides the recycling of C&D wastes also the disposal of these wastes is a relevant issue.

The final disposal or energetic uses of combustible C&D wastes (wood, plastics, etc.) are covered by Directive 2000/76/EC and Directive 2010/75/EU.

Final disposal of (mineral) C&D wastes is covered by the EU Directive 1999/31/EC of 26 April 1999 on the landfill of waste, as amended and the Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills.

Most mineral C&D wastes fulfil the criteria for landfilling on a landfill for inert wastes, specific waste streams shall be landfilled only at a landfill for non-hazardous wastes.

Pre-treatment of C&D wastes can widely reduce the amounts of waste that can be landfilled only at a landfill for non-hazardous wastes and thus reduce the environmental impact of waste disposal.

Since there are no specific separate EU regulations on C&D waste and recovered aggregates (end of waste regulations, by-product) no specific measures for implementation are necessary. However C&D waste is an important waste stream and a high recovery rate of these wastes is a goal of the Environment Strategy of the Union (7<sup>th</sup> Environment Action Programme, Europe Sustainable Development Strategy). Thus specific measures to ensure an environmentally sound recovery and use of C&D waste and recovered aggregates on a national level are necessary to comply with these goals.

Examples from different MS can provide input for a Serbian approach. (see Annex no.2)

2011 the Joint Research Centre in Seville published a guideline with elements for environmentally sound management of construction and demolition waste (Supporting Environmentally Sound Decisions for Construction and Demolition (C&D) Waste Management - A practical guide to Life Cycle Thinking (LCT) and Life Cycle Assessment (LCA)). The guideline is based on a life cycle approach, elements for waste management (including sound dismantling of buildings and recycling and disposal) can be derived from this guidance document.

## 2 ANALYSIS OF THE COMPLIANCE OF SERBIAN LEGISLATION AND GAP ANALYSIS

### 2.1 Directive 2000/53/EC on End-of Life Vehicles (ELV)

The following documents had been provided by the Serbian partner and were revised thoroughly by the German experts:

- Law on Waste Management
- Law on Amendments of the law on Waste Management (draft)
- Rulebook on the manner of ELV Management (Official Gazette RS, No. 98/10)
- Monitoring transposition and implementation of the EU environmental acquis (table of concordance)

Based on this and on the information given by the law department on the legal structure in the accession country it could be stated that most of the content of the directive is reflected whether in the current law on waste management (Art. 55 in particular) or in the rulebook. However and with reference to the table of concordance some parts are still missing or incomplete.

Beside this it should be flagged at this status that some main objectives and requirements of the EU directive are laid down in a lower level of secondary legislation - so called rulebook - and not in the national law. Assuming that a legal status of rulebook has not that obligatory character to enforce the demands and targets of the EU directive the rulebook seems to be the inappropriate instrument for an effective implementation or enforcement. Because subsequent to determine objectives and requirements the implementation of sanctions or penal-ties in cases of disrespect or infringement is essential.

In this respect and considering the relevance in the EU Directive the following subjects should be mentioned exemplary:

- Definition of terms (Art. 3 of Official Gazette RS, No. 98/10)
- Hazardous substances in ELV (Art. 6 of Official Gazette RS, No. 98/10)
- ELV collection (Art. 8 Official Gazette RS, No. 98/10)
- ELV treatment facilities (Art. 12 Official Gazette RS, No. 98/10)

### 2.1 Directive 96/59/EC on PCB/PCT and Regulation (EC) 850/2004 on POPs

Basis for the compliance check concerning PCB were the current Law on Waste Management (Law) and the Ministerial Order on Handling Devices and Waste containing PCBs (MO) according to Art. 52 para. 10 of the Law. Furthermore, the draft of a Law on Amendments to the Law on Waste Management was taken into account as well as the table elaborated by the Ministry describing the state of transformation into the Serbian legislation.

The main findings concerning the PCBs are:

- Definitions and requirements for the PCB-disposal are regulated on a different level, partly by Law, partly by MO
- Essential requirements have not yet transformed and are not part of the amending Law, e.g. the duty for the holder to give information on PCB-devices to the authority to create an inventory
- The basis to release the MO is not sufficient to regulate all provisions that are or should be part of the MO
- It was not part of this activity but it has to be checked in connection with licensing requirements on waste disposal plants whether the provisions on BAT are fulfilled

- The provisions from the EU-Incineration-Directive have to be implemented within the Law
- Some provisions are transformed into the Serbian legislation with higher national requirements
- For further data concerning the PCB-disposal, additional information from other scopes have to be used, e.g. standards to determine the PCB-content

Basis for the compliance check concerning POP were the current Law on Chemicals and the Ministerial Order on Bans and Restrictions of Production, placing on the Marked and Use of Chemicals on according to Art. 49 para. 1 of the Law on Chemicals as well as the current Law on Waste and the Ministerial Order on Management of Waste containing, consisting of or contaminated Persistent Organic Materials Pollutants.

The main findings concerning POP are:

- Neither the Law on Chemicals nor the MO on Chemicals contain provisions to transform the waste related requirements from the Stockholm Convention and the UNECE-POPs-Protocol into the Serbian legislation which are expressed within Art. 7 of the EU-POP-Regulation; there is a small amendment concerning Art. 32 para. 2 recommended
- The provisions in the Law on Waste including the MO according its Art. 53 para. 4 transform the regulations from the EU-Regulation respective the Stockholm Convention and the UNECE-POPs-Protocol partly; an amendment of these Serbian Regulations is necessary
- These provisions are essential because the Republic of Serbia is party of both, the Stockholm Convention and the POPs-Protocol, so a complete transformation is needed

The relevant legislation on POP and PCB are connected because PCB is one group of substances of the whole POPs. It should take into account that the Serbian Law on Waste contains two independent chapters dealing with PCB on the one hand and POP on the other hand. For clarification reasons, it should be checked if it is useful or legally necessary to mention in the Law that concerning PCB the provisions of both chapters are applicable

## 2.2 Directive 2012/19/EU on waste electrical and electronic equipment

The Republic of Serbia is in the process of approximating its environmental legislation with the EU acquis. Directive 2012/19/EU on WEEE was partially transposed through the Rule-book on the List of Electric and Electronic Products, Measures of Prohibition and Restriction of Use of Electric and Electronic Equipment Containing Hazardous Substances, Methods and Procedures of Managing Waste From Electric and Electronic Products ("Official Gazette of RS, No 99/2010") and the Law on Waste Management (Official Gazette of the Republic of Serbia, no. 36/2009 and 88/10). Other relevant legislation are the Regulation on Products (Official Gazette of the Republic of Serbia, no. 54/2010, 3/2014) establishing a database of producers/importers, reporting procedures and fees and the Governmental Order on Amount and Conditions for the Award of Incentive Funds (Official Gazette of the Republic of Serbia, no. 88/2009, 67/2010 and 101/2010 and 41/13).

### 2.2.1 Status of transposition

Following the assessment on the systemic integration of the transposed EU acquis on WEEE into the national legislative framework, it can be stated that Serbia has partially transposed the WEEE Directive but the level of transposition is rather low with just under half of its provisions being fully transposed by the national legislation. The main reason for the gaps or partial transposition is that the national legislation has not yet been revised in respect of the provisions introduced by the new WEEE Directive.

The different Serbian regulations in the Serbian waste law according to WEEE were analysed as following:

- Serbian waste law with amendments from August 2015:
  - Art. 25 (Responsibilities of Product Manufacturer)

- Art. 43 (municipal waste collection)
- Art. 50 (Electric and Electronic Waste Management)
- Art. 80 (Financing of waste management)
- Art. 81 (Use of funds for financing of waste management)
- Art. 90 (Offences)
- Draft of the Law on amendments to the law on waste management
- Rulebook on the list of electric and electronic products, measures of prohibition and restriction of use of electric and electronic equipment containing hazardous substances, methods and procedures of managing waste from electric and electronic product.

From the text formulation of the article 43 of the Law on waste and proposed amendments can be understood that WEEE are only hazardous waste, even according to the European waste list (code 16 02) there are some waste types which can be classified as non-hazardous.

Also, there are not any legal provisions to quantify and assign the collection targets to each producer, because assigning targets to country as a general entity, as it is presently, can create confusions related to who is actually responsible and for what.

### **2.2.2 Gaps in transposition**

The WEEE Directive has 248 separate obligations addressed to Member States from which Serbia has fully transposed 115; partially transposed 30; with 103 provisions not yet transposed.

It should be noted that a large number of these gaps in transposition arise because Annexes III, IV and Annex VI have not been transposed.

### **2.2.3 Provisions that are not transposed:**

The Rulebook on WEEE does not provide for this wider scope of the Directive as from 15 August 2018 (Directive Article 2.1.b). It should be noted that the exact transitional period may be a matter of negotiation with the Commission;

The Directive Article 2.2 provisions providing links to health and safety and chemicals legislation;

The Directive Article 2.3.c exception for filament bulbs;

The additional Directive Article 2.4 exceptions have not been transposed;

The definitions of:

- 'Large-scale stationary industrial tools'
- 'Large-scale stationary fixed installation'
- 'Non-road mobile machinery'
- 'Finance agreement'
- 'Making available on the market'
- 'Removal'
- 'Medical device'
- 'In vitro diagnostic medical device'
- 'Active implantable medical device'

The Directive definition of 'distributor' includes anyone in the supply chain who makes EEE available on the market: The Rulebook on WEEE definition (Article 3.14) only extends to those distributors who provide the EEE to the end-user.

The Directive Article 7.1 collection rates have not been transposed, except for the average target of 4kg per inhabitant per year.

The Rulebook on WEEE Article 15.7 obligation to keep records does not extend to collection facilities – relevant to Directive Article 7.2.b.

The detailed reporting requirements set out in Commission Decision 2005/369/EC have not been transposed.

The Rulebook on WEEE Article 15 does not include method of calculation – as set out in Directive Article 11.2.

The Rulebook does not include the detailed requirements for monitoring compliance with targets set out in the Commission Decision 2005/369/EC.

The Directive Article 11.4 requirement that records on the weight of products and materials when leaving (output) the recovery or recycling/preparing for re-use facility are kept.

The Directive Article 11.4 requirement to ‘encourage the development of new recovery, recycling and treatment technologies’

The Directive Article 12.5 requirements on appropriate mechanisms or refund procedures

The Directive Articles 16.1 and 16.2 requirements on registration

The Directive Articles 17.1 and 17.2 requirements on authorised representatives have not been transposed.

The general inspection provisions in Article 85 of the LWM are not broad enough to include the specific Directive Article 23.2 provisions regarding suspected shipments of WEEE.

Directive Annex III, Annex IV, Annex VI and Annex X have not been transposed.

