



Netherlands Enterprise Agency

# **Holland Circular Hotspot: opportunities in seven Central Eastern European countries Poland**

*Commissioned by the ministry of Infrastructure and the Environment*





# Holland Circular Hotspot: opportunities in Seven Central Eastern European countries

Poland

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Ministry of Infrastructure and the  
Environment



Netherlands Enterprise Agency

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Updated and reviewed by RVO & Dutch Embassy Warsaw in June 2017





**Disclaimer**

This report contains information gathered in the process of organising trade missions on waste management and circular economy matters in 2016. Although it has been gathered with care, it is not and cannot be a full account of the state of development in these areas in the selected country. Rather than discarding the information collected, it has been deemed useful to bundle it, to serve as a first orientation for organisations considering doing business in central and eastern Europe.



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## Introduction

### Holland Circular Hotspot ambitions

We are just starting our journey towards a circular economy (CE): a transition in which the use and reuse of resources takes on central importance; a transition that makes us look differently at the design, manufacturing and usage of products. It is an exciting transition full of welfare enhancing possibilities, and the world looks to The Netherlands for leadership.

In the first half of 2016, while the Dutch held the Presidency of the European Union, The Netherlands presented itself as a “circular hotspot” and “living lab” to the world; Amsterdam was voted European Capital of Innovation. Our government-wide ambition is to have a full CE in The Netherlands by 2050. Economic growth will rise in parallel with sustainable gains. The Netherlands, with its dense population and water management challenges, has historically been built on a foundation of collaboration and innovation. As such, the country has prided itself on smart resource management. Nowadays, The Netherlands is a global water management hub, the second highest dairy food exporter in the world – and among the world’s leaders in waste management.

The most important lesson Dutch organisations have learned, to date, is that a CE is first and foremost an economy where working together is the key to success. Businesses, governments, municipalities, universities, research institutes and NGOs all need to find ways to cooperate more intensely – with more focus – than they have ever done before.

With Holland Circular Hotspot<sup>1</sup> (HCH) we combine forces. We demonstrate and extend our leading CE position internationally, to inspire others to create their own Hotspots, accelerated by Dutch ingenuity.

HCH focuses on companies and knowledge institutions in the waste and recycling sector that have an interest in expanding internationally (“often the first step in a circular economy”), as well as those that focus on the CE transition by engaging with other parts of the value-chain.

HCH’s role will be to stimulate international ambition and to match it with Dutch knowledge and expertise. The Hotspot will promote the visibility of the CE transition, and Dutch efforts to accelerate it. We combine and extend existing networks and platforms for CE, waste management and recycling, with a particular drive to collaboratively explore new international opportunities.

Participation in HCH is open to businesses, educational institutions, NGOs and governments, provided they contribute to the further development and operation of the platform.

Initiating parties are part of the so-called golden triangle: companies, knowledge institutions and government. Participants include ENVAQUA, representatives of the associations of the waste and recycling sector (VA, BRBS, NVRD), VNO-NCW, Netherlands Circular Hotspot, Circle Economy, INSID, Delta Development Group, MVO Netherlands – as well as representatives of knowledge institutes, provinces, municipalities, the governmental agencies RWS and RVO, and representatives of the Ministries Infrastructure and the Environment, Economic Affairs and Foreign Affairs.

For more information on HCH contact Herman Bavinck or Tjitske Ijpma:

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<sup>1</sup> <https://www.rijksoverheid.nl/actueel/nieuws/2016/11/09/bedrijven-gaan-grens-over-met-innovaties-recycle-economie>



## Specific missions and objectives

HCH took its first concrete action in November 2016 – a fact-finding mission to Bulgaria and Romania. These countries have the furthest to travel to comply with European standards. But the challenge is met with ambition: in the coming years, with the support of European funds, they will pursue swift progress – above all, in waste management infrastructure. There is great interest in Dutch technology and expertise, offering mutual business opportunities. More broadly, the ambition in the Central and Eastern European region offers opportunities in fields where the circular economy transition is most urgent: agro-food, bio-based economy, logistics, energy transition and, indeed, smart & sustainable cities. Bulgaria wants to make CE a priority issue during its EU presidency in 2018, as does Romania in 2019. HCH will seek to leverage this enthusiasm from the beginning.

The delegation travelled to the region between November 8 and 11, 2016. In the company of, among others, Bart van Bolhuis, International Director for the Ministry of Infrastructure and the Environment, it explored opportunities to do business – as well as for Government2Government (“G2G”) and Knowledge2Knowledge (“K2K”) collaboration.

