

Construction and Demolition Waste management in

Latvia

V2 – September 2015



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Screening factsheet

1. Summary

The Republic of Latvia, situated in Eastern Europe is one of three Baltic States bordered by Estonia, Lithuania, Russia, and Belarus. This Member State has a surface area of 62.2 thousand km² and a population of 2 001 468¹.

Construction and Demolition Waste (CDW) management national performance

Waste category	Quantity generated in 2012 (tonnes)
Soil	Data breakdown under revision
Other inert waste	Data breakdown under revision
Total inert waste	Data breakdown under revision
Non-inert non-hazardous waste	Data breakdown under revision
Hazardous waste	Data breakdown under revision
Total CDW	396 955

The above table exemplifies the issues with data availability and transparency for C&D waste in Latvia. In practice, the State Joint Stock Company "Latvian Environmental, Geological and Meteorological Centre" compiles and processes waste management data and statistics from each of the Latvian regions and reports them to EUROSTAT.

In 2010, according to a study conducted by the Latvian University of Agriculture: Faculty of Rural Engineers, Department of Architecture and Construction, Latvia is known to have a relatively well developed municipal waste *collection* system as compared to CDW management. However, while waste collection for municipal waste reaches nearly 100% of its inhabitants in cities and towns and 85% of its inhabitants in rural areas, out of this country's total waste production in 2010 of 600 000 to 700 000 tonnes, 50% consisted of biodegradable municipal waste of which nearly 77% was landfilled. It has been documented that Latvia has experienced a gradual increase of annual landfilled municipal waste, along with annual hazardous waste levels²³.

Regarding CDW in 2010, out of the 600 thousand to 700 thousand tonnes of generated waste, about 23%, or 153 000 tonnes originated from the construction and demolition sector. Out of this amount, 140 000 tonnes were reportedly recycled, while 13 000 were buried in landfills due to its hazardous properties, mainly linked to asbestos contamination⁴. According to 2012 Eurostat data, this number increased to 396 995 tonnes of CDW only two years later. However, according to interviewed experts, data availability and reliability is an issue in Latvia and this data may not necessarily reflect the current situation in Latvia. In June 2015, the Latvian Environment, Geological and Meteorological Centre has started undergoing discussions with EUROSTAT regarding the validity of reported figures over the past years. As this review is not yet completed and data is not yet available, data cross-checking for these figures is not possible at the date of the current study.

¹ "Living in the EU." *EUROPA* - European Union, n.d. Web. http://europa.eu/about-eu/facts-figures/living/index_en.htm.

² Hazardous waste mainly consists of metal waste.

³ Moora, Harri. *NATIONAL WASTE MANAGEMENT REVIEW: Latvia (RECO Baltic 21 Tech Project)* (2012): n. Web. http://www.recobaltic21.net/downloads/Public/Project%20results/wmreview_est_lat_lit_pl.pdf.

⁴ Gusta, Sandra, and Gints Skenders. "CONSTRUCTION WASTE MANAGEMENT PROCESS IN LATVIA: PROBLEMS AND POSSIBLE SOLUTIONS." *4th International Conference CIVIL ENGINEERING '13 Proceedings Part I* (n.d.): n. Latvia University of Agriculture, Faculty of Rural Engineers, Department of Architecture and Construction. Web. http://lufb.ltu.lv/conference/Civil_engineering/2013/part1/Latvia_CivilEngineering2013Vol4Part1_217-224.pdf.

CDW management practices

As this country is still in the early stages of implementing a functioning municipal waste management system, in which notable headway has been made, CDW management has not necessarily been an immediate focus.

CDW has a history of being mismanaged, especially since the Soviet times in the 1960-70's. During this time, there were several cases of illegal dumping of hazardous waste that have resurfaced over the years during construction projects, which has been particularly difficult to manage. Despite this history, interviewed stakeholders shared a rather optimistic outlook on CDW management in present times, especially with the establishment of waste legislation and increased enforcement on the regional level. Depending on the region and the situation, illegal dumpers can receive anywhere from EUR 70-700 in fines, if not more.⁵ For publicly commissioned construction, demolition, or works, regional authorities are involved in overseeing the advancement of the project (i.e. allocating permits). However, for small-scale projects, such as housing units, the responsible local authorities generally experience more issues with enforcement. Private efforts arising from Latvia's top 3 waste management companies along with other locally-managed companies have found their place in the market. Regardless, landfilling and backfilling remain a main practice for CDW, and lack of national and regional financial resources and general awareness about CDW management has greatly hindered the advancement for a more organised system. However, in this sense, advancements have been made in landfill and sorting sites availability, thanks to the various grants that Latvia received between the years of 2008-2012 from the EU Cohesion Fund along with various other projects that helped the advancement of municipal waste collection.

Main obstacles to sustainable CDW management

- Absence of C&D Legislation
 - To date, there are no legal acts or planning documents in Latvia that specifically regulate C&D waste management. The main document on waste remains the Waste Management Law, in which construction waste is outlined.
- Poor of national data transparency and reporting
 - Compiled data is not publicly available on official websites or legal documents. Furthermore it is not clear whether reporting on the regional level is successful and via which methodology.
- Lack of national resources for CDW development
 - National funding and support for waste management advancements has focused on municipal waste while CDW management has received little to no funding or awareness-raising.
- Lack of deterrents aimed at landfilling
 - There are no incentives to deter landfilling; in particular Pay As You Throw (PAYT) schemes, which can be implemented to favour prevention and participation for separate collection do not exist.⁶
 - Tighter enforcement on illegal dumping is greatly lacking.
- Underdeveloped market for recycled CDW (aggregates)
 - According to interviewed stakeholders, this market is highly underdeveloped because of the availability of competitively-priced natural aggregates, and furthermore because of the poor quality of recycled material.
- Lack of communication on CDW management practices
- Communication to all actors, B2B and B2C lacks attention. Widespread awareness about good practices on the local, regional, and national level could help bring about change.

⁵ Interview with Guntars Levics, Director, Member of Board – VP Grupa Waste Management. 20/04/2015.

⁶ "Country Factsheet Latvia: Support to Member States in Improving Waste Management Based on Assessment of Member States' Performance." 070307/2011/606502/SER/C2. N.p., n.d. Web. http://ec.europa.eu/environment/waste/framework/pdf/LV%20factsheet_FINAL.pdf.