#### **2.2.4 Partial transposition**

The Rulebook on WEEE Article 4.1 indicates that Appendix 2 is an exhaustive list of WEEE, whereas the Directive Article 2.1.a clearly provides that this should be an indicative list only.

The Rulebook on WEEE Article 4.2.1 does not correctly reflect the Directive Article 2.3.b exception from the scope of application.

The Rulebook on WEEE Article 3.2 does not fully reflect the definition of ‘WEEE’ given by Directive Article 3.1.e, in that it refers to ‘assemblies’ rather than ‘sub-assemblies’.

The second sentence of the Directive definition of “WEEE from private households’ (Article 3.1.h) has not been transposed

Directive Article 5.1 on separate collection is only partially transposed because the Rulebook does not transpose Directive Annex III.

The Directive requirement for specific arrangements for WEEE whose return is refused on health and safety grounds (last sentence of Article 5.2.e) has not been transposed.

The Directive Article 6.2 requirements for promotion of measures for maximising preparing for re-use.

The Rulebook Article 12 (and 11) allow for the reception of WEEE from the end-user by distributor, collector, operator or collective operator. But the only obligation to receive WEEE free-of-charge is on the distributor from the end-user (Article 12.2). Thus there is no obligation to receive free-of-charge from end-user by collectors, operator or collective operators. There is also no obligation on collector, operator or collective operator to receive free-of-charge from the distributor (although Article 12.6 could be read to impose free-of-charge receiving – but this is not clear). In addition, although Article 12.6 requires reception of WEEE at a place that meets technical requirements, there is no obligation on anyone to ensure ‘the availability and accessibility of

the necessary collection facilities, taking into account, in particular, and the population density'. Thus Directive Article 5.2.a is only partially transposed.

Directive Article 5.2.b is only partially transposed because the Rulebook does not apply to Directive Annex III.

Directive Article 5.2.e is only partially transposed because there is no cross-reference to national health and safety standards. Further, it is only the distributor that can reject waste that does not meet requirements, and not any other actors.

Directive Article 6.2 first sentence is only partially transposed because the Rulebook Article 13.1 does not refer to 'preparing for re-use'. Nor does it refer to 'confinement of hazardous substances'.

The Rulebook Article 15.1 sets objectives for WEEE collection, which are somewhat different from the Directive Article 7.1 fifth paragraph.

The obligation to keep records is only imposed by the Rulebook Article 15.7 on operator or collective operator, and not on other WEEE actors – thus there is only partial transposition of Directive Article 7.2.

The Rulebook Article 15.5 establishes targets to be reached by 31 December 2019 – but does not transpose the additional targets set out in Directive Annex V – thus there is only partial transposition of Directive Article 11.1.

The Rulebook Article 15 does not require records for the WEEE leaving the collection facility – only for entering and leaving the treatment facility. It is also noted that the amended LWM Art 75.5 will require producer/importer/holder to keep certain records. As a result, Directive Article 11.4 first paragraph is not fully transposed.

There is only partial transposition of Directive Article 15.1 in that the Rulebook Article 10.1 does not make it clear that information for treatment facilities is to be provided free of charge.

There is only partial transposition of Directive Article 16.4 requirements on reporting in that the LWM (including draft amendments) does not specify the information to be reported to the authorities.

Directive Annex I point 4 'Consumer equipment and photovoltaic panels' is not fully transposed by Rulebook Appendix 1.4.

The Rulebook exception for medical devices is wider than that in the Directive Annex I point 8.

The Directive Annex II is an indicative list; whereas in the Rulebook it is a definitive list.

The Rulebook Appendix 2.4 does not include 'photovoltaic panels' (Directive Annex II.4).

The Directive Annex II.6 is only partially transposed in that the corresponding sub-point 4 makes no mention of 'sanding', 'sawing', 'making holes'.

The Directive Annex II.8 is only partially transposed in that the exclusion for medical devices in the Rulebook is wider than that in the Directive, and because the Rulebook refers to 'Refrigeration appliances' rather than 'freezers'.

The Directive Annex V Part 2 is only partially transposed because the Rulebook Article 15.4 does not take account of the new minimum targets from 15 August 2015 until 14 August 2018.

The Directive Annex VII 1.4 is only partially transposed because the Rulebook Appendix 5.1.4 does not make specific reference to 'mobile phones'.

The Directive Annex VII 1.5 is only partially transposed because the Rulebook Appendix 5.1.5 does not make specific reference to 'colour toner', and refers to 'toner' rather than 'ton-er cartridges'.

The Directive Annex VII 3 is only partially transposed because the Rulebook Annex 5.3 refers to 'reuse' rather than the Directive 'preparation for reuse'.

## 2.2.5 Producer responsibility

The most relevant gap in the waste legislation is the lack of a clear description of the producers' responsibility in the sense of the European directives.

The discussion with the Serbian partners from different departments of MAEP and SEAP show that against the primary assumption the money coming from taxes and customs for EEE is not used for collecting and recycling waste from it but for the common budget of the state. Nobody could explain if and how companies handling with WEEE may get money from the ministry of finance.

It is necessary to clear and to establish the responsibilities between the different actors in the management of electrical and electronic equipment and the waste coming from it.

## 2.3 Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators

The Republic of Serbia is in the process of approximating its environmental legislation with the EU acquis. Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators was partially transposed through the Rulebook on Manners and Procedures of Used Batteries and Accumulators Management (Official Gazette of the Republic of Serbia, no. 86/2010) and the Law on Waste Management (Official Gazette of the Republic of Serbia, no. 36/2009). Other relevant legislation are the Regulation on Products (Official Gazette of the Republic of Serbia, no. 54/20102014) establishing a database of producers/importers, reporting procedures and fees and the Governmental Order on Amount and Conditions for the Award of Incentive Funds (Official Gazette of the Republic of Serbia, no. 88/2009, 67/2010 and 101/2010, 41/2013).

### 2.3.1 Status of transposition

Following the assessment on the systemic integration of the transposed EU acquis on batteries and accumulators and waste batteries and accumulators in the national legislative framework, it can be stated that Serbia has already transposed a large part of the Directive 2006/66/EC.

Still, from the total obligations, addressed to the Member States by the Directive, 39 provisions were not yet transposed and 13 provisions are only partially transposed.

However it should be emphasised that a number of these 'gaps' in transposition relate to transposition of Directive 2013/56/EU – where the deadline for transposition for Member States was 1st of July 2015.

### 2.3.2 Provisions that are not transposed

Directive Article 8.1.c): "shall not involve any charge to end-users when discarding waste portable batteries or accumulators, nor any obligation to buy a new battery or accumulator;" The Rulebook on WBA does not specifically state that there is no charge to end-users, nor any obligation to buy a new portable battery or accumulator;

Directive Article 8.1 exempts specified collection points from permit/registration requirements. The Rulebook does not exempt such collection points from the permit requirements imposed by the LWM.

Directive Article 8.3 requires that 'producers of industrial batteries and accumulators, or third parties acting on their behalf, shall not refuse to take back waste industrial batteries and accumulators from end-users, regardless of chemical composition and origin.' This Directive provision has not been specifically transposed in the Rulebook.

Directive Article 8.4 also require that producers of automotive batteries and accumulators, or third parties set up “collection schemes for waste automotive batteries and accumulators waste automotive batteries and accumulators from end-users or from an accessible collection point in their vicinity, where collection is not carried out under the schemes referred to in Article 5(1) of Directive 2000/53/EC”. Again this has not been specifically transposed into Serbian law.

Directive Article 10.1 makes it clear ‘that annual collection and sales figures shall include batteries and accumulators incorporated into appliances’. The provision has not been specifically transposed in Article 10 of the Rulebook on WBA.

The obligation in Article 11 of the Directive, that ‘manufacturers design appliances in such a way that waste batteries and accumulators can be readily removed by qualified professionals that are independent of the manufacturer’ where batteries/accumulators cannot be readily removed by the end-use, has not been transposed.

The requirement in Article 16.4 of the Directive that the ‘costs of collection, treatment and re-cycling shall not be shown separately to end-users at the time of sale of new portable batteries and accumulators’ has not been transposed.

The (new – Directive 2013/56/EU) registration requirements of Directive Article 17 are partially transposed through the “Decree on products that become special waste streams upon use thereof; on the daily record keeping form on the quantity and type of produced and imported products and annual report; on the manner and deadlines for the submission of the annual report, on payers of the charge, criteria for the calculation, amount and manner of the calculation and payment of the charge” (Form 1 and Form 2)

The (new– Directive 2013/56/EU) capacity labelling rules in Directive Article 21.2 and Commission Regulation EU/1103/2010 have not been transposed.

The specific reporting requirements in Directive Article 22.3 have not been transposed.

The (new – Directive 2013/56/EU) Directive Annex IV on registration has not been transposed.

### 2.3.3 Partial transposition

The batteries pack definition:

Directive Article 3.(2), 3.(7), 3.(16) have to be strictly transposed.

The Rulebook on WBA Article 4.2 refers to ‘end user cannot separate or open’ rather than ‘end-user is not intended to split up or open’.

The definition of waste battery or accumulator:

Article 4.7 of the Rulebook on WBA defines waste battery or accumulator ‘shall be a battery or accumulator that cannot be reused and represents waste, and is intended for the treatment or recycling’. The meaning of Rulebook is intended to be the same as Directive – but is not so clear. It may be better if this definition simply cross-refers to the LWM.

The definition of producer:

The Rulebook on WBA Article 4.11 does not refer to ‘distance selling’.

The definition of cordless power tool:

The Rulebook on WBA Article 4.9 definition refers to ‘and other similar activities’ rather than to ‘or gardening activities’.

The prohibition in Article 47.1 of the LWM (transposing Directive Article 4.1.a) does not make it clear that it applies ‘whether or not incorporated into appliances’.

Article 47 of the LWM (or the Rulebook on WBA) does not transpose the Directive Article 4.2 deadline for the end of the button cell exception (1 October 2015).

Article 47.3 of the LWM (transposing Directive Article 4.3.a) refers to 'safety' rather than 'emergency' – but this could be a translation issue. However, it does not refer to 'including emergency lighting'.

Article 47.3 of the LWM (transposing Directive Article 4.3.c) does not transpose the deadline for the exemption for cordless power tools.

The general obligation found in Article 25.1 of the LWM does not fully transpose the specific obligations imposed by Directive Article 5 as regards increased environmental performance.

The Directive Article 6.2 exemption from the placing on the market prohibition has only been partially transposed by LWM Article 47.9 and 98. Article 98 only applies to batteries/accumulators not correctly labelled.

The Rulebook on WBA Article 10.1.2 gives a different deadline for meeting the Directive Article 10.2.b minimum collection rate. It is understood that this different date is because of national reporting requirements.