Follow-up actions and missions – both inbound and outbound – are being organised for the year 2017. Building on opportunities and learnings from Bulgaria and Romania, the net will be cast wider, to include Poland, Hungary, Slovakia, Croatia and Slovenia.



## Eastern Europe: overview

### Waste management

Central and Eastern European countries (so-called “CEEs”) are at different stages in the development of their waste management infrastructure; broadly speaking, their journeys are just beginning. Some start more or less from scratch. As Member States (MS) they are obliged to adopt the CE Package; implementation is the challenge, particularly given – in some cases – resistance from local stakeholders.

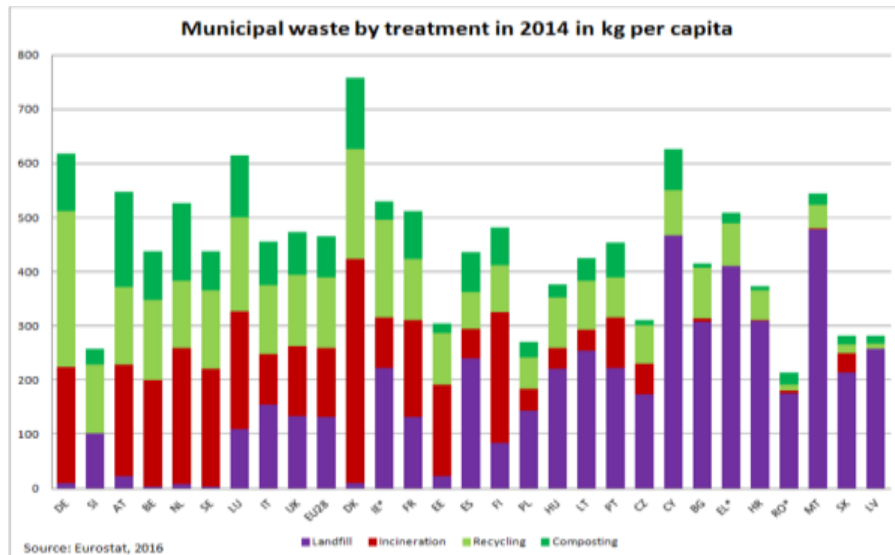


Figure 1: MSW treatment in Europe, 2014

There is a perception that CEEs had little involvement in policies created by Brussels – and that the corresponding waste management legislation betrayed too heavy a focus on top performing MS. A counter-argument holds that CEE governments have not been as active as they might have, in making waste management a top priority – and channelling resources and attention accordingly. Whatever perspective, eastern European actors throughout the value chain (including public sector departments) will really have to make an effort, if they are to hit the targets their governments have set and release the benefits of a CE. European structural funds offer financing support, but this can only be unlocked once certain advancements have been achieved, and needs to be complemented by technology and expertise.

While the state of waste management is in general below EU averages, most CEEs have made a start in catching up with EU waste legislation. Countries like Romania are an exception, where landfill diversion measures still haven't made it past parliament (status December 2016). Enforcement typically lags behind. Occasionally end-of-waste declarations (“technological construction material”) are made, unchallenged, for large quantities of waste landfilled – to avoid paying charges to the local community or a landfill fee.

Problems have also arisen due to less adequate planning and project discipline.

In order to be successful, efforts to develop CEE waste management infrastructure will need to have regard to the economic disparities that exist, both between the CEEs and within them. There is a natural Government2Government angle in cases like this, but also a role for knowledge institutions and companies. How can fees for MSW services that aim to divert from landfilling, for example, be designed to fit with average monthly incomes? In meeting challenges like this, the Dutch have experience and knowledge to share and good stories to tell.

Refuse Derived Fuel (RDF) imports are a pressing issue in some countries. RDF is exported from MS with high landfill fees (or bans) to CEEs, for whom import is cheaper than local production. Little or no



domestic capacity exists because it's too difficult to compete with low landfill prices. Of the RDF that is produced, much is too poor quality to be used by cement manufacturers. New strategies are needed.<sup>2</sup>

Landfill fees are another problematic issue. Municipalities – often co-owners that charge by the ton – oppose them, as raising fees is unpopular with local constituencies. Resistance to change is also felt from multi-national private waste management companies, the first investors in CEEs after the collapse of the Soviet Union.<sup>3</sup> These companies tend to operate large numbers of landfills, and hold a tight grip on local waste markets.

## Other circular economy dimensions

So far, a lot of attention has been going to waste management. This is a very good and essential first step towards a transition towards the Circular Economy but only part of the story. Action will be needed in the whole value chain, covering material sourcing, the production, consumption and waste phase, as illustrated in the Dutch transition from a linear economy to an economy with recycling to a circular economy.