Main drivers to sustainable CDW management

As CDW management in Latvia is not driven by concentrated efforts of national actors, drivers consists of private and EU-wide initiatives. The following recommendations summarize the main suggestions of the interviewed stakeholders in light of addressing Latvia's main obstacles towards ameliorating CDW management:

- EU-funding for CDW projects (EUR 50 million budget for 2015)
 - Financing for the waste management implementation projects has been allotted to Latvia, Estonia, Lithuania, and Poland, although interviewed stakeholders indicated that this funding has neglected CDW projects. Rather, EU structural funding for the development of its general waste management infrastructure has proven to be a main driver to the increase of (municipal) waste management. Although there has not yet been any EU-specific funding geared towards C&D waste management, stakeholders indicated that these funding options could be potential drivers⁷.
 - As particular EU funding is allotted based on project ideas submitted by actors for various waste management projects, a potential driver would be to create a help platforms to help brainstorm for funding ideas for CDW management, and furthermore to assist these actors during the EU grant-writing proposals.
- Tighter enforcement on illegal dumping and the introduction of stricter landfill costs
 - Illegal dumping is still a real issue that could be addressed via tightening enforcement levels. Although fines are handed out to illegal dumpers, it is not always properly enforced (mainly because of lack of resources).
 - Landfill costs are considered to be too low (EUR 30-50 depending on the region), according to a stakeholder in one of Latvia's main waste management companies. In order to jumpstart the market for recycled CDW, deterrents are believed to be an important driver towards recycling.
- Better communication on CDW management practices
 - Communication on the advancements on municipal waste management is regarded as a potential driver towards CDW management. In particular, best practices could be applied and transferred over to the C&D sector.
 - Public campaigns awareness about current issues related to CDW management on the B2B sector are of utmost priority, as well as to the public in regards to providing CDW management solutions for small (individually-commissioned) renovation and construction projects.
- Incentives towards favourable use of recycled aggregates
 - The creation of standards for recycled aggregates could help incentivise construction and renovation companies to use this material, especially as it is regarded as generally being of lesser quality than natural (and more widely available) aggregates.

⁷ Moora, Harri. NATIONAL WASTE MANAGEMENT REVIEW: Latvia (RECO Baltic 21 Tech Project) (2012): n. Web. http://www.recobaltic21.net/downloads/Public/Project%20results/wmreview_est_lat_lit_pl.pdf.

2. Definitions concerning construction and demolition waste (CDW) and management

In this section the definitions of waste used in Latvia are explored.

2.2 Definition of waste

As outlined in Chapter I of Latvia's national Waste Management Law⁸, the definition of waste generally follows the definition within the Waste Framework Directive 2008/98/EC (WFD).

Waste is defined as “any object or substance which the possessor thereof disposes of, or intends to or is forced to dispose of, and which conforms to the categories specified in the waste classification”.

Similar definitions of waste terms outlined in the WFD are furthermore consistent with those in Latvia's Waste Management Law, although not all term definitions are included.

2.3 Definition of construction and demolition waste (CDW)

A clear definition of construction and demolition waste is not included within Latvia's national Waste Management Law. However, via its definition of “**production waste**”⁹, it is understood that this term encompasses all waste originating from production processes or **construction**. Without the presence of further details, it's difficult to determine if this definition also considers demolition waste within its scope. For this reason, construction waste will be considered as a different waste flow than that of demolition. Although there is no reference of the ELoW codes within the Waste Management Law, according to the Latvian Environmental, Geological and Meteorological Centre, statistics flows are recoded and reported according to these specific ELoW codes.

A notable mention of construction waste within this Law can furthermore be seen within Section 10(1) as referred to as “*construction work waste*”. Construction work waste is highlighted within the Law as one of several waste categories to be taken into account and included in the development of regional waste management plans.

Although not sourcing from an official national document, according to a report on construction waste management processes in Latvia, written by the Latvia University of Agriculture, Faculty of Rural Engineers, and the Department of Architecture and Construction,¹⁰ construction and demolition waste is considered as waste from construction, renovation and demolition, as well as debris and damaged materials sourcing from or being used for the construction process. The types of waste included within this C&D waste definition are: concrete, wood, metal, plaster panels, oil, chemicals and roof trim materials, and can furthermore run the risk of containing hazardous substances to humankind and the environment.

2.4 End of Waste (EoW) status

While the terminology “EoW” is not used within the Waste Management Law, within Chapter II Section 6.1, this principle is insinuated. It indicates that the Cabinet shall outline: *the procedures for application of criteria for by-products and for termination of application of waste status*¹¹. This definition may imply that a concrete definition is yet to be laid out. However, according to a European Commission report¹², provisions about the EoW principle are outlined in the Latvian Waste Management Act of 18 November 2010, although no complimentary information was identified.

⁸ "Waste Management Law." (2004): n. Translation © 2004 Tulkošanas Un Terminoloģijas Centrs (Translation and Terminology Centre), 2004. Web. http://www.asser.nl/upload/eel-webroot/www/documents/latvia/Waste_Management_Law_Latvia.pdf.

⁹ "Production waste" shall be considered as a synonym to "construction waste" throughout the Latvia chapter.

¹⁰ Gusta, Sandra, and Gints Skenders. "CONSTRUCTION WASTE MANAGEMENT PROCESS IN LATVIA: PROBLEMS AND POSSIBLE SOLUTIONS." *4th International Conference CIVIL ENGINEERING '13 Proceedings Part I* (n.d.): n. Latvia University of Agriculture, Faculty of Rural Engineers, Department of Architecture and Construction. Web. http://lufb.ltu.lv/conference/Civil_engineering/2013/partI/Latvia_CivilEngineering2013Vol4Part_217-224.pdf.

¹¹ "Waste Management Law." (2004): n. Translation © 2004 Tulkošanas Un Terminoloģijas Centrs (Translation and Terminology Centre), 2004. Web. http://www.asser.nl/upload/eel-webroot/www/documents/latvia/Waste_Management_Law_Latvia.pdf.

¹² "Country Factsheet Latvia: Support to Member States in Improving Waste Management Based on Assessment of Member States' Performance." 070307/2011/606502/SER/C2. N.p., n.d. Web.

An interviewed stakeholder in the waste management sector shared that the EoW principle has not been a large topic of discussion and is not aware of its applicability within C&D waste streams. Generally speaking, CDW is still widely regarded as a waste by Latvian stakeholders within the CDW industry, and not as a product intended for reuse.