The LWM Article 47.8 and the Rulebook on Daily Evidence and Annual Reporting of Waste require records to be kept. However this does not fully transpose the specific reporting requirements set out in Directive Article 12.5.

The LWM Article 73 imposes rules on shipments of all types of waste. However the specific Directive provision on counting towards recycling targets (Article 15.2) has not been transposed.

The Rulebook Annex 1 paragraph 2 obligation to label capacity of batteries and accumulators does not extend to automotive batteries and accumulators – as required by the new Directive Article 21.2.

## **2.4 Construction & demolition wastes**

### **2.4.1 Law on Waste Management “Official Gazette of the RS”, no. 36/09 as amended**

The core of the Serbian waste legislation is the Law on Waste Management.

The law prescribes types of waste and its classification, waste management planning, stakeholders, obligations and liability with regard to waste management, special waste streams management, requirements and procedures for the issuance of permits, transboundary waste movement, reporting, waste management financing, supervision and other relevant aspects of waste management. Waste management consists of a set of activities of joint interest which comprise implementation of prescribed action plans to be carried out within waste collection, transport, storing, treatment and disposal, including supervision of the aforesaid activities and responsibility for waste management facilities upon discontinuation of their operations.

Articles 5 and 6 of the Waste Framework Directive have not been implemented by the Serbian Waste Management Act yet. However the goals and definitions of the law are broad enough to identify by-products (as non-waste) and identify when a waste ceases to be a waste (e.g. Article 38 refers to re-use and recycling into new products, i. a. of demolition wastes; products made from recovered material shall not cause more harmful effect to the environment than products that had been made of primary raw materials. The Minister is entitled to prescribe closer conditions and manner of collection, transport, storing and treatment of waste which is to be used as secondary raw material.).

In accordance with Article 2 the law shall provide for the conditions for inter alia re-use and recycling of waste, separation of secondary raw materials and the development of procedures and methods for waste disposal.

With regard to C&D wastes there can be no direct gap between EU Law and the Serbian implementing legislation, since at the moment there is no specific EU legislation for C&D wastes.

However even in the absence of EU legislation national legislation should comply with the goals of the Waste Framework Directive and the EU SDS. The EU SDS asks for a 70% recycling quota for C&D wastes by 2020.

Although C&D wastes are mainly a non-hazardous waste streams they may contain hazardous sub-stances. Inter alia asbestos is an important potential contaminant in C&D waste. Asbestos wastes are regulated at EU level as well as by Serbian legislation within the Law on waste management, article 54. The specific Serbian regulation concerning asbestos is the “Regulation on Procedure of asbestos-containing Waste”, Off. Gazette of the RS, No 75/2010.

Beside asbestos a number of other hazardous substances can be found in C&D wastes, e.g. lead compounds (painting of wood from C&D), POP wastes (PCB containing sealing and paints, HBCD-containing insulation material (PS foam, PU-foam)), impregnated wood, tar containing insulation material, carcinogen man-made fibres (MMF), PAH (in burnt rubble), hydrocarbons/mineral oil (in soil, in concrete especially in C&D wastes from garages and craft stores).

Due to the variety of potential contaminants it seems appropriate to address all these substances (including asbestos) in a general rulebook for C&D wastes and not in specific regulations. Of course relevant specifications for the treatment of C&D wastes containing hazardous substances have to be in line with existing specific Serbian or EU legislation (e.g. in case of asbestos with the Regulation on Procedure of asbestos-containing Waste, in case of POP containing wastes i. a. with EU regulation 850/2004/EC).

## 2.4.2 Waste transport

With regard to waste transports Serbia has implemented a specific permitting procedure. This procedure is implementing provisions of Article 26 and 27 of the Directive 2008/98/EU refer to the registration and licensing of entities involved in waste management including transport of waste.

Licenses are issued by the Ministry of Agriculture and Environmental Protection for five years. The permit contains all relevant data of the company, including the list of trucks in use, insurance, ADR license of the drivers, consultant (assigned responsible person either in the company itself or hired on a contractual basis) for packaging and labelling and the training of the employees, list of permitted waste codes. Any changes during the time period of validity (e.g. new trucks) have to be notified and an amendment of the license is issued.

Beside this waste specific permit a transport company needs a general license from the Ministry of Construction, Transport and Infrastructure.

Any transport of waste has to be notified three days in advance to SEPA. This notification procedure is in line with recital 13 of the EU Waste Shipment Regulation (Regulation 1013/2006).

During the transport a form has to accompany the shipment. The transporter has to keep the form for hazardous wastes (containing the same information as the notification)

Road inspections of transports are performed by inspectors from the Ministry of Construction, Transport and Infrastructure in co-operation with police.

Road inspections of transports of C&D wastes can be a tool to mitigate illegal dumping of C&D wastes.

## 2.4.3 Landfill of wastes

Final disposal of (mineral) C&D wastes is covered by the EU Directive 1999/31/EC of 26 April 1999 on the landfill of waste, as amended and the Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills. This package was implemented in Serbia with the Regulation on landfill of waste (Official Gazette of RS 92/10) and the Rulebook on categories, testing and classification of waste

(Official Gazette of RS 56/10). There are no substantial gaps in the legislation. However the up-grading (or close down) of existing landfills not meeting the conditions is on default.

### 3 RECOMMENDATION

#### 3.1 Directive 2000/53/EC on End-of Life Vehicles (ELV)

As already described the Directive 2000/53/EC is partly transposed in Serbia within Law on Waste Management and within the Rulebook on the Manner and Procedure of ELV Management. Beforehand it should be stated in general that the status of the legal instrument Rulebook seems to be not the adequate basis for the implementation of an EU Directive. In this context the splitting and the appointment of different requirements from the directive either to the national law or to the rulebook seems to be not stringent and therefore inefficient. Transposition of high relevant requirements of the Directive on the level of a rulebook is not sufficient; it should be laid down in the national law of Serbia. The Gap-analysis of the current Serbian legislation concerning Directive 2000/53/EC on ELV should be examined in the light of this conclusion.

The Gap-analysis identifies the weak points of the regulations which should be amended in order to transpose properly Directive 2000/53/EC. The main items in this context are mentioned below:

- The definitions from the directive are not transposed consequently.
- Steps to encourage the economic sector to adopt preventive measures are missing.
- The attribution of the responsibility to establish a collection system to the economic operators is missing
- Measures for reuse or recovery of components are missing.
- Mechanisms to establish a functional system of authorized treatment facilities are missing
- Penalties for infringements are missing

At this early status of the project it seems to be reasonable that only the general objective and the authorization for further (secondary) legislation should be laid down in the law. The requirements of the Directive should be than transposed in a legally binding decree (not in a rulebook).

If this is a realistic approach and the Serbian partner agrees on this argumentation the next step will be the drafting of a proposal how to fill the identified gaps in Serbian legislation. This should be worked out as a proposal for an amendment of Serbian legislation.

##### 3.1.1 Extended producer responsibility

A crucial point of transposing Directive 2000/53/EC is to elaborate the appropriate mechanism to implement extended producer responsibility for end-of life vehicles according to European legislation. In Directive 2000/53/EC no concrete model is stipulated. The Member States implemented different systems. With the report "Development of Guidance on Extended Producer Responsibility (EPR)" the European Commission published an in-depth analysis of EPR-schemes implemented in the Member States. Regarding end-of life vehicles it can be seen in the report that many Member States implemented systems with a collective responsibility, but systems with individual responsibility are existing as well. It is important to mention that for end-of life vehicles not a single Member State choose the option of a governmental fund. As the only Member State - Hungary selected the system of a governmental fund for the waste streams packaging and tyres. A lot of helpful conclusions are described in the report. Because of this the report may be a valuable information source for selecting an appropriate EPR model for Serbia in general and not only related to ELVs.

In Serbia for products that become a special waste stream it was decided to collect fees from the manufacturers and importers. In the decree on products that become special waste streams upon use thereof (O.G. 54/2010) regulations for selected of products are laid down, but not for vehicles in particular. Presently the fees for these products are introduced into the state budget. At this status no information is available neither on the amount of the collected money nor on the purpose will this money be assigned. It is also not clear if there is the intention to integrate vehicles in this fee system for certain products.

In case it is not intended to charge fees for newly produced or imported vehicles it is recommended to establish an EPR scheme where the organisational and financial responsibility is assigned to the economic operators only, not to the state.

In case it is intended to charge fees also for vehicles it is essential that the collected money will be assigned for the operation of the collection and treatment of end-of life vehicles. This would be in line with the national waste management strategy for the period 2010 – 2019 (O.G. 29/2010), Article 7.3.3:

“With respect to economic instruments, the payment of fee should be introduced for producers and importers of vehicles that become waste after use. This fee will be used for collecting and treatment of this waste.”

For the economic operators involved in the collection and treatment of end-of life vehicles it is very important to have the security that their activities will be at least partly financed by the state. Otherwise it would hinder the development of a functioning system.

### **3.1.2 Strengthening the capacity of the competent authorities**

In the MAEP permitting and inspection of waste management facilities is carried out in two separated departments. In Germany there is a good experience to have permitting and inspection in the same department? In many cases the person who is responsible for the permit also carries out the inspection. This model optimizes both permitting and inspection: in order to have realistic permits it is necessary to have concrete experience with waste management facilities and in order to make an effective inspection it is necessary to have all information about the permit. This is proposed to avoid overlapping responsibilities and competed enforcement.

In case permitting and inspection remain in two different departments it is recommended to strengthen the bilateral cooperation of the two departments. For example regular meetings on specific topics would be a proposal.

It is also recommended to strengthen the cooperation between the inspectors from the 3 different levels: MAEP, Autonomous Province Vojvodina and local governments.

## **3.2 Directive 96/59/EC on PCB/PCT and Regulation (EC) 850/2004 on POPs**

### **3.2.1 Directive 96/59/EC on PCB/PCT**

The experts give the following recommendations which are displayed in order of the provisions of the Directive.