Figure 2: Transition from a Linear to a Circular Economy

Broader CE challenges are a magnified reflection of the waste management challenges above. With the weight of the EU behind it, there is official enthusiasm for the CE Package<sup>4</sup> and glimpses of private sector initiative. However, CEE countries lack not only the infrastructure but the awareness and technology learning that their western counterparts have built up over time. Catching up is a tall order.

Governments are very interested in expertise and experience from other countries. These governments are open to creating open G2G, K2K and B2B channels with international expertise. G2G actions typically create the conditions for future business opportunities.

EU presidencies (Slovakia 2016; Bulgaria 2018; Romania 2019) are acting as a helpful catalyst, turning lofty ambitions into concrete actions.

Most importantly, funding is available for the CEE region to accelerate its CE transition. Funding programmes reflect a broad range of priorities, going beyond basic waste management – although that is a significant priority – towards topics like resource efficiency, renewable energy, wastewater management

<sup>2</sup> Notably, in Slovenia, the opposite is the case. Its largest waste processing facility produces RDF with similar calorific value to brown coal. Currently, given aversion to incineration, this is not burned. There is an opportunity to export it – to The Netherlands.

<sup>3</sup> Peter Hodecek & Christian Abl, "Dynamic Potential of a Circular Economy," Presentation to FEAD Biennial Conference, London, 23 June 2015, slide 15

<sup>4</sup> [http://europa.eu/rapid/press-release\\_IP-15-6203\\_en.htm](http://europa.eu/rapid/press-release_IP-15-6203_en.htm)  
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and sustainable building. Some of these topics are steered by climate actions as well, or linked with UN SDG (Sustainable Development Goals). Combining CE actions with ongoing efforts in these fields can be effective. Governments will be keen to leverage the learnings of others to ensure that those investments have maximum impact.

## Most interesting opportunities

Against this backdrop, there are evident opportunities for Dutch businesses, as well as for G2G and K2K exchanges. Some of the most fertile topics have been highlighted in the report, in the country-specific profiles. These came sharper into focus during the first trade mission – to Romania and Bulgaria – and no doubt will continue to emerge during upcoming missions and follow-up interactions.

At a high level, the most interesting opportunities appear to fall in these areas:

- **Bio-energy** (Romania, Bulgaria, Slovakia, Hungary, Poland, Slovenia)
- **MSW separate collection and treatment** (Romania, Bulgaria, Slovakia, Hungary, Poland)
- **Recycling and waste prevention** (Romania, Hungary)
- **Soil and groundwater remediation** (Romania, Hungary, Slovenia, Croatia)
- **Water treatment and re-use** (Poland)
- **Extended Producer Responsibility** (Romania, Bulgaria, Slovakia)
- **RDF production** (Romania, Slovakia, Poland)
- **Green public transport** (Slovenia)
- A wild card can be given to **remanufacturing** combining a manufacturing tradition, skills and low wages with a central European position and the additional advantage that it is not regulatory driven

Other topics like water management and agro-food solutions are already being explored.

Romania and Bulgaria to take the biggest steps, starting with the design, implementation and operation of integrated waste management systems. Romania's capital Bucharest is starting to develop, but Romania has a long way to go in rolling this out across its 41 counties. Dutch government – national and local – has valuable expertise to share in waste management but also in relation to wider CE actions such as green public procurement (GPP) or eco-design.

## (Consultancy) opportunities according to the European Bank of Reconstruction and Development (EBRD)

The EBRD fosters transition to market economies in countries from Central and Eastern Europe to Central Asia and the Southern and Eastern Mediterranean region. On May 3, 2017 they organised a seminar in The Hague on merging opportunities for consultants in the CEE area amongst other aimed the transition to low-carbon and climate resilient economies.