2.5 Definitions of waste treatment operations

The definition of waste treatment operations are outlined within the Waste management Law, and follow the categorisation in Annex II of the WFD:

- **Reuse:** any operation by which products or components that are not waste are used again for the same purpose for which they were conceived;
- **Recycling of waste:** any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes, including the reprocessing of organic materials but excluding recovery of energy present in waste and the reprocessing into materials that are to be used as fuels or for **backfilling** operations.

While recovery and backfilling are not explicitly defined within the Waste Management Law, several provisions are outlined throughout the document on their application (i.e. backfilling is referred to within the recycling of waste definition, measures on how proper recovery should be carried out per waste owner are indicated, etc.).

Section 20(7) of Latvia's Waste Management Law¹³ directly addresses demolition waste within the context of use by merchants. It stipulates that all actors involved in either construction or building demolition waste activities **are bound to ensure this waste's recovery and reuse**. Within this context, backfilling is specifically presented as a viable solution for recovery within the passage. The regulation no. 598 of the Cabinet of Ministers (August 2, 2011), which targets separate collection, preparation for reuse, recycling and recovery, furthermore indicates that the preparation for reuse, recycling and recovery (including backfilling) of waste as a replacement for other materials shall be increased to 75% by weight¹⁴.

3. Legal Framework – Waste Management Plans and Strategies

In this section the legal framework governing CDW management in Latvia is explored.

3.1 Legislation concerning CDW in Latvia

Waste management in Latvia is implemented on both the national, regional, and local level. Implementation of waste policies and legislation usually start from a top-down approach, with the Ministry of Environmental Protection and Regional Development (MoE) as the main structure supported by its regional level competent authorities, and when relevant, local actors. In practice, the MoE acts as a centralised structure, outlining nation-wide and major waste policy issues, while the competent institutions on the regional level set in motion waste control and management, tailored to their respective region. Less frequently, a bottom up approach can also take form in Latvia, via the creation of local waste management plans by municipalities.

First pieces of legislation on waste & Waste Framework Directive transposition

- Law on Waste Management (01.03.2001., Amendments 13.03.2008.)
 - This law includes: Definitions, objectives, exclusions, classification of waste, waste management hierarchy, waste management permits and inspections, competencies/roles of state and municipal authorities, waste trans-boundary movements (imports/exports), etc.

¹³ "Merchants, as a result of economic activity of which construction and building destruction waste is produced which is not harmful, shall ensure preparation for re-use, recycling or material recovery of construction and building destruction waste, including use for filling of dug reservoirs, determined by the Cabinet regulations within amount and time period specified by the Cabinet".

¹⁴http://www.trf.sll.se/global/dokument/verksamhet/flerpartsprojekt/hallbar_materialforsorjning/simmcities_november_2011/day2_andris_pumpurs_the_management_of_construction_and_demolition_waste_latvia.pdf

- In force since 19 February 2004, this Law has succumb several amendments, with the latest amendment coming into force on 3 April 2014¹⁵.

The top-down waste management approach can best be seen with the creation of the Waste Management Law, which transposes the WFD. It is the main document directly addressing procedures for waste management via separate collection and revalorization of produced waste in Latvia along with efficient use of natural resources. This national Law draws up a comprehensive nation-wide approach to waste management, all the while leaving breathing room for regional authorities to interpret and tailor the procedures for optimal implementation on the regional level. It is however noted that a main constraint within this system is with the lack of reactivity from regional bodies; it is not clear whether these bodies enforce regional targets and at what frequency.

National legislation on CDW management

- To date, there are no legal acts or planning documents in Latvia that specifically regulate C&D waste management.

End of Waste legislation

- Latvian Waste Management Act of 18 November 2010.

There are no Pay As You Throw (PAYT) schemes to favour prevention and participation for separate collection.¹⁶ Landfill costs are generally seen as being rather low, which does not incentivise treatment and recycling and furthermore does not deter from illegal dumping, as it is still done in practice. Landfills for municipal waste accept CDW for a price increase of EUR 2-5.

3.2 Waste management plans (WMP) and Strategies

The State Waste Management Plan (WMP), originally adopted in 2006, has undergone revisions leading up to its current version for 2013-2020, which was approved at the end of 2012. Several waste management targets are outlined in this document as well as the regional waste management plans, projecting waste management in Latvia through the year 2020 (see section on “targets”). Several waste streams are outlined within this waste management plan which are applicable to construction and demolition waste, although this waste stream is not specifically indicated within the state or regional targets.

The following parties are in charge of preparing and setting forth these various plans:

- The Ministry of Environmental Protection and Regional Development
→ State Waste Management Plan (currently valid from 2013-2020)
- The Ministry of Environmental Protection and Regional Development & municipalities of each waste management region
→ Regional waste management plans (with the exception of the Riga waste management plan, which has its validity in line with the State Management Plan, all other regional waste management plans are valid from 2005-2025 with revisions every 3 years)
- Municipalities within each waste management region in line with relevant regional waste management plans
→ Local waste management plans

3.3 Legal framework for sustainable management of CDW

Specific excerpts from legislation that outline favourable conditions for sustainable management of CDW can be seen in the table below.

¹⁵ "Waste Management Law." (2004): n. Translation © 2004 Tulkošanas Un Terminoloģijas Centrs (Translation and Terminology Centre), 2004. Web. http://www.asser.nl/upload/eel-webroot/www/documents/latvia/Waste_Management_Law_Latvia.pdf.

¹⁶ "Country Factsheet Latvia: Support to Member States in Improving Waste Management Based on Assessment of Member States' Performance." 070307/2011/606502/SER/C2. N.p., n.d. Web. http://ec.europa.eu/environment/waste/framework/pdf/LV%20factsheet_FINAL.pdf.

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year established and policy reference	Further detail, information source, related web-site
<i>National/regional obligation for selective demolition?</i>	No	N/A	N/A
<i>National/regional sorting obligation (on-site or in sorting facility)?</i>	Yes	Waste Management Law	Chapter IV: Waste Management Permits and Inspections; Section 12(5). http://www.asser.nl/upload/eel-webroot/www/documents/latvia/Waste_Management_Law_Latvia.pdf
<i>National/regional separate collection obligation for different materials (iron and steel, plastic, glass, etc.)?</i>	No, only relevant for municipal waste	Waste Management Law	Chapter V: Duties of Waste Producers, Holders, and Waste Managers: Section 20(4) http://www.asser.nl/upload/eel-webroot/www/documents/latvia/Waste_Management_Law_Latvia.pdf
<i>Obligation for separate collection and management of hazardous waste from C&D operations? Please specify</i>	Yes	Waste Management Law	Chapter V: Duties of Waste Producers, Holders, and Waste Managers: -Section 17: Hazardous waste or production waste from other types of waste are to be: separated, stored, delivered (to equipped collection sites), pay for management -Section 19: Prohibited to mix hazardous waste with municipal/production waste http://www.asser.nl/upload/eel-webroot/www/documents/latvia/Waste_Management_Law_Latvia.pdf
<i>Related Green public procurement requirements</i>	No	N/A	N/A

3.4 Targets

On the national level, the State Waste Management Plan¹⁷ outlines several priorities, along with additional targets in Latvia.