- clarification if the provisions on waste oil in Art. 48 of the Law are not applicable in case that waste oil contains PCB in the sense of this definition; we recommend that waste oil containing PCB should only be covered by Art. 52 of the Law
- definitions should be transformed within the Law in connection with Art. 5 para. 20, to get all information from the Law; Art. 52 para. 10 does not allow the Ministry to give definitions on the MO-level
- the definition of the worst-case in Art. 2 (b) 2nd sentence of the directive is not transformed yet and has to be added preferably to Art. 5 para. 20 of the Law
- to be checked if the definition of “holder” comprises the holder of non-waste-PCB-Devices as well, maybe it is or should be performed by the Serbian chemicals legislation, e.g. by the wording: “The regulations on used PCB which are waste out of the Law on waste management and the MO according Art. 52 para. 10 of the law are applicable accordingly.”, or these PCBs and PCB-containing equipment are declared as hazardous wastes in the sense of Serbian legislation

- the Law-amendment provides the time table for decontamination/disposal as end of 2019; time table has to be supervised and taken into account in connection with possible temporary regulations for the candidate state
- the holder has to be obliged within the Law to create an inventory for all PCB-equipment with at least 5 dm<sup>3</sup> PCP (key regulation in the law)
- derogating content of inventory for PCB 0,05 < 0,005 % concentration is missed and should be regulated on MO-level, therefore Art. 52 para. 10 of the Law should be widened and allow the Minister to describe the labelling derogating from the labelling which is described in Art. 3 of the MO in connection with its Annex 1
- the obligation to update the inventory regularly should be part of the Law in connection with the recommendation to Art. 4 No. 1 (general duty to create an inventory)
- adjust the drafted amendment according to the requirements from the directive: the possibility to consult the register does not only exist for the competent authority but also for all local authorities, e.g. fire brigades etc.
- additional amendment in the Law in the context of Art. 52 concerning the duty to hand out receipts by the PCB-disposal enterprises to the former holder; alternative amendment of Art. 46 of Law concerning the movement document for hazardous wastes because used PCBs are hazardous wastes
- for forbidden activities, the wording “shall be prohibited” has to be checked whether it is strong enough (obligation); better wording would be “is prohibited”
- Art 52 para. 3 in the amended state refers to the requirements of the Law in general; it should be clarified that the special requirements on licensing PCB disposal enterprises according to Art. 8 of the directive is transposed
- the check whether the licensing procedure in Art. 59 ff. of the Law is in line with the requirements of European legislation (e.g. IED and Directive 2008/98/EC) is not a part of this activity
- the Serbian legislation seems not to contain a direct connection to the incineration directive of the EU; possibly Art. 41 of the Law is suited for this needed connection; the check whether the incineration requirements in Art. 41 of the Law is in line with the requirements of European legislation (Incineration Directive) is not a part of this activity
- check of the aims of the Ministry according D8, D9, D12 and D15; from our prospection, concerning the high environmental standards for PCB disposal, it should be checked whether the operation D8 (biological treatment) is feasible for PCB at all
- the Directive allows this derogation to use PCB-devices with a content of 0,05 > 0,005 % only for transformers but the Serbian legislation including the amendment allows a derogation in a wider range (all PCB-devices); subject of derogation must be in line with the EU requirements (only concerning the specified transformers)
- Annex 1 of the updated technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with PCBs, PCTs or PBBs (Basel Convention) lists synonyms and trade names for PCBs, PCTs and PBBs which can be provided and used for inspection purposes
- the standard EN 12766 comprises various methods to determine the concentration of PCB and should be provided for the inspection purposes
- the duty to hand out the holder`s plans to the competent authority should be added to Art. 100 para. 3 in connection with the drafted amendment
- the duty to refer on the Directive in connection with the national transformation provisions has to be considered while adopting the Law amendment, e.g. by the wording in an additional footnote to Art. 52 of the Law as follows: “these regulations aim to implementation of Directive 96/59/EC”

### 3.2.2 Regulation (EC) 850/2004 on POP

The experts give the following recommendations which are displayed in order of the provisions of the Regulation.

- Art. 32 para 2 of the Law on Chemicals should be amended to oblige holders of forbidden (use, placing on marked...) substances, e.g. POP-containing substances which cannot be used anymore according to the purposes in Annex I, to manage them as wastes in general and to manage them according to special waste management provisions if appropriate, e.g. POP
- the Law on Waste has to be amended in Art. 53 para 2, the duty to the owner/holder to destroy or to transform irreversibly without undue delay has to be added; in Art. 8 the reference to R8 should be deleted
- the above mentioned amendment of Art. 53 para. 2 should include the case when POP were separated within a pre-treatment or a treatment measure; Art. 9 MO should be deleted because it is identical to Art. 53 para. 2 of the Law on Waste
- Art. 53 has to be amended in order to prohibit the recovery, recycling, reclamation or re-use of POP which were separated with the treatment of POP-wastes
- Art. 53 para. 2 should be amended – together with the provisions we proposed above concerning the holder's duty to destroy/transform POP-waste – in order to allow the holder to recover/dispose its waste without restrictions if the POP-content is less than the lower limit values in Annex IV of the EU-Regulation; the limit values are part of Annex 1 of the MO but not sufficient, this list should be amended according to the current state as follows:
  - PCDD/PCDF 15 µg/kg (TEF)
  - PCN 10 mg/kg
  - Hexachlorobutadien 100 mg/kg
  - PBDE (sum of mentioned BDE) 1000 mg/kg
  - SCCP 10000 mg/kg
  - All other POPs 50 mg/kg
- concerning this derogation, the amended Art. 53 para. 2 of the Law on Waste shall refer to this Annex 1 of the MO; currently, the lower limit values are regulated completely by EU-Regulation, but for the case of amendment of Annex IV of the Regulation with new POPs without determining such lower Limit values, such limit values shall be determined by the Ministry; for this duty, a regulation should be created either in the Law on Waste or in the MO on POP
- Annexes 1 and 2 of the MO should be amended by adding all further current upper limit values as follows:
  - PCN 1000 mg/kg
  - PBDE (sum of mentioned BDE) 10000 mg/kg
  - SCCP 10000 mg/kg
  - PFOA 50 mg/kg;
- both, Annexes 1 and 2 of the MO should be combined in order to avoid double contents in the MO; the current Annex 2 refers to underground storage for which no upper limit values are applicable (footnote 1), so the reference to the limit values mentioned in Annex 2 of the MO is not necessary and shall be deleted to widen the disposal options
- in connection with the derogating non-destroying disposal of POP-Waste, it should be created a procedure including a form (e.g. Annex, still to be translated) to standardize the proof, that a POP-destruction is not feasible
- Art. 53 of the Law on Waste should be added by a regulation that gives the Ministry the competence to inform other Member states and the European Commission about approved non-destroying disposal operations for POP-waste and the reasons therefore (possibly in connection with the competence to define lower and upper limit values)

- for the case of amendment of Annex V of the Regulation with new POPs without determining such upper Limit values, such limit values shall be determined by the Ministry; for this duty, a regulation should be created either in the Law on Waste or in the MO on POP
- amendment of Art. 53 para. 3 of the Law on Waste in order to oblige the holder to inform the competent authority about the content (concentration) of POP in the relevant waste as well

### 3.3 Directive 2012/19/EU on waste electrical and electronic equipment

- For the most relevant Articles of the Waste Law detailed comments and recommendations for formulation were made in discussions with the project beneficiary, especially on Art. 43 and 50.
- Besides that the above mentioned legislative gaps must be filled by amendments to or elaboration of new normative acts.
- Independent from these detailed aspects a strategy for introducing a system of producers' responsibility has to be developed according to the provisions of the directive, because in the current situation there is nothing like producer responsibility for electrical and electronic equipment in Serbia. At first it has to be decided which organisation shall have the responsibility for the cash flow, the ministry of finance (especially in the case of taxes), the MEAP, the SEPA or the private sector? But it should be clear that the whole organisation of the producer responsibilities management should be in one hand to avoid double organisation, supervised by those responsible for producing, waste management and consumer protection.
- The second aspect is that in the Serbian legislation the description of the responsibilities connected to the producer' responsibility and the management of waste coming from their products is not clear enough. Without strictly defined responsibilities of the different actors no system will work.
- The Serbian tax-system may be a fundament for introducing the required system but it has to be clarified if it is compatible to the EU-directives, especially for EEE. So the future financing system in the sense of the polluter pay principle has to be reconsidered.
- Without a clear line for the aspects of financing and responsibilities it is not really possible to give detailed recommendations for formulating the law and the rulebook. This line has to be developed by the Serbian government as soon as possible.
- Proposal for a Serbian System of collection and recycling of WEEE (and waste batteries) and the financing of it
- The following text gives some ideas for introducing a Serbian agency which is responsible for the organisation of the execution of the laws. This cannot be worked out because of lack of time. Working on this topic may be part of the next activity when responsibilities and financing systems are more clarified.
- The idea of the proposal is that the German system which has two different organisations for EEE and batteries is very complicated. It could be simplified in Serbia in a unified form for easier handling. The existing Serbian tax-system may be a fundament for it. But it has to be clarified if it is compatible to the EU-directives, especially for EEE.

#### 3.3.1 Agency

- It should be introduced one agency for both WEEE (and waste batteries). This "Agency" in the following is a synonym for a type of organisation which can be:
- A department of the ministry for finance (which cash currently the taxes and custom and has the data about the producer)
- A department of the Serbian environmental agency (SEPA)
- A private non-profit organisation founded by producers and supervised by MAEP or SEPA

- The agency must be equipped with the required competence, with enough and qualified personal and with a good capacity for data processing.
- Scope
- This agency is responsible among others for:
  - Registration of producer, importer and authorised representative of EEE and batteries including issuing a registration number to them
  - Collecting money from producers and authorised representatives in the sense of producer responsibility or polluter pays principle respectively
  - Calculating the amounts for taxes, guarantees or other types of money for managing WEEE and waste batteries coming from these producer
  - Assigning of new products to the type or category of EEE (or batteries and accumulators)
  - Access to the guarantee a WEE-producer has to give for the case of his disappearing from the Serbian market to pay the costs for the management of their waste.
  - Organisation of collection, transport and treatment (but not the execution of that)
  - Receiving all data of producers, collectors, transporters and entities treating the waste
  - Calculating collection quota and recycling quota
  - Cooperation with other states and authorities of the EU especially for registration of EEE-producer in other countries
  - The agency should be responsible for WEEE (and waste batteries / and, if required, for other waste for which producers must have the responsibility).

#### Reasons

- It is essential to have only one agency for all topics of the scope because the topics depend one from the other. The registration is necessary to know what company has to pay (in the existing system) a tax (or in a new system an amount for management of their waste and a guarantee for WEEE) and how much. The tax is necessary for financing collection and treatment. Statistical reports depend of the data of registration and collection. Different organisations for the different topics will bring lot of conflicts, double work and waste time.
- Though there are two EU-directives for WEEE (and batteries / in Germany are two different laws and two different types of organisations) it seems easier to install only one agency in Serbia. EEE and batteries mostly come together, no electronic equipment operates without a battery, many simple electric devices need one, and a battery has no use without an electrical or electronic device. For the collection of both the same ways can be used, batteries have to be separated from WEEE in the first step of their treatment. At least one agency is more economic than two as well as for producers and importers and for the state.