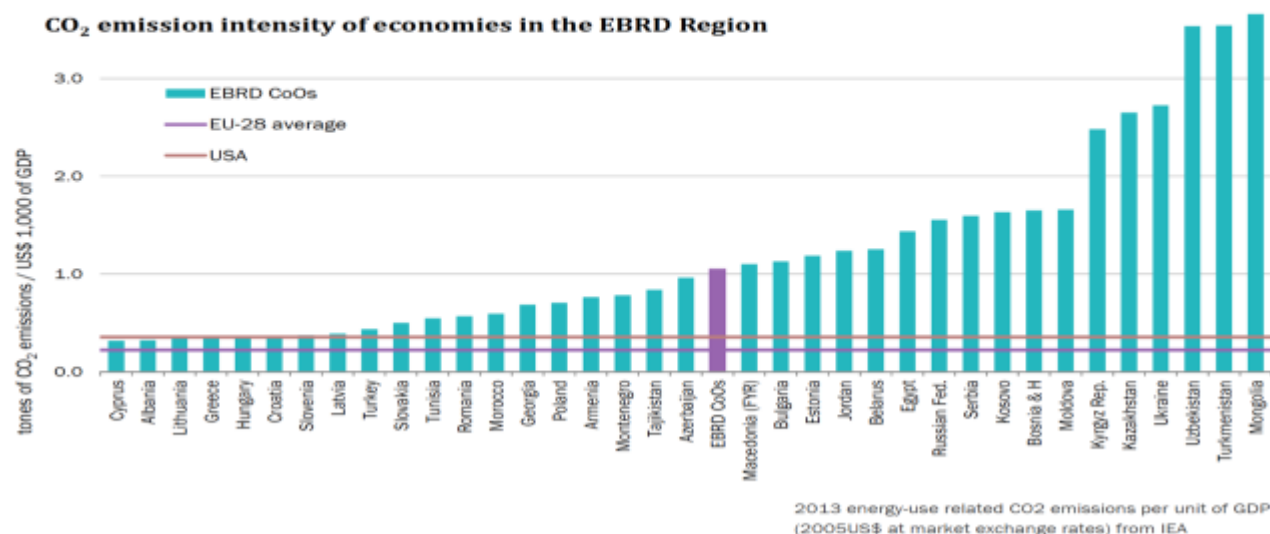


Figure 3: Carbon Intensity of Economies in the EBRD Region

## International context strengthening the case for a Circular Economy approach

The EBRD mentioned several factors why a green and circular economy transition is more than likely:

- COP21 Paris : universal and ambitious agreement to limit the increase in global average temperatures to +2°C; also, “to pursue efforts” to limit to 1.5°C
- The Sustainable Development Goals, adopted in 2015, provided increased focus on environmental sustainability
- G7 Summit Leader’s Declaration in June 2015: MDBs need to maximise their balance sheets in delivering climate finance and helping countries transition to low carbon economies

EBRD is at the forefront of efforts to channel resources from existing and emerging global climate finance funds to projects on the ground.

## EBRD transition context

The EBRD has a special mandate to foster transition to market economies – this implies that resources are used efficiently; EBRD focus is placed at the crossroad between sustainability and market development and private sector support. There is a legacy that big enterprises and utilities having developed that are not reflective of costs and environmental externalities. Several EBRD economies display some of the highest energy and carbon emissions intensity levels in the world. It is also imperative to increase energy security.

## EBRD focus areas since 2006

The focus of the EBRD since 2006 has been on the Sustainable Energy Initiative covering Energy Efficiency and Renewable Energy. In 2013, a focus on Sustainable Resources was added with a.o. water efficiency, material efficiency and adaptation to Climate Change. Since 2015 a transition to a green economy has come on top of the two earlier mentioned activities. The green Economy Initiative comprises on Environmental protection and Technology Transfer.



A green economy is a market economy where investments are made taking account of their environmental impact and with concern for the sustainable use of natural resources.

### **Examples of Consultancy Service needs**

Green economy projects, or project components, fall in the following areas:

- Energy efficiency
- Renewable energy
- Water efficiency
- Resilience to climate change
- Waste minimisation and materials efficiency
- Pollution control and environmental compliance

Examples of Consultancy Services in the EBRD Sector Municipal & Environmental Infrastructure

- Technical studies
- Market studies
- Feasibility study
- Technical, financial & environmental/social due diligence
- Environmental and Social Impact Assessments (ESIA)
- Lender's monitor/engineer
- Project implementation support
- Stakeholder participation programme
- Corporate, financial and operational performance improvement programmes
- Capacity building and training

Green economy projects, or project components under the scope of Green Economy Transition, falling in the following segments

- Water
- Wastewater
- District heating
- Solid waste
- Busses/trams
- Metro
- Ferries
- Parking
- Urban roads
- e-ticketing
- Traffic management
- Street lighting
- Tariffs
- Regulators

Examples of Consultancy Services in the EBRD Sector: Green Economy Transition

- Technical studies
- Market studies for new technologies
- Feasibility studies
- Technical, financial & environmental/social due diligence
- Energy audits
- Resource audits
- Project implementation support (e.g. advice to local banks on how to on-lend to local clients)
- Policy dialogue to address environmental market failures, strengthen the institutional or regulatory context
- Climate change action plans
- Tariff methodology advice
- Corporate policies
- Renewable energy