The following 5 waste management targets are of top national priority:

- Decrease the quantities of landfilled biodegradable waste (in accordance with the Landfill Directive);
- Obtain the packaging recovery and recycling targets in line with the Packaging Directive;
- Obtain the targets for End-of-Life Vehicles (ELV) recovery, in line with the ELV Directive;
- Obtain the targets for collection and recovery of waste electric and electronic equipment in line with the WEEE Directive;
- Obtain the targets for waste battery and accumulator collection and recycling.

The additional targets indicated below are not prioritised as high as the latter, and generally address all waste management flows, including CDW, although no specific mention of this waste flow is outlined:

- Enact separate collections for glass, paper, plastic, and metal;
- Reuse and recycling of household waste and similar waste by weight (at least 50%);

¹⁷ Moora, Harri. NATIONAL WASTE MANAGEMENT REVIEW: Latvia (RECO Baltic 21 Tech Project) (2012): n. Web. http://www.recobaltic21.net/downloads/Public/Project%20results/wmreview_est_lat_lit_pl.pdf.

- Reuse, recycling and material recovery of at least 75% of construction and demolition waste by weight, including backfilling.

This latter point is directly addressed in the Latvian regulation no. 598 of the Cabinet of Ministers (August 2, 2011).

On the regional level, each regional authority has set in place their own WMPs, which are subject for renewal on a yearly basis. These 12 regional WMPs collectively address the same 4 points.

- Assess the region's existing waste management situation and identify whether it is compliant with legislation;
- Draft the waste management prognoses to 2025;
- Identify and lay out waste management programs for the short term until 2013 and for the long term until 2025 (complete with a financing means and implementation schedule);
- Estimate inhabitants' ability to pay for waste management services and identify the most pertinent technical solutions and existing and available financing channels.

4. Non legislative instruments

The following table illustrates non-legislative instruments in Latvia.

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year established and policy reference	Further detail, information source, related web-site
<i>Sustainability standards that cover CDW (World Green Building Council)</i>	Yes	2014	3 Latvian buildings won the Green Building Council award for construction performance. Furthermore, several buildings were acknowledged for their noteworthy construction designs. http://www.worldgbc.org/activities/news/europe-news/winners-latvia-sustainable-building-contest-announced/
<i>Extended producer responsibility scheme in operation?</i>	No	N/A	N/A

Description	Occurrence (Yes/No) Mandatory (Yes/No) Scope & exemptions	Year established	National or regional (specify if regional)	Details of Public sector and Industry enforcement/ involvement/ collaboration	Levels of performance e.g. tonnes recycled, % coverage	Further information/ web-site
Requirement for pre-demolition audits	No	N/A	N/A	N/A	N/A	N/A
Standards for recycled CDW	No, although interviewed stakeholders agree that this is crucial to drive the use of recycled CDW in construction works.	N/A	N/A	N/A	N/A	N/A
Selective demolition/ plan for large demolition sites/demolition standard	No	N/A	N/A	N/A	N/A	N/A
Other CDW planning requirements	No	N/A	N/A	N/A	N/A	N/A

CDW management guidance and tools

Several municipal waste guidance and tools have been developed, such as the project that ran from 2007-2013 on sustainable municipal waste management, the Reco Baltic 21 Tech Sustainable Waste Management in the Baltic Sea Region project. However, as there is not an emphasis on CDW, tools have not yet been developed for CDW.

Technical guidelines/standards/ Codes of Practice for use of CDW in construction application

Description of guidance/ tool	Scope	Year established/ produced	National or regional (specify if regional)	Public sector and/or Industry lead organisation	Levels of use (high/ medium/low) or specify	Further information/ web-site
"Guidelines on promotion of environmentally friendly construction".	Targeted at construction sector.	Unknown	National	the Ministry of Environmental Protection (MEPRD)	Unknown	http://www.varam.gov.lv/lat/darbibas_veidi/zalais_publicais_iepirkums/?doc=8011 & http://www.iub.gov.lv/node/63

Regarding hazardous waste, the Waste Management Law (Chapter IV section 12. 4 & 5) outlines specifications on how a waste owner/manager/producer shall deal with all hazardous waste, including CDW:

- Obtain a permit for the collection, transport, reloading, sorting or storage of hazardous waste or production/construction waste;
- Obtain a permit for the recovery or disposal of hazardous waste or production/construction waste in accordance with the regulatory enactments regarding pollution.

Furthermore individuals who store hazardous or production/construction waste for longer than three months must obtain an additional permit to store up to one year (if intended for landfill) or three years (if intended for recovery). These hazardous waste holders are under the precedent that they will track, pack, mark, and record all hazardous waste when relevant, especially during transportation.

As indicated by interviewed stakeholders, the most common form of hazardous waste are asbestos, as they are present in large undocumented quantities for older roofs built during the Soviet period. A stakeholder from the waste management sector¹⁸ indicated that waste management companies usually work in conjunction with specialised hazardous waste management companies that have the authority and necessary permits to properly pick up, treat and dispose of hazardous CDW in the proper fashion. Furthermore, this stakeholder indicated that the ground on which new construction projects are destined are often tested for oil, as illegally burying oil in industrial zones was practiced in undocumented levels during the Soviet era. When oil is identified, specialised hazardous waste companies with the proper permits clean the area accordingly.

5. CDW management performance – CDW data

In this section the performance of CDW management in Latvia is explored. This section gathers all available data and information about CDW generation and treatment, exports/imports, and treatment facilities.