### 3.3.2 Financing

Currently the producers/importers have to pay a tax to the state general budget. The amount of the tax is depending of the weight. As far as understood there are two types of taxes or customs respectively for historical reasons. Until 2012 that money went to a specific fund for waste management. But after that the taxes and customs are used for the common budget and not specifically for collecting and recycling of WEEE (and waste batteries). It is not clear who and from what account recycling activities will be financed although there is some recycling of WEEE in Serbia (and some export of waste batteries to other countries). For example it obviously was very difficult for a company to get some money from the ministry of finance to install a shredder-plant for WEEE.

Because of the idea that the producer has to pay for collection and recycling which is the basis of both the WEEE-directive (and the battery-directive) it is strongly necessary that the money coming from these taxes are used especially for these topics. Otherwise producers and importers pay for other issues and it may be

necessary in the future to install an additional payment system and the obligated are paying double. To avoid this it is necessary to install the old fund again which will receive the money coming from taxes and customs completely. This fund must be managed by the agency. The tax must be as high as necessary for all the obligations given by the law and the directives.

Naturally it is free to the Serbian state to take taxes and customs from everyone for the common budget, and of course from producers of EEE and batteries too. If the state needs this income in the future it must be clear that it is not collected in the sense of producers' responsibility. In this case the state has to introduce a new tax especially for this topic and it must be clear that the money is only used for the agency and under their management. (In Germany there is a special type of earmarked taxes for these reasons called "Abgabe" (fee, duty).

The case of introducing a new system gives the opportunity for different types of financing including private systems. But it is recommended that the financing system remains a type of state tax. A new system will open a new bureaucracy; will create double work; and especially a private one may lead to cheat if there is no strong supervising by the state authorities. The existing system works and collects the data about producers. It may be necessary to adapt it better to the reality, e.g. it could differ roughly or very detailed between the types of WEEE and batteries. It is recommended that the management of the fund underlies the supervising of a board of producer, waste manager and NGO's for consumer protection.

On the other side the WEEE directive requires that every producer has to give a safe guarantee for the case of bankruptcy, in addition to the costs he has to pay for collection and recycling. For organizing that an additional bureaucracy will be necessary. Other countries leave both financing systems in private hands, but e.g. in Germany lot articles in the law and supervision by the UBA to manage that are needed. The question is, if the simpler Serbian tax-system without the guarantee is compatible to the European legislation or not, perhaps by smaller amendments, e.g. a higher tax that comprises the guarantee.

When the Serbian system works for some time the situation may occur that some companies, especially importers, pay an inadequate amount, because may be a lot of importers (private, second-hand) are not known and do not pay customs. But at the other hand in Serbia people will collect a high amount of WEEE (and waste batteries) of which the collection and recycling will have to be paid, this by companies paying taxes by weight of market ratio and not for effectively recycled waste. But in other countries, e.g. in Germany, they only pay for the amount of WEEE and batteries which are effectively recycled and not for the amount they have placed on the market. Lots of their products are exported to Serbia directly, second hand or illegal. If these companies have to pay more money as necessary for the recycling of their products placed on the Serbian market it is only fair because they save this money for their products sold in Germany.

A more difficult case is that some producers will be registered by information of competitors or private persons though they didn't place any product on the Serbian market because their product was imported illegally, privately or second-hand. It probably will not be possible to raise some money from them, due to a gap in the European legislation.

In this case the collective responsibility system of all producers must be effective similar to the situation of historic equipment.

### 3.3.3 Registration

The directives for WEEE (and batteries) both demand the registration of the producers with data about the company and the product. The necessary data are laid down in the Annex 10 of the WEEE-directive. These data are known in total or partially to the ministry of finance which collects the taxes and they are given to SEPA (according to the recommendations for art. 50 of the law it will be the registration body) which is responsible for the statistics. Data about the products placed on the Serbian market are required for the calculation of collecting and recycling rates.

All data must be at the disposal of the proposed agency, of which a minimum shall be published, e.g. on the website of the agency, like SEPA does it now. This is necessary to give all competitors on the market and the public the possibility to find out if the producer of a specific EEE or battery is registered or not. If not they can send the information to the agency which can request the registration from the producer or the importer respectively and may impose a fine.

It must be forbidden for a producer to place his product on the Serbian market without a registration.

#### *Example*

An example for a legislation ruling such a system for the private sector by supervision of a state organisation is the new German legislation for WEEE. An abstract of this is attached (see Annex no. 1).

### **3.4 Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators**

In order to fill the analysed legislative gaps detailed recommendations have been added as proposals for amendment or improved formulation of the Serbian waste law and of the rulebook on manners and procedures of used batteries and accumulators' management.

The main recommendation is to establish the legal basis for implementing the producers' responsibility principle, inclusive to take over the responsibilities for achieving the collection target for portable batteries and accumulators (B&A) and finance the waste B&A management system.

The Serbian law has not yet transposed the obligation for the establishment of a recovery system for separate collection and treatment of waste batteries and accumulators. However, appropriate collection schemes for waste portable batteries and accumulators and automotive batteries and accumulators exist.

Collection schemes have to ensure accessible collection points in the vicinity of the end-users on the one hand, including but not only, collection points in shops.

It is recommended to introduce one common agency for both waste batteries and WEEE (see also assessment report on WEEE).

There is no legal basis in Serbia allowing the competent authorities to follow the whole stream of batteries and accumulators. It's necessary to appoint the responsible actors for taking over the responsibilities of achieving the recycling targets.

The Commission Regulation 493/2012 laying down detailed rules regarding the calculation of recycling efficiency of the recycling processes of waste batteries and accumulators has not been taken into consideration in the Serbian legislation.

It will be necessary to establish a proper enforcement system with among others assigned penalties to infringements of the obligations (e.g. in the Rulebook).

It is recommended to work out the new legislation for waste batteries including the rulebook according to the directive as soon as possible with precise formulations.

Therefore an amendment for the Article 47 from Law on waste in four new articles has been recommended.

Together with this legal provisions for the cash-flow between ministry of finance and the different actors of waste batteries are necessary.

#### **3.4.1 Recommended amendments for the Law on waste**

For the most important changes to the waste law it is recommended that Article 47 from the Law on waste (Management of used batteries and accumulators) should be divided into four new articles.

Art. 47 (new) describes the obligations for the producers of batteries as there are e.g. the prohibition of mercury and cadmium containing batteries, the condition, that manufacturers have to design appliances in such

a way that waste batteries and accumulators can be readily removed, and the conditions for labelling and for reporting data. Some of the regulations in the valid law are outdated and cancelled. The changes quote the actual European regulations about these topics including the directive 2013/56.

Art. 47a (new) transposes the Directive 2013/56 requirements about producer registration. The new formulation contains some regulations about electronic registration and publishing of data that have proved their worth in Germany and can help to avoid cheating.

Art. 47b (new) describes the obligations for taking back and treating used Batteries and Accumulators. It is a major gap in the actual law that it is very unclear who has what obligation and for some aspects it seems that there is nobody. The new formulation installs a system of interdependent obligations and divides the obligations as following:

The distributor is obliged to take back all types of used batteries from the end-user of these batteries. The formulation includes the additional regulations given in the battery-directive (no charge for portable batteries and starters coming from private vehicles and no obligation to buy new batteries, no refuse of industrial batteries). This is added with a rule coming from the German law. In this rule the taking back obligation is limited to those batteries the distributor sells to avoid that he must take back and store hundreds of batteries he never had sold. By this obligation every distributor, if he is a simple kiosk, a big supermarket, a car-workshop or a seller of industrial batteries, is a subject of management of used batteries.

Lots of small shops and garages may handle with cars (e.g. trading, repairing, or dismantling) without selling new batteries. It is required that they are "inside the system" when they remove used starters from vehicles. The recommendation is to declare those entities as distributors of batteries. This cannot be covered by a provision in the Serbian legislation about end of life vehicles because in many cases the operator may not work with waste cars.

Obligated for the taking back of used batteries from households are the local governments. It is necessary to define it precisely because Art. 43 of the law obliges the end-user (household) to bring his waste batteries to the local collection point but does not oblige the collection point to take them back. Because Art. 43 gives the household also the possibility to bring his used batteries to other authorised legal entities and as recommended the distributor is responsible it must be clear that he is the legal entity as meant in Art. 43.

Two alternatives to distributor's obligation have been considered:

The German System with a producers responsibility in the form of the "Gemeinsames Rücknahmesystem" (GRS) (Joint Take Back System) is ruled out because there are only very few producers in Serbia and a lot of batteries are imported by private imports or second-hand imports without any control. Besides that a tax-System for producers and importers is introduced in Serbia, and the installing of a system similar to GRS needs lot of new legislation, control and expertise. The other possibility for collecting especially portable batteries from households is to install collection systems in schools, offices, police stations and other public spaces. Before the battery law was introduced in Germany such collection points existed on a volunteer base, and some of them still exist. But it seems difficult to introduce such a system in Serbia on a legal basis, because this would oblige schools and offices to hold such a system or would give e.g. the local government the obligation to sustain those collection points. In small villages and local areas it may be easier to find a small shop selling and taking back portable batteries than an office. In art. 8, the WBD obliges the distributor of portable batteries for taking back such sold batteries. But if he is not obliged legally, Serbia has to make and to publish an assessment which shows that a scheme with collection points in schools etc is at least as effective in attaining the environmental aims of the WBD. There is some doubt that the same collection rate could be reached as if the collection is done by distributors.

The next step in the system is the entity which has to collect all batteries from the distributors and collection points to bring them to the treatment plants. The obligation to receive and transport all batteries and accumulators collected before must be adjusted to these companies. The same condition is given for the treatment plants. Of course collection from the end-user, transport and treatment may be in the same hand, and of course the export for better treatment and recycling is allowed. And all entities need permissions for their ac-

tivities, either for all or only for some for what they are specialised. It is necessary to oblige the collectors to hand over the batteries to the transporter and treatment plant in order to avoid illegal disposal or recovery.

An alternative or additional type of transport especially for small distributors is to give them stable collection boxes paid by the tax from the producers and the free dispatch by post to central collecting stores or treatment plants. This possibility is offered by the GRS in Germany.

At last the end-user is obliged to give his waste batteries to the collection system and not to the normal waste or to discard them somewhere in the streets or the woods. In Art. 43 this obligation is only for discarding waste (portable) batteries from households to local collection points and authorised legal entities but not for the return to other distributors and not for starters and industrial batteries and portable batteries which do not come from households.

Art. 47c adjusts the authorisation for further regulations, e.g. for fees, fines and technical manners to the minister. This is the basis for the rulebook.

Comment 1: It is free to the Serbian Authorities to introduce parts of the suggestions to other parts of the Serbian legislation. But it is strongly recommended that the obligations shall be introduced on an outstanding place on the top of all. It must be clear by 100% that not a single battery or accumulator, produced inside Serbia or imported legally, private, by second-hand products or illegal, will be refused by an obliged collector. The idea behind the battery-directive is to collect and recycle as much batteries as possible to avoid influences to the environment by waste batteries.