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- Resource efficiency (water, materials)
- EBRD sustainable energy & resource finance facilities (SEFFs)
- (Residential) buildings
- Industrial & corporate sector
- Technology transfer
- Energy Service Companies (ESCOs)
- Recycling

Examples of required non-transactional consultancy services or for EBRD's institutional needs

- Policy dialogue and reform in all sectors
- Legal reform (access to finance, corporate governance, public procurement, PPP etc.)
- Capital market development
- Environmental studies
- Gender & social assessments
- Capacity building / training
- Institution building
- Economic studies
- Political analysis
- Research
- Legal advice on investments (outside counsel)
- Evaluation
- IT design and implementation

## Existing support programmes

The Netherlands Enterprise Agency, [RVO](#), encourages entrepreneurs in sustainable, innovative and international business. It helps with grants, finding business partners, know-how and compliance with laws and regulations.

The aim is to improve opportunities for entrepreneurs and strengthen their position. The Agency works at the instigation of ministries and the EU. RVO is part of the Ministry of Economic Affairs.

RVO focuses on providing services to entrepreneurs. It aims to make it easier to do business using smart organisation and digital communication. The Agency works in The Netherlands and abroad with governments, knowledge centres, international organisations and countless other partners.

RVO organises international cooperation under the flag of G2G and K2K programmes.

The Ministry of Foreign Affairs will create favourable conditions for doing business with countries that are interesting for Dutch entrepreneurs. Some markets might be commercially interesting, but still not accessible enough. International cooperation can make a difference.

## Knowledge exchange

In G2G- and K2K projects exchange Dutch government organisations and research institutes exchange knowledge with their foreign counterparts. This creates a comprehensive network that supports the Dutch business community doing business internationally. G2G projects, especially, create the conditions that allow for future business, for example by cultivating a favourable regulatory environment.

## Sustainable economic development

The Ministry of Foreign Affairs develops projects that contribute to achieving sustainable economic development in various (developing) countries. Sustainable growth and economic independence start with the promotion of a good business climate. These are the conditions under which the local private sector in developing countries, as an engine of growth and employment, can function. The Netherlands



has a lot of knowledge on core issues such as environment, energy, food and water that are useful in these projects.

### Creating favourable conditions for doing business

The success of a Dutch business abroad depends on more than courage, a good network and a business plan. Some markets are commercially interesting, but still not accessible enough. This is something that can be enhanced by collaboration.

RVO organises and coordinates numerous G2G and K2K projects. The aim is to create favourable conditions for doing business with countries that are interesting for Dutch entrepreneurs. These projects facilitate exchange of Dutch knowledge – from government organisations and research institutes – with knowledge held by foreign counterparts. They work together to solve problems for business and an extensive network of Dutch knowledge institutions, businesses and governments.

### Starters in International Business ([www.rvo.nl/sib](http://www.rvo.nl/sib))

Coaching voucher are available for SME's with limited experience in international business that want to start to export. For a period of (on average) 4 months you and your coach can investigate opportunities and identify risks abroad.

### Mission vouchers

Mission Vouchers are available for participation on trade missions or exhibitions up to 50% of the costs with a maximum of € 1.500 (excluding VAT). The travel and staying costs will have to be paid individually.

### Knowledge vouchers

Do you want to establish or enhance your company's position on a foreign market, but you need fiscal or legal support to do so? A knowledge voucher will help you cover the cost of hiring an international lawyer or tax consultant.

### The business partner scan

The business partner scan involves drawing up a list of active contacts for a company for a specific country. A list of active contacts are provided and a mission employee conducts an introduction to the foreign parties on behalf of the Dutch entrepreneur.

### Subsidy for demonstration projects, feasibility studies and studies aimed at the preparation of investments (DHI) ([www.rvo.nl/dhi](http://www.rvo.nl/dhi))

The subsidy for demonstration projects, feasibility studies and studies aimed at the preparation of investments (DHI) is meant for entrepreneurs that want to carry out projects abroad, invest in a company or convince local counterparts of their technology.

With this instrument the Ministry of Foreign Affairs hopes that more Dutch companies will be successful in doing business in upcoming markets and developing countries.

This "DHI" arrangement consists of a tender programme with tender rounds on average lasting 6 weeks. Entrepreneurs can apply only during a tender round. The second tender round of 2017 opens on Augustus 8, 2017 and closes on September 19, 2017 at 15.00 uur CET.