5.1 CDW generation data

CDW generation and recovery official statistics (in tonnes)

Year	2007	2008	2009	2010 ¹⁹	2011	2012 ²⁰
Generated CDW (tonnes)	Under revision	Under revision	Under revision	153 000	Under revision	396 955
Collected CDW (tonnes)	Under revision	Under revision	Under revision	140 000	Under revision	Under revision
Recycled CDW (tonnes)	Under revision	Under revision	Under revision	140 000	Under revision	155 323
Backfilled CDW (tonnes)	Under revision	Under revision	Under revision	Under revision	Under revision	Under revision
Landfilled CDW (tonnes)	Under revision	Under revision	Under revision	13 000	Under revision	Under revision
Energy recovery if any (tonnes)	Under revision	Under revision	Under revision	Under revision	Under revision	Under revision

Latvia has historically experienced data reporting issues. The most recent data can be found in 2012 EUROSTAT data, which may or may not be comparable with the data indicated in the 2010 report from the Latvian University of Agriculture: Faculty of Rural Engineers, Department of Architecture and Construction. The Latvian Environmental, Geological and Meteorological Centre have entered in discussions with EUROSTAT in mid-June in light of potentially adjusting figures for validity.

¹⁸ Interview with Guntars Levics, Director, Member of Board – VP Grupa Waste Management. 20/04/2015.

¹⁹ Gusta, Sandra, and Gints Skenders. "CONSTRUCTION WASTE MANAGEMENT PROCESS IN LATVIA: PROBLEMS AND POSSIBLE SOLUTIONS." *4th International Conference CIVIL ENGINEERING '13 Proceedings Part I* (n.d.): n. Latvia University of Agriculture, Faculty of Rural Engineers, Department of Architecture and Construction. Web. http://lufb.ltu.lv/conference/Civil_engineering/2013/part1/Latvia_CivilEngineering2013Vol4PartI_217-224.pdf.

²⁰ EUROSTAT 2012.

5.2 CDW treatment data

CDW treatment and recovery official statistics (in tonnes)

Year	2007	2008	2009	2010 ²¹	2011	2012 ²²
Collected CDW (tonnes)	Under revision	Under revision	Under revision	140 000	Under revision	Under revision
Recovered (tonnes)	Under revision	Under revision	Under revision	140 000	Under revision	155 323
Backfilled CDW (tonnes)	Under revision	Under revision	Under revision	Under revision	Under revision	Under revision

Waste treatment data faces similar inconsistencies with validity and reporting issues on the regional level. Waste treatment data, like waste generation data is undergoing review by EUROSTAT in conjunction with the Latvian Environmental, Geological and Meteorological Centre.

Within the Waste Management law, it outlines the responsibilities of waste owners in regards to the storage of production waste, however no hard data has been found on the frequency of (temporary) storage and on the quantities of locations. An interviewed stakeholder within the waste management sector indicated that their waste management projects are commissioned on a case-to-case basis, although waste quantities are usually picked up directly on site, without an intermediary storage facility. In the perspective of waste management companies reporting via ELoW flows via surveys on the regional level, this particular stakeholder indicated that it is a difficult process to take on for their organisation, as waste flows are not always easy to classify according to ELoW category and they sometimes have issues with determining the source of waste. Without support from regional governments, reporting is considered as a challenging task to take on. This stakeholder shared that more involvement on the regional government's side during the reporting period could be helpful to ensure its validity, as opposed to its hands-off approach via the online survey tool.

According to a stakeholder, who manages a municipal and CDW treatment facility in Riga, CDW pre-treatment in Latvia is mostly done via manual and mechanical sorting. As indicated above, traceability of CDW is a forefront issue in Latvia, which indeed has been identified as having an impact on declared ELoW flows. It was indicated that this inability to trace waste flows stems from the fact that contamination levels are high, and because of the lack of selective demolition requirements.

This stakeholder's treatment facility takes on an estimated 20 000 tonnes of CDW per year, of which about 60% is recovered or recycled. While metals are the easiest to recycle in a closed loop manner, bricks, glass and concrete is usually destined to backfill, if not landfill (depending on quality). Wood is almost exclusively used for incineration purposes as Latvia has many heating pumps that use wood for fuel. Waste management companies usually do not take on hazardous waste recycling; partnerships with these specialised companies are usually established.

5.3 CDW exports/imports data

In principle, Latvia exports little to no CDW (hazardous or non-hazardous). However, the Waste Management Law (Section 42.5) outlines various provisions for dealing with trans-boundary movements of waste (imports/exports), such as (non-exhaustive list)²³:

- Prohibiting the entry of waste for disposal (landfill), incineration, and for its long-term storage;
- Allowing the entry of waste for recovery or incineration for recovery purposes;
- Indication that regions themselves can decide whether or not to prohibit the entry of waste for recovery;
- Requiring the waste manager who brings imported waste into the country to provide necessary documentation/reports on the waste qualities and characteristics from the previous year every year

²¹ Gusta, Sandra, and Gints Skenders. "CONSTRUCTION WASTE MANAGEMENT PROCESS IN LATVIA: PROBLEMS AND POSSIBLE SOLUTIONS." *4th International Conference CIVIL ENGINEERING`13 Proceedings Part I* (n.d.): n. Latvia University of Agriculture, Faculty of Rural Engineers, Department of Architecture and Construction. Web. http://lufb.ltu.lv/conference/Civil_engineering/2013/part1/Latvia_CivilEngineering2013Vol4Part_217-224.pdf.

²² EUROSTAT 2012.

²³ Waste Management Law (Section 42.5) 3 April 2014.

in March, in accordance with the provisions regarding reporting environmental protection state statistics (to the Latvian Environmental, Geological and Meteorological Centre);

- Authorising nationally-generated waste to be exported to other countries (in compliance with the Basel Convention of 22 March 1989 on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal and Regulation No 1013/2006) *only if* the preparation for this nationally-generated waste is not possible to reuse, recover or dispose of in Latvia due to economical or technical reasons.

According to the Latvian Environmental, Geological and Meteorological Centre, in practice, Latvia imports CDW from their Baltic Member State neighbours, in particular Lithuania. Exact figures are not available as the data is undergoing internal review by the Latvian Environmental, Geological and Meteorological Centre. Regardless, the interviewed stakeholder from this centre indicated that the majority of imported CDW consists of metal (steel, aluminium) which are for the most part are of good enough quality for recovery or recycling. They also import CDW for road works (for the creation of asphalt). However, reported quantities have experienced high fluctuations, with nearly **100 000 tonnes of imported CDW in 2012** while only **5 000 imported tonnes were recorded in 2013**²⁴. The Latvian Environmental, Geological and Meteorological Centre indicated that while fluctuations from year to year are normal, based on their material needs for construction works, significant drops like the one experienced between 2012-2013 may also be due to classification and reporting issues.