Comment 2: On one side Serbia has introduced a tax system for producers (and importers?) of batteries and accumulators according to Art. 9 of the directive. On the other side there are obliged persons, local authorities and entities to collect, transport and treat (or export to a treating plant) waste batteries and accumulators. They will not fulfil their tasks on their own account. But until now there is no idea for connecting the battery-tax and the obligations of this law to guarantee the cash flow between then ministry of finance and the different actors of waste batteries. This missing link has to be established.

### **3.4.1.1 Obligations for Producers (and Importers) of Batteries and Accumulators**

#### Article 47

Placing on the market of batteries and accumulators whether or not incorporated into appliances, containing more than 0.0005% by weight of mercury shall be prohibited. Excluded from this prohibition are button cells for hearing aids containing more than 0.0005% by weight of mercury.

Placing on the market portable batteries and accumulators including those that are in-stalled in devices which contain more than 0.002% by weight of cadmium, shall be prohibited, except for those used in safety and alarm systems, including emergency lighting, or medical equipment. Excluded from this prohibition until 31st December 2016 are portable batteries and accumulators containing more than 0.002% by weight of cadmium for cordless power tools.

Batteries and accumulators which do not meet the requirements of this Law, but which were lawfully placed on the market prior to the date of application of this law may continue to be marketed until stocks are exhausted. Batteries and accumulators which do not meet the requirements of this Law shall not be placed on the market after the date of application of this law or shall be withdrawn from it.

Manufacturers (and importers) have to design appliances in such a way that waste batteries and accumulators can be readily removed. Where they cannot be readily removed by the end-user, manufacturers have to design appliances in such a way that waste batteries and accumulators can be readily removed by qualified professionals that are independent of the manufacturer. Appliances in which batteries and accumulators are incorporated shall be accompanied by instructions on how those batteries and accumulators can be safely removed by either the end-user or by independent qualified professionals. Where appropriate, the instructions shall also inform the end-user of the types of battery or accumulator incorporated into the appliance. These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity

of power supply is necessary and a permanent connection between the appliance and the battery or accumulator is required.

Manufacturer and importer of batteries, accumulators and battery packs, whether or not incorporated into appliances, shall label them using labels with instructions and warnings for capacity, separate collection, content of heavy metals, possibility to recycle or dispose,

Every producer and importer has to report the produced or the imported mass of batteries and accumulators distributed on the Serbian market in one calendar year, separated to portable batteries, starters and industry batteries, until the 30th April of the following year. These data shall include batteries and accumulators incorporated into appliances.

#### **3.4.1.2 Registration of producers of batteries and accumulators**

##### Article 47a

The State of Serbia installs a competent authority for the registration of batteries (hereinafter: registration body).

Every producer of batteries and accumulators is obliged to register at the registration body before placing batteries or accumulators on the Serbian market.

Producers shall inform the registration body about changes of the registered data no later than one month after the change. They shall deregister by informing the registration body when ceased to be producers in Serbia immediately. The registration body confirms the transmitted data.

Data of registration, their change and deregistration shall be transmitted in electronic form to the website of the registration body. The registration body may install a code for registration and communication with the producers for transmitting documents in electronic form. The registration body publishes all requirements for the electronic communication on its website.

The registration body publishes the relevant data on its website by subdividing producers of types of batteries. Data of deregistered producers shall be deleted three years after deregistration.

The registration body may apply registration fees for registration. The fee must be cost-based and proportionate. The registration body shall inform the competent national authorities of the methodology of the cost calculation of the fees.

Producers and importers shall place their batteries on the market only if they are registered (Art. 47a). Distributors shall offer batteries only if they give the end-user a possibility to return his waste batteries (Art. 47b).

#### **3.4.1.3 Obligations for taking back and treating used Batteries and Accumulators**

##### Article 47b

Distributors of batteries or accumulators are obliged to take back batteries or accumulators when they are waste. They shall not involve any charge or any obligation to buy a new battery or accumulator to end-users of portable batteries and of starters from private, non-commercial vehicles when discarding those waste batteries or accumulators. If the distribution takes place by mail-order business the place for taking back of used batteries and used accumulators is the dispatch stock of the distributor.

The take-back obligation is limited to waste batteries of those types the distributor sells or had sold in his range and the amount the end-user discards as usual. Distributors of industrial batteries and accumulators shall not refuse to take back waste industrial batteries and accumulators from end-users, regardless of chemical composition and origin.

Distributors of cars, workshops, petrol stations and other entities handling with cars and other waste motorized vehicles, if they are waste or not, are distributors of starter batteries or accumulators in the sense of paragraph 1 as well as they do not sell those types of batteries. In this case the take-back obligation is limited to those starters they remove from the vehicles.

Distributors of portable batteries or accumulators are authorized legal entities for collection of waste portable batteries and accumulators in the sense of Art. 43 of this law.

The local self-government units have to install suitable collection systems for all types of portable batteries or accumulators coming from households, including batteries or accumulators used in electrical bicycles. The collection systems shall enable end-users to discard those waste batteries or accumulators free of charge at an accessible collection point in their vicinity, having regard to population density. The local self-government unit may appoint a third party (or entity) with collection by contract.

Entities with the permit to transport and storage used Batteries and accumulators are obliged to take back all identifiable collected waste batteries from distributors and local collection points and to transport them to treatment plants. They are obliged to collect and transport all batteries and accumulators coming from every installation treating waste electrical and electronic equipment. All collectors and every installation treating waste electrical and electronic equipment are obliged to place all collected batteries and accumulators at the disposal of the entities for transport.

Entities with the permit to treat used batteries and accumulators (producers or third parties) are obliged to take back those waste batteries and accumulators from the transport entities. For treating and recycling the entities are obliged to set up systems using best available techniques, in terms of the protection of health, safety and the environment. The obligation of treatment and recycling can be fulfilled by export to installations that comply, as a minimum, with community legislation, in particular as regards health, safety and waste management and by considering the community legislation about exporting hazardous waste (and, if they are, additional Serbian legislations). All transport entities are obliged to place all batteries and accumulators at the disposal of the entities for treating.

Entities that perform collection, storing, transport, treatment and recycling of used batteries and accumulators shall hold a permit. Distributors of portable batteries or accumulators and collection points installed by the local self-government shall not hold a permit.

Entities maintain and keep records on used batteries and accumulators and on quantities collected, stored, transported, treated or recycled, and shall submit those data to the Agency.

End-user of used batteries and accumulators, except households, shall deliver them to the entity permitted to collect those batteries.

For the application of Art. 47, 47a and 47b the Minister shall closely prescribe

- Definitions of aspects necessary for the use of the law
- contents and layout of labels to be put on batteries, button cells and accumulators,
- the data producers and importers of batteries and accumulators have to submit for registration
- preconditions for calculating the produced, imported, collected, treated and recycled batteries and accumulators
- manner and procedure for management of used batteries and accumulators
- to apply registration fees for registration of producers
- to introduce fines for the obligated entities in the case of acting against the law (and the rulebook)

### **3.5 Construction & demolition wastes**

#### **3.5.1 Current situation**

Interviews with stakeholders clearly showed that the management of C&D wastes is inappropriate at the moment. C&D wastes are widely dumped. While these illegal dumps endanger environment valuable resources are lost.

Due to the extensive use of asbestos in the past a substantial amount of asbestos containing wastes (hazardous wastes) are generated (partly during unauthorized maintenance operation) and disposed of in an inadequate way.

At the moment there exists no specific EU regulation for C&D waste. Thus no amendment of Serbian law is necessary to approximate with EU legislation in this field. However specific aspects from EU legislation should be incorporated in any Serbian by-law regulating C&D wastes.

1) Directive 2008/98/EC calls for a high level of environmental protection. Therefore any regulation should be based on the precautionary principle (widely covered by Art. 3 of the Serbian Law on Waste Management).

2) Treatment (recovery as well as final disposal) of C&D wastes may touch regulated areas (e.g. landfill directive, POP regulation, PCB regulation, regulation on occupational health, IE-directive). Any by-law should be in line with these specific regulations.

### 3.5.2 Possible way forward

A comprehensive by-law for C&D wastes should address the following issues:

- Definition and identification of C&D wastes.
- Identification of hazardous C&D wastes (a non-comprehensive regulation can focus on generally non-hazardous waste streams as input into the recycling process)
- Collection and separation of C&D wastes.
- Storage and transport of C&D wastes.
- Recovery/recycling of C&D wastes on-site and off-site the place of generation.
- Licensing of C&D waste treatment installations (including mobile installations)
- Quality criteria for recovered wastes and criteria for their use. This can also include an “end of waste” definition for specific types of recovered C&D wastes.
- Disposal of non-recoverable C&D wastes.

Facilities for C&D waste can be stationary or mobile (especially in case of large infrastructure construction projects a mobile facility can reduce the environmental impact cause by transport of C&D wastes). A rulebook for C&D wastes should also give clear detailed guidance for issuing the location permit for mobile installations in accordance with Art 37 of the Law on Waste Management (issued by local self-government unit).

To give a maximum of flexibility in the implementation and avoid too detailed technical prescription in the regulation/rulebook a combination of a regulation/rulebook and a technical textbook (guideline) could be envisaged. Thus the regulation/rulebook would provide for a clear legal framework (giving legal security operators and other stakeholders), while the textbook on technical implementation can provide for a number of acceptable technical solutions giving flexibility to adapt the technical solution to specific situations and circumstances (e.g. a mobile on-site recycling facility may recover only material that can be re-used immediately at the construction site and not necessarily also other parts of the C&D waste stream). However discussion with several stakeholders showed a preference for an “all in one” solution giving also technical details in the regulation.

The implementation of a by-law is made on the level of Government (regulation) or Ministry (rulebook). It should be decided whether C&D wastes should be regulated by a regulation (which could be more comprehensive and regulate also areas in the competence of other Ministries) or by a rulebook, restricted to waste relevant details only.

Additional measures will be necessary to enhance compliance with the legal requirements. So beside a specific regulation/rulebook for C&D wastes it seems to be necessary to raise public awareness to reach compliance with any new regulation as well as existing regulations (e.g. on asbestos containing wastes). A

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strengthening of controls to stop illegal (but cheap) dumping of C&D wastes can re-direct this waste stream to licensed recycling facilities (or at least to licensed landfills).

Another tool to promote recycling and recovery could be to address the use of a minimum quota of re-cycled construction material as a condition in public tenders. However again there was some reluctance by several stakeholders to such a measure. Such measures are not connected directly to the regulation/rulebook and can be introduced at a later stage if appropriate.