### SME Instruments

The SME Instrument supports market-creating innovation in small and medium-sized businesses (SMEs) with significant growth potential and global ambitions. As part of Horizon 2020 – the EU's €80 billion Research and Innovation funding programme – it will invest €3 billion in 7,500 companies until 2020.

The instrument consists of 3 phases.

- Phase 1: Concept & Feasibility Assessment, from idea to concept (6 months). SME's will receive a lump sum of €50 000 in funding to carry out a feasibility study to verify the viability of the proposed disruptive innovation or concept. In this phase the SME will draft an initial business proposal (around 10 pages).



- Phase 2: Demonstration, Market Replication, R&D, Concept to Market-Maturity (1-2 years). In this phase the SME will further develop its proposal through innovation activities, such as demonstration, testing, piloting, scaling up, and miniaturisation. It will also draft a more developed business plan (around 30 pages). The funding is 70% of the eligible costs, up until €2.5 million.
- Phase 3. Commercialisation, Prepare for Market Launch. SMEs will receive extensive support, training, mentorship and facilitating access to risk finance as the project is further polished into a marketable product.

Contact: Elke van de Graaf (E: [elke.vandegraaf@rvo.nl](mailto:elke.vandegraaf@rvo.nl), M: +31 6 50447467 T: +31 (0)88 6025193.

### Partners for International Business (PIB)

The Dutch government has a programme for businesses that want to develop a certain market in a certain geographical area but encounter barriers or lack intelligence or access to decision makers. The Partners for International Business (PIB) programme aims, for a cluster of companies and knowledge institutes (Min. 5) and with the assistance of the government, to promote Dutch capabilities in promising international markets. Together with the RVO a 2 or 3-year business programme will be established, with activities that include:

- Promotion and matchmaking<sup>5</sup>
- Knowledge exchange and networking<sup>6</sup>
- Economic diplomacy<sup>7</sup>

The government will make use of its extensive [foreign network](#)<sup>8</sup> with embassies, consulates and NBSO's. Since 2012 [more than 70 programmes](#)<sup>9</sup> have started (for example: water management projects are abundant in Eastern Europe). The PIB programme is available for a [large number of countries](#).<sup>10</sup> To be accepted for the PIB programme your cluster must fulfil a [number of criteria](#).<sup>11</sup> The overall annual PIB budget is €8 million. The basis for collaboration with PIB participants is a similar contribution (financial and in kind, for example hours committed by cluster participants). The maximum public contribution for an individual PIB is €350.000. A PIB is not a subsidy and as such not directly available or spendable by the cluster participants. To qualify for a PIB you will have to go through [a number of steps](#).<sup>12</sup>

### Mission support

RVO can also facilitate incoming missions for “influentials” and support Fact-finding missions or Innovation missions. Contact for further information: [teamiris@rvo.nl](mailto:teamiris@rvo.nl)

### Financing

RVO can also offers support and advice for several programmes that provide financing support. Below readers will find links from a RVO presentation given on 3 October 2016. For more information on these and other programmes that exist, please visit [www.rvo.nl](http://www.rvo.nl) (Dutch).

### Research and innovation programmes

- [Horizon2020](#)<sup>13</sup> is the biggest EU Research and Innovation programme ever, with nearly €80 billion of funding available over 7 years (2014 to 2020) – not including the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. A .pdf-presentation can be found [here](#).<sup>14</sup> Contact persons for Societal

<sup>5</sup> <http://www.rvo.nl/subsidies-regelingen/partners-international-business/promotie-en-matchmaking>

<sup>6</sup> <http://www.rvo.nl/subsidies-regelingen/partners-international-business/kennisuitwisseling-en-netwerken>

<sup>7</sup> <http://www.rvo.nl/subsidies-regelingen/partners-international-business/economische-diplomatie>

<sup>8</sup> <http://www.rvo.nl/onderwerpen/internationaal-ondernemen/wegwijzer-internationaal-zakendoen/buitenlandnetwerk>

<sup>9</sup> <http://www.rvo.nl/subsidies-regelingen/projecten?f%5B0%5D=subsidies%3A3993>

<sup>10</sup> <http://www.rvo.nl/subsidies-regelingen/partners-international-business/landen>

<sup>11</sup> <http://www.rvo.nl/subsidies-regelingen/partners-for-international-business/kom-ik-in-aanmerking>

<sup>12</sup> <http://www.rvo.nl/subsidies-regelingen/partners-international-business/aanvraaginformatie>