5.4 CDW treatment facilities data

For many years, Latvia had hundreds of unregulated landfills and dumps with little to no monitoring of waste flows. Thanks to the EU Cohesion fund and various national grants between the years of 2007-2013, targeted measures were taken to tackle the issue—the result was the creation of 11 regulated landfills for non-hazardous waste and 2 for hazardous waste which accept inert/C&D waste for a slightly higher cost along with the closure of more than 500 dumpsites (many from the 1990's)²⁵. Regulated landfills, and furthermore the created sorting sites have an annual capacity of 40 thousand to 1 million tonnes per year. Data reported on landfill tonnages is that of which is regulated and documented at these authorised landfills.

While municipal treatment facilities exist, it is not clear whether these facilities also take on CDW. Without specific information on CDW treatment facilities, it is not possible to further develop this section.

Despite these measures, it is evident that illegal dumping sites exist within this country, as there are ongoing investigations on the regional level that were stimulated in response to EU funding between the years of 2007-2013²⁶. Furthermore, unauthorised landfills most likely exist in small quantities, according to interviewed stakeholders. Regardless, procedures set out to carry out investigations have slowed down since 2007 due to a lack of legal basis, national/regional resources, and funding to take action on these dumping sites. For the moment, it is not foreseen to open additional landfill sites, however existing landfills could be extended. Although these landfills currently are able to absorb nationally-produced CDW, it was indicated by a stakeholder in the waste management sector that if measures are not taken to better manage CDW and incentive recycling, Latvia will quickly encounter landfill capacity issues despite plans to extend landfills²⁷.

The Waste Management Law states that any waste that is not recovered is subject to proper disposal in an authorised landfill or an alternative disposal route (with the possession of a permit issued in compliance with regulatory enactments regarding pollution, and taking into account the State waste management and regional plans).

The landfill tax and cost for MSW is EUR 9.96/tonne, with an average net cost of EUR 30/tonne and a total cost of EUR 40/tonne. There is no incineration capacity for MSW²⁸ however there is a landfill ban for sludge,

²⁴ Interview with Intar Scakars, Latvian Environmental, Geological and Meteorological Centre. 1/06/2015.

²⁵ Eurostat, 2012. "Number and capacity of recovery and disposal facilities by NUTS 2 regions [env_wasfac]"

²⁶ This was carried out through to the EU framework of subactivities of Amendment of the Operational Program 'Infrastructure and Services': subactivity 3.5.1.2.1 Remediation of with legislation non-complying dumpsites.

²⁷ Interview with Guntars Levics, Director, Member of Board – VP Grupa Waste Management. 20/04/2015.

²⁸ http://susproc.jrc.ec.europa.eu/activities/waste/documents/IPTS_EoW_Biodegradable_waste_3rd_working_document_wo_line_nr.pdf

bio waste (50%), building and construction waste (75%)²⁹. CDW is disposed of at these MSW landfills for an addition EUR 2-5 more than the cost of municipal waste³⁰.

5.5 Future projections of CDW generation and treatment

Future projections of CDW generation and treatment do not exist on the national level, in large part because the existent data is not reliable in its current stage to draw up projections. Regardless, the Latvian Environmental, Geological and Meteorological Centre would be the capable body to make these projections in the future upon publication of reliable data. Sound advancement for the bettering of the current situation for CDW management is highly reliant on the participation of public (government) and private (construction companies, waste management companies, etc.) actors.

5.6 Methodology for CDW statistics

C&D waste operators are obliged to report on the quantities of C&D waste produced throughout the nation to their particular regional government via an online survey tool. In practice, annual online surveys are distributed by each regional body to all relevant waste actors. These surveys consist of filling in data per ELoW for their particular activity. After these waste actors enter in and submit the relevant data to the online database, it is sent to each regional body for approval. After approval, they are transferred to the Latvian Environmental, Geological and Meteorological Centre for synthesis and compilation for EUROSTAT submission. Although this national body indeed collects waste flow data via the ELoW and reports them to EUROSTAT with the proper codes, issues stem from the initial reporting on the regional level. According to an interviewed stakeholder from this national body, monitoring has proven to be challenging; it is unclear to them if waste actors are reporting these waste flows accordingly. On the ground, a stakeholder from the waste management sector that has used this online survey tool has experienced reporting issues, as it is not always clear to them how to categorise their various waste streams within the ELoW. They believe that this administrative burden could be facilitated (and validity could be improved) with more involvement from the regional governments during reporting periods. Due to the lack of cohesion amongst relevant parties which contribute to data unreliability and unavailability, EUROSTAT and the Latvian Environmental, Geological and Meteorological Centre have entered into discussions in June 2015 to clarify statistical outliers and inconsistencies in the reported data in light of potentially adjusting figures for validity.

Despite these apparent issues with CDW reporting, Latvia does not encounter these issues with municipal waste reporting, which is done on an annual basis, and furthermore publicly available year-round.³¹ This could be a potential model to ameliorate CDW reporting and transparency.

6. C&D waste management in practice

In this section the CDW management “on ground” in Latvia is explored.

²⁹ Moora, Harri. NATIONAL WASTE MANAGEMENT REVIEW: Latvia (RECO Baltic 21 Tech Project) (2012): n. Web. http://www.recobaltic21.net/downloads/Public/Project%20results/wmreview_est_lat_lit_pl.pdf.

³⁰ Interview with Guntars Levics, Director, Member of Board – VP Grupa Waste Management. 20/04/2015.

³¹ Municipal and Hazardous Waste: Data. Central Statistical Bureau of Latvia, n.d. Web. <http://www.csb.gov.lv/en/statistikas-temas/metodologija/municipal-and-hazardous-waste-37395.html>.

6.1 CDW management initiatives

Description of initiative	Scope	Year established	National, regional, local (specify which local area/region)	Public sector and/or Industry lead organisation	Levels of performance e.g. tonnes recycled	Further information/ web-site
Illegal waste dumping hotline	Individuals can call in on the official Environmental Inspectorate phone number to report illegal dumping	Unknown	National	Environmental Inspectorate	Unknown level of success	http://ec.europa.eu/environment/waste/framework/pdf/LV%20factsheet_FINAL.pdf

6.2 Stakeholders' engagement

This subsection was addressed to all contacted parties during the stakeholder consultation of the screening phase in order to incorporate their views, insights and hands-on experience on CDW management initiatives already in place in Latvia. The table below aims to gather information on the existing initiatives – identified above – or other initiatives identified by the stakeholders themselves, together with a preliminary assessment of the enabling factors/obstacles, advantages/drawbacks, and other relevant comments.