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  - a. End-of life vehicle ordinance, 21.06.2002
  - b. EU-level:
    - i. Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) as amended by No. 2.1 of the annex of Regulation (EC) No. 596/2009
    - ii. Regulation (EC) No. 850/2004 on persistent organic pollutants, as amended at latest by Regulation (EU) No. 1342/2014
    - iii. Regulation (EC) No. 1013/2006 on shipments of wastes
    - iv. Directive 2008/98/EU on Wastes
    - v. Directive 2000/76/EC on Incineration of Wastes
  
- 4) Level of Serbian legislation:
  - a. • Matter of Waste
    - i. Law on Waste Management, Official Gazette RS, No. 36/09, 88/10
    - ii. Drafted Law on Amendments to the Law on Waste Management
    - iii. Ministerial Order on Handling Devices and Waste containing PCBs, Official Gazette RS, No. 37/11
    - iv. Ministerial Order on the Management of Waste containing, consisting of or contaminated with Persistent Organic Materials Pollutants (unofficial translation)
    - v. Data table on “Monitoring transposition and implementation of the EU environmental acquis” concerning Directive 96/59 completed in April 2015 by Mr. Simic, Dept. for Waste Management of the MAEP
  - b. Matter of Chemicals
    - i. Law on Chemicals
    - ii. Ministerial Order on Bans and Restriction of Production, placing on the Market and Use of Chemicals
  
- 5) Directive 2012/19/EU on waste electrical and electronic equipment;

- 6) Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). Note that this Directive is not analysed in this report.
- 7) Commission Decision of 11 March 2004 concerning a questionnaire for Member States reports on the implementation of Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) (2004/249/EC)
- 8) Commission Decision of 3 May 2005 laying down rules for monitoring compliance of Member States and establishing data formats for the purposes of Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (2005/369/EC).
- 9) Law on Waste Management (Official Gazette of RS, No 36/09 and 88/10);
- 10) Rulebook on the List of Electric and Electronic Products, Measures of Prohibition and Restriction of Use of Electric and Electronic Equipment Containing Hazardous Substances, Methods and Procedures of Managing Waste From Electric and Electronic Products ("Official Gazette of RS, No 99/2010");
- 11) Regulation on Products That Become Special Waste Streams Upon Use Thereof ("Official Gazette of RS", no 54/2010")
- 12) Law on Technical Requirements ("Official Gazette of RS, No 36/2009")
- 13) Rulebook on Daily Evidence and Annual Reporting for Waste ("Official Gazette of RS, No 95/2010")
- 14) Law on Environmental Protection ("Official Gazette of RS, No 135/04, 36/09 and 72/09").
- 15) [www.eko.minpolj.gov.rs/en/](http://www.eko.minpolj.gov.rs/en/)
- 16) [www.sepa.gov.rs](http://www.sepa.gov.rs)
- 17) [http://ec.europa.eu/environment/waste/weee/legis\\_en.htm](http://ec.europa.eu/environment/waste/weee/legis_en.htm)
- 18) <http://eur-lex.europa.eu/homepage.html>
- 19) <http://www.seio.gov.rs/documents/agreements-with-eu.69.html>
- 20) <http://www.bauumwelt.bremen.de>
- 21) Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators with all amendments (Directive 2008/12/EC of the European Parliament and of the Council of 11 March 2008; Directive 2008/103/EC of the European Parliament and of the Council of 19 November 2008 Directive 2013/56/EU of the European Parliament and of the Council of 20 November 2013);
- 22) Commission Decision 2008/763/EC establishing, pursuant to Directive 2006/66/EC of the European Parliament and of the Council, a common methodology for the calculation of annual sales of portable batteries and accumulators to end-users;
- 23) Commission Decision 2009/851/EC establishing a questionnaire for Member States reports on the implementation of Directive 2006/66/EC of the European Parliament and of the Council on batteries and accumulators and waste batteries and accumulators
- 24) Commission Regulation (EU) No 1103/2010 establishing, pursuant to Directive 2006/66/EC of the European Parliament and of the Council, rules as regards capacity labelling of portable secondary (rechargeable) and automotive batteries and accumulators;
- 25) Commission Regulation (EU) No 493/2012 of 11 June 2012 laying down, pursuant to Directive 2006/66/EC of the European Parliament and of the Council, detailed rules regarding the calculation of recycling efficiencies of the recycling processes of waste batteries and accumulators.
- 26) Law on Waste Management (Official Gazette of RS, No 36/09 and 88/10);
- 27) Rulebook on Manners and Procedures of Used Batteries and Accumulators Management ("Official Gazette of RS, no 86/2010");
- 28) Regulation on Products That Become Special Waste Streams Upon Use Thereof ("Official Gazette of RS", no 54/2010")
- 29) Law on Technical Requirements ("Official Gazette of RS, No 36/2009")
- 30) Rulebook on Daily Evidence and Annual Reporting for Waste ("Official Gazette of RS, No 95/2010")
- 31) Law on Environmental Protection ("Official Gazette of RS, No 135/04, 36/09 and 72/09").
- 32) [www.eko.minpolj.gov.rs/en/](http://www.eko.minpolj.gov.rs/en/)
- 33) [www.sepa.gov.rs](http://www.sepa.gov.rs)
- 34) <http://ec.europa.eu/environment/waste/batteries/legislation.htm>
- 35) <http://eur-lex.europa.eu/homepage.html>

- 36) <http://www.seio.gov.rs/documents/agreements-with-eu.69.html>
- 37) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste (Waste Framework Directive)
- 38) Review of the EU Sustainable Development Strategy (EU SDS) - Renewed Strategy (Council Document 10117/06)
- 39) Mainstreaming sustainable development into EU policies: 2009 Review of the European Union Strategy for Sustainable Development (COM(2009) 400 final)
- 40) Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste
- 41) Council Decision 2003/33/EC of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC
- 42) Law on Waste Management (Official Gazette of RS, No 36/09 and 88/10)
- 43) Regulation of waste disposal to landfill (Official Gazette of RS, No 92/10)
- 44) Rulebook on categories, testing and classification of waste (Official Gazette of RS, No 56/10)
- 45) Law on Environmental Protection (Official Gazette of RS, No 135/04, 36/09 and 72/09)
- 46) Recycling-Baustoffverordnung BGBl II 181/2015
- 47) <http://sa.jrc.ec.europa.eu/uploads/waste-Guide-to-LCTLCA-for-C-D-waste-management-Final-ONLINE.pdf>
- 48) [http://ec.europa.eu/environment/waste/construction\\_demolition.htm](http://ec.europa.eu/environment/waste/construction_demolition.htm)
- 49) [http://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/296499/LIT\\_8709\\_c60600.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296499/LIT_8709_c60600.pdf)
- 50) [http://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/290139/pmho0412bwfe-e-e.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290139/pmho0412bwfe-e-e.pdf)
- 51) <http://www.laga-online.de/servlet/is/23874/>
- 52) <http://www.laga-online.de/servlet/is/23876/>
- 53) [http://www.ris.bka.gv.at/Dokument.wxe?Abfrage=BgblAuth&Dokumentnummer=BGBLA\\_2015\\_II\\_181](http://www.ris.bka.gv.at/Dokument.wxe?Abfrage=BgblAuth&Dokumentnummer=BGBLA_2015_II_181)
- 54) [http://www.arv.ch/fileadmin/PDF/Ergaenzende\\_Vorschriften/Richtlinie\\_fuer\\_die\\_Verwertung\\_mineralischer\\_Bauabfalle.pdf](http://www.arv.ch/fileadmin/PDF/Ergaenzende_Vorschriften/Richtlinie_fuer_die_Verwertung_mineralischer_Bauabfalle.pdf)
- 55) <http://www.environment.gov.au/protection/national-waste-policy/publications/construction-and-demolition-waste-guide>

## 5 ANNEXES

### 5.1 Annex 1

#### **.Abstract of the German law about electrical and electronic equipment (ElektroG)**

The law first came into force in March 2005 with 25 paragraphs and 4 annexes. Based on the EU-directive 2012/19 the law was revised in 2015 with 46 paragraphs and 6 annexes. It will come into force in October 2015, 2 articles will come into force later. The following abstract is based on the new law.

#### Split product responsibility

Means: Collection by local authorities, recovery and recycling by producer. Local authorities have to pay for the collection site and personal for collecting, producers have to pay for deploying of collection containers, transport and recovery. This is the idea behind the law, but not explicit written in the text.

#### Producer Responsibilities

Producers are obliged to register at the competent authority before placing any EEE on the market. They shall not place on the market any EEE without registration. Together with the registration they must give an annual guarantee for the event of insolvency to guarantee financing of the take back and recovery of their electrical and electronic equipment. The guarantee can e.g. be given by a system which is appropriate for the financing of the disposal of WEEE (in 2015 are 11 of such systems, especially for small producer). Importers have to contract an authorized agent. The “producer” comprises the offer of EEE, e.g. by internet or catalogue.

Producer must deploy the necessary collecting container free of charge at the place of collection of the local authorities (but not at collecting points of distributors). The container must be covered and appropriate for transport vehicles. Producers are obliged to pick up the filled containers in time from the collection places of the local authorities and to place empty ones by order of the competent authority (UBA). They are obliged to reuse, to treat or to dispose the WEEE. They have to pay all costs for the pick-up and the replace of containers and the disposal of WEEE.

#### Collection

Collection of WEEE is only allowed to the local authorities, distributors and producers or third parties contracted by them.

Local authorities are obliged to collect WEEE from private households without a fee in six different groups and in a way that the WEEE do not can break. They have to announce the full collecting-containers to the joint center. Local authorities have the option to recycle WEEE by themselves or contracted third parties. The collection by producers and distributors is forbidden at the collecting places of the local authorities.

Distributors with a shop bigger than 400m<sup>2</sup> are obliged to take back free of charge all small WEEE independent of their source without the obligation to buy a new device and bigger WEEE of all types similar to that the end-user buys as new. The distributor is free to take back all WEEE on a volunteer base. For producers supplying EEE by means of distance communication areas for storing and distribution of EEE apply as sales area.

Distributors have to deliver WEEE to the producers or to the local authorities or they have to recycle them by themselves.

Producers are free to install individual or collective take-back systems for WEEE from private households free of charge for the end-user. They are obliged to take back and recycle all not historic WEEE (brought into market before 13th August 2005) from all end-users which are not private households.

Joint Center

All producers have to install a joint center. If the center is not installed the producers have to pay to the local authorities all their costs for collection, sorting and disposal.

The Joint Center has to create and to publish a contract for all members with their duties. An advisory board with members of producers, local authorities, federal states, organizations for consumer protections and others is to install for control.

Producers have to inform the Joint Center monthly about the mass of their electric and electronic equipment placed on the market and exported, the WEEE picked-up, recycled, exported etc. and every year the equipment treated in the first treating plant. Distributors have to inform the Joint Center yearly about the mass of the WEEE took back, recycled, exported etc. and the equipment treated in the first treating plant. Local authorities have to inform the joint center about the self-recycled WEEE every year.