<sup>13</sup> <http://www.rvo.nl/subsidies-regelingen/horizon-2020>

<sup>14</sup> <http://www.rvo.nl/sites/default/files/2016/10/Circulaire%20economie%20Horizon%202020.pdf>



Challenge 5; Climate Action, Environment, Resource Efficiency and Raw Materials (including Circular Economy topics): [John.Heynen@rvo.nl](mailto:John.Heynen@rvo.nl); [Corinne.vanvoorden@rvo.nl](mailto:Corinne.vanvoorden@rvo.nl);

- **Life**<sup>15</sup> is the EU's financial instrument supporting environmental, nature conservation and climate action projects. Since 1992, LIFE has co-financed 4306 projects. For the 2014-2020 funding period, LIFE will contribute approximately €3.4 billion to the protection of the environment and climate. A .pdf-presentation can be found [here](#)<sup>16</sup>. Contact person: [John.Heynen@rvo.nl](mailto:John.Heynen@rvo.nl)
- **Eurostars**<sup>17</sup> supports international innovative projects led by R&D- performing small- and medium-sized enterprises. It is an ideal first step in international cooperation, enabling small businesses to combine and share expertise and benefit from working beyond national borders. Eurostars is a joint programme between EUREKA and the European Commission, co-funded from the national budgets of 36 Eurostars Participating States and Partner Countries and by the European Union through Horizon 2020. In the 2014-2020 period, it has a total public budget of €1.14 billion. Contact person: [arnold.meijer@rvo.nl](mailto:arnold.meijer@rvo.nl)
- The **Enterprise Europe Network**<sup>18</sup> is the world's largest support network for small and medium sized businesses (SMEs) with international ambitions. It has 3,000 experts across 600 member organisations in more than 60 countries. Member organisations include chambers of commerce and industry, technology centres, and research institutes. The Network helps ambitious SMEs innovate and grow internationally. It provides international business expertise with local knowledge across a range of targeted services: partnership, advisory and innovation support. The Network also offers specialised industry expertise across 17 sectors. Contact person: [Janine.Kaya@rvo.nl](mailto:Janine.Kaya@rvo.nl)
- More information on CE financing possibilities for SMEs can be found [here](#).<sup>19</sup>

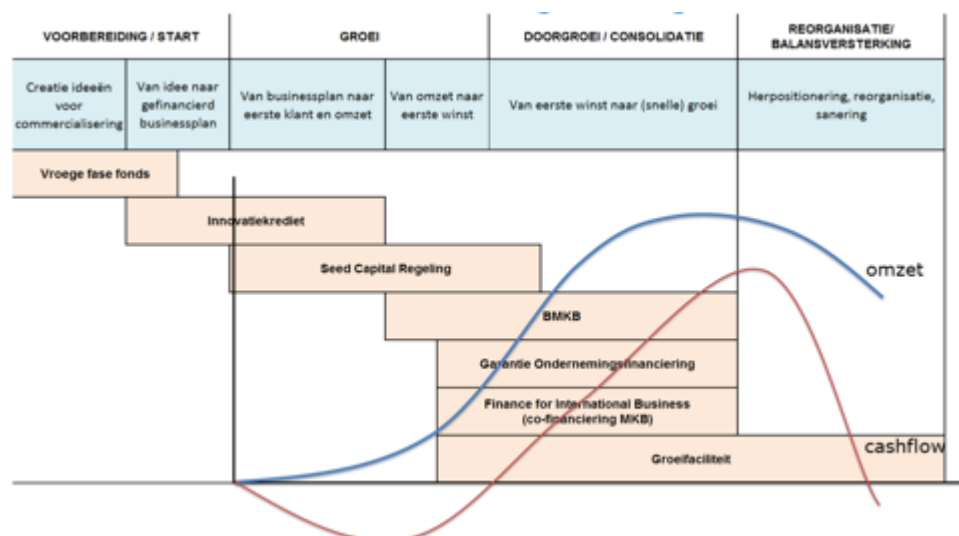


Figure 4: CE financing possibilities for Dutch SMEs

- Although not a financing programme *per se*, **NederlandCirculair**<sup>20</sup> is a very useful online community. It stimulates people and organisations to do circular business and to produce, consume, finance and organise more innovatively. Besides community building, useful tools and practical activities are offered that help the entrepreneurs to become more circular. Nederland circulair! is supported by the Ministry of Infrastructure and Environment and carried out by MVO Nederland,

<sup>15</sup> <http://www.rvo.nl/subsidies-regelingen/life>

<sup>16</sup> <http://www.rvo.nl/sites/default/files/2016/10/Circulaire%20economic%20LIFE.pdf>