Description of initiative	Scope, year established, actors involved	Advantages/ Enabling factors	Disadvantages/ Obstacles	Further information/ web-site
EU-funding for waste management projects	Former financing period between 2007 and 2012. Current budget starting in 2015 is around 50 million	Latvia's municipal waste management sector has greatly advanced during the years of 2007-2012 thanks to funding. Regulated landfills were established and about 500 unregulated dumps were closed. Furthermore sorting centres and treatment centres opened.	CDW management is not a largely discussed topic on the national level. According to a waste management operator, possibly because of low awareness, waste actors that apply for funding have not necessarily targeted CDW within their proposals. More support and communication on the governmental level on CDW may help incentivise waste actors to request funding for CDW projects.	Interview with Guntars Levics, Director, Member of Board – VP Grupa Waste Management. 20/04/2015.

Communication between stakeholders in construction material production/building designers with CDW treatment centres/infrastructure demolishers is rather poor and communication platforms to help incentives collaboration do not exist.

6.3 Waste legislation enforcement

Municipal police are in charge of monitoring and enforcing waste regulation requirements in Latvia. As it is outlined in the Waste Management Law, the owner of production/construction waste is the legal body that must take responsibility to:

- Separate production waste from other types of waste;
- Ensure that production waste is not mixed in with hazardous waste;
- Store production waste in a way that does not threaten environment;
- Properly dispose of waste in the relevant landfill site (responsibility can be contracted to a waste manager/waste management company);
- Cover costs for the collection, transport reloading, storage, and recovery of production waste;

- Obtain the necessary permits for all waste activity.

Whenever violations are made to the above points, outlined in the Waste Management Law, municipal police are authorised to issue sanctions to owners of production waste.

A common issue that arises when issuing sanctions is to whom to issue the sanction³². Owners of construction waste could be:

- The individual within the territory in which the construction project takes place;
- The builder/construction company performing the construction works;
- The contracted waste management company;
- The customer who contracted the construction works or waste management.

In theory, any of the above actors involved in a construction works could be fined, without the option to apply discounts in the case that multiple parties are involved. In practice, municipal police indeed exercise their right to apply sanctions to any and all legal bodies responsible of C&D waste, even in the case of minor violations³³.

In practice, although enforcement is in place, according to interviewed stakeholders, it is impossible to determine whether all infringements are accounted for and sanctioned.

6.4 Drivers / barriers to increase CDW recycling

As of 2008, the recycling rate for Latvia was reported to be between 40% and 60%. However, as statistics validity is a current forefront issue, according to the Latvian Environmental, Geological and Meteorological Centre, this declared recycling rate may not be viable and therefore makes it difficult to calculate the current recycling rate.

³² Gusta, Sandra, and Gints Skenders. "CONSTRUCTION WASTE MANAGEMENT PROCESS IN LATVIA: PROBLEMS AND POSSIBLE SOLUTIONS." *4th International Conference CIVIL ENGINEERING '13 Proceedings Part I* (n.d.): n. Latvia University of Agriculture, Faculty of Rural Engineers, Department of Architecture and Construction. Web. http://lufb.ltu.lv/conference/Civil_engineering/2013/part/Latvia_CivilEngineering2013Vol4PartI_217-224.pdf.

³³ Gusta, Sandra, and Gints Skenders. "CONSTRUCTION WASTE MANAGEMENT PROCESS IN LATVIA: PROBLEMS AND POSSIBLE SOLUTIONS." *4th International Conference CIVIL ENGINEERING '13 Proceedings Part I* (n.d.): n. Latvia University of Agriculture, Faculty of Rural Engineers, Department of Architecture and Construction. Web. http://lufb.ltu.lv/conference/Civil_engineering/2013/part/Latvia_CivilEngineering2013Vol4PartI_217-224.pdf.

Factor / characteristic / element in CDW recycling chain	Drivers	Barriers
Waste management hierarchy	There is an organised hierarchy that could potentially facilitate waste management (i.e. MoE & regional authorities)	These regional authorities have not been identified as being great drivers in the implementation of recycling targets.
Financing	EU Funding made a great impact on Latvia's waste disposal situation, thanks to the closure of hundreds of unregulated landfills and the opening of 11 authorised landfills. This funding has helped legitimise waste removal in Latvia.	Currently no EU-financed projects have focused on C&D waste. The majority of this funding has gone to the development of landfills, which have been more focused on controlling municipal waste flows, although these landfills also accept CDW.
Legislation	Recycling targets	Although the recycling targets are outlined in national and regional WMP, the relatively passive way that these targets are laid out do not provide much accountability. Furthermore, the top 5 recycling targets in the national WMP do not include CWM (only mentioned as another "priority" target, and the regional WMP fail to address CWM in its entirety.
Infrastructure (CDW treatment and sorting centres)	While these centres exist for municipal waste, it is not clear if they exist for CDW.	Regardless of if CDW is absorbed by municipal sorting and treatment centres, without specialised CDW sorting and treating centres, this runs the risk of not being properly addressed.

7. CDW sector characterisation

In this section some specific characteristics of the CDW management sector in Latvia are explored.

7.1 Sector characteristics

Permits are required to carry out most construction, demolition, and renovation works (with the exclusion of some small-scale projects).

Waste management operations are mostly covered by Latvia's 5-10 big players, which have significant regional spread, along with several local companies for reinforcement. 4 out of these companies (Veolia vides serviss Ltd., L&T, Ltd., Eko Riga Ltd, and Ziemeļvidzemes atkritumu apsaimniekosanas organizacija (ZAAO), Ltd.) claim to collect construction waste although others may exist.

If their waste management company is able to take on the particular waste flow, for example treating metal, it carries out treatment from start to finish and sells the prepared material to companies to reincorporate the material in either closed or open loop recycling. In the instance that they cannot properly recycle a certain waste flow (due to infrastructural or resource constraints), they act as the intermediary to smaller treatment facilities, specialised in particular waste flows, such as plastic, glass, etc. In this scenario, the smaller player would pay a fee per ton of the requested waste flow (price is mainly determined by the quality of the waste flow).

Any waste flows that are too contaminated to either be sold to a specialised company or be treated by a waste management company are landfilled. According to this stakeholder, although landfilling is not their objective, if recycling surpassed the breakeven point, they will take the material to landfill in order to be profitable.