The Joint Center has to support the competent authority and to inform producer, local authorities, distributors, operators of first treatment plants and end-user about their obligations coming from the law. The Joint Center publishes the producers registered by the competent authority and the first treatment plants. The Joint Center calculates the percentage of WEEE which every registered producer has to pick up from the collection places of the local authorities and reports the result to the competent authority. The calculating must base on a scientific method and is to publish in the internet. The Joint Center has to send to the competent authority a list of all registered producers and informs the competent authority about the data of electric and electronic devices placed on the market and exported as well as the data about WEEE took-back, picked-up, recycled etc..

The Joint Center is authorized to assign electric equipment to a type of equipment. The Joint Center shall not conclude or mediate an agreement about disposal. The Joint Center has to pay the collecting costs to the local authorities for those producers which are no longer registered and has to take back that money from them resp. their guarantee.

#### Competent Authority

The competent authority is the federal environment agency (Umweltbundesamt, UBA).

All producers of EEE are obliged to register at the competent authority with data and type of electrical and electronic equipment. The authority awards them a registration number and announces them to the joint center including the registration number and the annual guarantee for the event of insolvency. The authority determines a system which is appropriate for the financing of the disposal of WEEE

All producers are obliged to notify at the competent authority their individual or collective take-back systems including all collection points before start of operation. All Distributors are obliged to notify at the competent authority their collection points before start of operation. Local authorities are obliged to notify at the competent authority their collection points and the intention of recycling WEEE by themselves. Operators of first treatment plants are obliged to notify at the competent authority their activities before they start them. The competent authority reports the notifications to the Joint center.

The competent authority orders if necessary the producers to place at the disposal of the local authorities an adequate number of collection containers. The competent authority orders the pick-up of the filled containers after the announcement of the joint center.

The competent authority has the right to place their duties to the control of the Joint Center, but she has the supervision about that (in fact most of the duties were given to her). The authority may take fees for completion of their duties. These fees are laid down in a special ordinance derived from the federal law about fees.

#### Treatment

After a check if the WEEE or parts are able for reuse WEEE are to be treated in two steps: First treating contains the remove of liquids and hazardous parts, the second is the recovery and/or recycling of the rest. Plants for the first treating must be certified by a competent expert every 18 months or they must be a Specialized Waste Management Company, certified by regulations of the federal "Law on Closed Cycle Management"

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If used electric or electronic equipment shall be exported the exporter has to verify that his equipment is not a waste, e.g. by a contract of the purchase and a document about a function test.

The Name of the Joint Center is “Stiftung Elektro-Altgeräte Register” (ear) (foundation for registration of WEEE), the name is not given by law. There are 30 companies and associations as founders. The foundation ear is represented by the Managing Director. Further organs are the supervisory board, comprised of ten representatives who are executives from registered producers, and the advisory board with representatives of the producers and the distributors, the local authorities, the Federation and the Federal States, the waste disposal industry and environmental and consumer protection associations.

#### *Links*

*ear: <https://www.stiftung-ear.de/en/>*

*UBA (WEEE): <http://www.umweltbundesamt.de/themen/abfall-ressourcen/produktverantwortung-in-der-abfallwirtschaft/elektroaltgeraete>*

## 5.2 Annex 2

### Examples for specific regulations for recycling of C&D wastes in EU Member States

#### 1) United Kingdom:

The Department for Environment Food & Rural Affairs (DEFRA), the Welsh Government and the Northern Ireland Environment Agency (NIEA) have issued a quality protocol<sup>1</sup> for aggregates from inert wastes.

The protocol regulates the input materials for processing of mineral C&D wastes and acceptable uses for recovered aggregates as construction material.

It refers to applicable EU standards for aggregates and defines the necessary quality management system for recovered aggregates. Following the protocol the processed waste (aggregates) ceases to be waste.

Comparable protocols from other Member States are accepted (in case of import). However in accordance with Article 28 of the Waste Shipment Regulation the generator is advised to collect the opinion of the Authority of Dispatch and the Authority of Destination on the non-waste status prior to any shipment.

If the aggregates are used outside their specification or if they are stored for an indefinite time they become waste again.

There are no specific criteria for leachate behavior (other than sulfate or chloride) or total content of e.g. heavy metals of the recycled material. The allowed input material is restricted to inert mining wastes (gravel, sand), glass based fibers (from production only, without organic coating), glass, ceramics (bricks, tiles), concrete, bituminous construction material, excavated soil and track ballast.

With regard to pollution control the quality protocol refers to specific guidelines<sup>2</sup> for best practice for construction and demolition sites.

#### 2) Germany:

The Bund/Länder-Arbeitsgemeinschaft Abfall – LAGA (a forum of the competent authorities for waste treatment in Germany) has issued a guideline (LAGA M20 Requirements for the material use of mineral wastes<sup>3</sup>) for the use of mineral wastes as construction material.

Since there was no full agreement on the last edition of the guideline several Federal Countries have published their own guideline<sup>4</sup> based on the last draft M20 (2003).

LAGA M20 and the adopted interpretative guidelines from the Federal Countries cover the use of recovered excavation material, demolition wastes, slags from waste incineration and slags from coal combustion.

The focus is on the environmental performance of the material (leachate and total content of specific substances/metals).

The guidelines don't refer to technical standards for construction material but focus on the environmental performance. The aggregates/material don't reach and end of waste status (the use of the material is within the waste regime).

#### 3) Austria:

Austria has enacted a specific national regulation<sup>5</sup> (BGBl. II 181/2015 Ordinance on Recovered Aggregates). Covered by the ordinance are aggregates from C&D wastes and from slags from steel works – BFO slag (shaft furnace slag is regarded as a by-product in Austria).

<sup>1</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/296499/LIT\\_8709\\_c60600.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296499/LIT_8709_c60600.pdf)

<sup>2</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/290139/pmho0412bwfe-e-e.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290139/pmho0412bwfe-e-e.pdf)

<sup>3</sup><http://www.laga-online.de/servlet/is/23874/>

<sup>4</sup> <http://www.laga-online.de/servlet/is/23876/>

<sup>5</sup> [http://www.ris.bka.gv.at/Dokument.wxe?Abfrage=BgbIAuth&Dokumentnummer=BGBLA\\_2015\\_II\\_181](http://www.ris.bka.gv.at/Dokument.wxe?Abfrage=BgbIAuth&Dokumentnummer=BGBLA_2015_II_181)

Specific qualities of recovered aggregates reach an end of waste status.

The regulation covers:

- a) the separate collection of C&D wastes (including the identification of hazardous substances and the recovery-oriented dismantling of the building, based on a national standard – OENORM B 3151)
- b) the thresholds for the mandatory recycling of C&D wastes (small quantities from only one construction site are excluded from the obligation to recycle)
- c) the quality (environmental performance) of the recovered aggregates
- d) the acceptable uses for the different types of recovered aggregates (open use, use under dense surface, use as additive for concrete).
- e) the use of aggregates derived from steel work slag.

The performance as a building material is regulated by international (CEN) and national (OENORM) standards and not within this regulation.

Before this regulation was enacted the separate collection and recovery of specific types of C&D wastes was prescribed by a regulation. The way of recycling was regulated only by a (legally non-binding) technical guideline in the Federal Waste Management Plan. However for the use of recovered aggregates which didn't perform in accordance with the technical guideline a fee was imposed.

### Examples for specific regulations for C&D wastes in non-EU States

#### 1) Switzerland:

The Bundesamt für Umwelt (BAFU) published a technical guideline for the recovery and re-use of mineral B&D wastes in 2006<sup>6</sup>.

The guideline differentiates between excavated soil (used for back-filling) and 5 types of recovered aggregates.

For each type of recovered aggregates an acceptable use is defined in the guideline.

Organic C&D wastes are directed to MSW incinerators with energy recovery (in Switzerland 30 MSW incinerators with a total capacity of approx. 4 Mio per year exist. In general they are classified as R1-installations (recovery of energy)).

Competent for the application of the guideline is the local authority. The local authority may request the building owner to recycle the mineral demolition waste (Landfilling of wastes with high organic carbon is not allowed in Switzerland. Therefore combustible wastes that cannot be recycled have to be incinerated.).

Input criteria for the recycling process are:

- a) The construction site is not registered in a register of contaminated sites. The building owner has to contact the local authority on this issue and receive a decision.
- b) The building owner has to prepare a concept for the dismantling, including a list of hazardous substances to be removed before demolition/recovery ("green passport"). Basis for the green passport are a visual inspection, the previous use of the site/building (e.g. industrial building) and chemical analysis. To identify PAH containing asphalt/bitumen quick tests may be used.

Recovery can be made on-site during the dismantling or off-site in specialized installations. The guideline also contains conditions for the temporary storage of the waste and for sampling of the waste.

Quality criteria in the guideline refer to maximum impurities. There are no limit values for hazardous substances beside PAH in bitumen/asphalt. However chemical analysis of the recovered material

<sup>6</sup> [http://www.arv.ch/fileadmin/PDF/Ergaenzende\\_Vorschriften/Richtlinie\\_fuer\\_die\\_Verwertung\\_mineralischer\\_Bauabfalle.pdf](http://www.arv.ch/fileadmin/PDF/Ergaenzende_Vorschriften/Richtlinie_fuer_die_Verwertung_mineralischer_Bauabfalle.pdf)

may be requested and the recovered material must not contain higher amounts of hazardous substances than virgin material.

To enhance the use of recycling material 2010 the use of recycled material in construction became a criterion in public procurement.

## 2) **Australia (New South Wales):**

2014 the New South Wales EPA enacted an administrative order on recovered aggregates. Recovered aggregate means material comprising of concrete, brick, ceramics, natural rock and asphalt processed into an engineered material. This does not include refractory bricks or associated refractory materials, or asphalt that contains coal tar.

The requirements of the order apply to the recycler only. Land owner/building owner may use the recycled material without a specific permit (thus the recycled material has de facto a non-waste status although the applied waste definition in Australia may be slightly different from the EU definition.)

The order is focused on the environmental performance of the recovered aggregates (content of heavy metals and other dangerous substances).

A clear system for sampling/analysis is described. The recycler has to issue a certificate that the material is in line with the requirements laid down in the order. The records of testing/analyzing have to be kept by the recycler for 6 years.

When handing over the recycled aggregates to a consumer/user the recycler has to inform the downstream user on the legal requirements for the lawful use of the material (he can provide the information himself or give reference to other EPA regulations).

The order doesn't refer to any construction standards. There are no specific input criteria for the recycling process. Quality assurance is done only at the level of the recovered material.