Incentives to recycling, such as Pay-As-You-Go schemes do not exist in Latvia, and furthermore the market for recycled aggregates is not a forefront topic. Generally speaking, construction and renovation projects are carried out using natural (virgin) materials as they are less expensive and available in large quantities. The only exception to this would be the metal waste flow, which is sometimes used in construction works. As CDW is perceived as a waste, and not as a viable product for construction works, relevant actors do not see interest in pursuing its use. Furthermore, the market for aggregates is significantly under-stimulated.

According to the interviewed stakeholders, without the proper governmental support, private actors such as waste management companies and construction companies cannot be drivers towards effective recycling and recovery of CDW. At this stage, although strides have been made for infrastructural change, work still needs to be done.

7.2 Exports / imports of CDW

In principle, Latvia exports little to no CDW (hazardous or non-hazardous), meaning that their national capacity for taking on CDW treatment is sufficient. In general terms, this country has the knowledge and technology to carry out successful CDW treatment, however the lack of an organised collection system and high levels of contamination pose issues.

As mentioned above, imports originate from Latvia's Baltic Member States, as distances are short and relations are relatively good with these neighbouring countries. Mostly metals are imported (to compensate for the low levels of available metals in Latvia), which are used for recycling and recovery operations. CDW has also been known to be imported for the creation of asphalt. As result of minimal information on imported/exported CDW, it is difficult to draw up conclusions about these operations, in terms of their environmental soundness.

7.3 CDW as landfill cover

CDW has been reported as being used as landfill cover in unknown amounts, during the 2007-2012 period in which hundreds of unauthorised landfills were covered and closed throughout the nation, in preparation of the opening of the 11 authorised and regulated landfills per region (see section on "CDW treatment facilities data" for more information). Information on requirements to use CDW as landfill cover are not available. National and imported CDW, is furthermore documented as being used for roadwork construction projects, especially for the use of asphalt. In practice, CDW, which is generally regarded as a waste and not as a product, is not of good enough quality to be used for building constructions.

7.4 Market conditions / costs and benefits

There are currently no types of financial incentives to recycle CDW although the market conditions are very unfavourable as the main efforts and EU/national funding has been drawn towards the creation of sanitary facilities and sorting centres to take on municipal waste³⁴.

It is difficult for the Latvian government, and furthermore for private actors to place an emphasis on gearing efforts towards ameliorating the market conditions for recycled CDW, as this country barely laid the foundation for proper waste removal access in 2012 (i.e. EU funding for authorised landfills). For this reason, it is challenging for Latvia to project itself to another waste sector, such as CDW, because of lack of resources, financing, and enforcement. Latvia has instead focused mainly on developing functional municipal waste management, as in practice, it is a more pressing issue to address, and on maintaining the EU-financed landfills operational.

Therefore, drivers towards better CDW management and market conditions for recycled CDW such as: End-of-Waste criteria, EPDs, GPP, etc. is either underdeveloped and poorly communicated to relevant actors, or inexistent.

7.5 Recycled materials from CDW

Use of recycled materials in construction and renovation projects is practiced in low, undocumented, levels on a voluntary basis. An interviewed stakeholder from a waste management company in Riga indicated that the most commonly used recycled material from CDW are metals, because of their relatively easy reintegration via closed loop recycling. Bricks, glass and concrete is usually backfilled or landfilled (depending on quality), while wood is used for recovery via incineration.

³⁴ Moora, Harri. NATIONAL WASTE MANAGEMENT REVIEW: Latvia (RECO Baltic 21 Tech Project) (2012): n. Web. http://www.recobaltic21.net/downloads/Public/Project%20results/wmreview_est_lat_lit_pl.pdf.

7.6 Construction sector make up

Latvia's high representation of Small and Medium Enterprises (SMEs) which account for 79% of total national employment were much harder hit during the economic crisis than Large Enterprises (LE) because of their vulnerability to the market. As the construction sector is one out of the two largest employment sectors in Latvia, the effects were felt immediately; the **construction sector** experienced a decrease of value added of 43% for LEs and 60% for SMEs between 2008 and 2012 and a volume decreased of construction works by 55% between 2008 and 2009. This decline continued until 2011, following a gradual recovery that is still showing positive figures to date. The Latvian capital, Riga, accounts for about half of all national economic activity in which construction works and three other activity sectors account for more than 60% of its value added.³⁵ Statistics on the exact number of concerned individuals within the C&D sector are not available.

As indicated in the European Commission Enterprise and Industry Factsheet on Latvia³⁶, a new law was expected to come into force in 2014 that would minimise the waiting time to obtain a construction permit (from 205 to 69 days). Interviewed stakeholders did not have further information about how and when this law was implemented.

In 2008, the Ministry of Environmental Protection (MEPRD) developed "Guidelines on the promotion of green procurement in state and municipal institutions", geared towards six groups of goods and services outside the scope of CDW, along with "Guidelines on promotion of environmentally friendly construction"³⁷. Regardless these documents are available on the Ministry's website and serve as a support document to learn about recommendations and environmentally friendly construction.

Within the latter document, the following topics are addressed³⁸:

- Design, construction, operation of buildings and demolition phases;
- Outline of possible environmental criteria that could be applied, relating to: energy consumption, renewable energy resources, construction and materials used in products, waste management and water management, as well as other aspects related to the construction of the environmental impact, architectural experience, and monitoring. Despite this guidance document, it is unclear in what frequency it is used and whether the guidelines are used and applied.

³⁵ "SBA Fact Sheet 2013 Latvia." (2013): n. European Commission: Enterprise and Industry. Web. http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/countries-sheets/2013/latvia_en.pdf.

³⁶ "Country Factsheet Latvia: Support to Member States in Improving Waste Management Based on Assessment of Member States' Performance." 070307/2011/606502/SER/C2. N.p., n.d. Web. http://ec.europa.eu/environment/waste/framework/pdf/LV%20factsheet_FINAL.pdf.

³⁷ "Zaļais Publiskais Iepirkums." N.p., n.d. Web. http://www.varam.gov.lv/lat/darbibas_veidi/zalais_publiskais_iepirkums/?doc=8011.

³⁸ "Zaļais Iepirkums Latvijā | LR Iepirkumu Uzraudzības Birojs." *Zaļais Iepirkums Latvijā | LR Iepirkumu Uzraudzības Birojs*. N.p., n.d. Web. 09 June 2015. <http://www.iub.gov.lv/node/63>.

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Other consulted stakeholders

The following stakeholders have been contacted but did not participate:

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