<sup>17</sup> <http://www.rvo.nl/subsidies-regelingen/eurostars-%E2%80%93-subsidie-internationale-marktgerichte-rd>

<sup>18</sup> <http://www.rvo.nl/onderwerpen/innovatief-ondernemen/research--development/enterprise-europe-network>

<sup>19</sup> <http://www.rvo.nl/sites/default/files/2016/10/Circulaire%20economic%20en%20financieringsmogelijkheden%20voor%20MKB.pdf>

<sup>20</sup> <http://www.circulairondernemen.nl/>



Circle Economy, De Groene Zaak, ClickNL Design, Het Groene Brein, Sustainable Finance Lab and RVO, in collaboration with a large number of other organisations like TNO, Acceleratio and ICE Amsterdam. A presentation on NederlandCirculair! activities can be found [here](#).<sup>21</sup> Contact person: [Herman.Bavinck@minienm.nl](mailto:Herman.Bavinck@minienm.nl)

[The Netherlands Circular Hotspot](#)<sup>22</sup> campaign site provides useful information as well, including on a wealth of circular best practices. Positioning The Netherlands as a circular hotspot is an ambition that will inspire and connect Dutch actors with each other and with the rest of the world. The Netherlands is spearheading the CE movement and has become a "living lab" that provides the rest of the world with examples to learn from. Being a frontrunner in the CE will create benefits for the Dutch economy and society as a whole. The campaign is particularly urgent and timely, promoting Dutch capabilities during the Dutch presidency of the EU in 2

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<sup>21</sup> [http://www.rvo.nl/sites/default/files/2016/10/NLCirculair\\_Basispresentatie.pptx](http://www.rvo.nl/sites/default/files/2016/10/NLCirculair_Basispresentatie.pptx)

<sup>22</sup> <http://www.netherlandscircularhotspot.nl/home.html>



# Country profiles



## Poland

### Opportunities snapshot

State of play	<ul style="list-style-type: none"> <li>- Poland's economy has grown rapidly since 1989. It has had some success in decoupling growth from resource use – GDP doubled; energy use fell 10% – but efficiency gains have been swallowed by a ‘rebound effect’.<sup>23</sup></li> <li>- Waste management took time to gain ground on western Europe. However, in 2012, a major milestone was reached when ownership and responsibility for domestic waste was <a href="#">transferred</a> to municipalities. Integrated municipal waste management systems have been evolving since. Promising advancements have been made. The packaging recycling rate rose to 55% in 2014.<sup>24</sup> Public tendering procedures are much improved, and believed to be fair across all regions. MSW now has to be treated before landfilling. Waste is prohibited from being shipped outside of its region of origin. Industries using RDF are required to source at least 50% from domestic producers.<sup>25</sup> Nevertheless, the majority of waste is still landfilled.</li> <li>- Poland is very active in making biofuel from rape-oil, an opportunity that will continue to grow as other countries like the NL lack agricultural space.</li> <li>- The re-use of water is a necessity given the lack of water in Poland. Projects aimed at water treatment and re-use are widely implemented.</li> <li>- Strategy: the Ministry of Economic Development has the lead in developing an Action Plan on Circular Economy (to be finished June 2017). Minister of Environment Jan Szyszko is promoting circular economy in non-urban areas. In general: the Netherlands are a point of reference for Poland, particularly in the CE field.</li> </ul>
Priority topics	<ul style="list-style-type: none"> <li>- Poland needs to expand its <b>waste treatment capacity</b>, substantially. <b>Thermal</b> and <b>MBT</b> plants, in particular, need to be built – at regional scale.</li> <li>- <b>Separate collection</b> has been earmarked in policy documents as top priority.</li> <li>- More and better quality <b>RDF production</b> capacity needs to be installed.</li> <li>- The strategy, to be published in June, names four priority areas for CE: Sustainable consumption and production, new business models, bio-based economy.</li> </ul>
Catalysts	<ul style="list-style-type: none"> <li>- <b>Poland has a lot to gain</b> from CE advancements, specifically in job creation. Poland <a href="#">reportedly</a> has significant potential in manufacturing, where creation of high quality, long-term jobs would be attractive given the current environment.</li> <li>- <b>Polish cities and universities</b> are becoming increasingly active in CE initiatives. See for example the <a href="#">Cities of the Future: Smart &amp; Sustainable</a> conference held in Krakow over 26-27 October 2016, co-organised by the city and the <a href="#">Economic University of Krakow</a> (which considers the Netherlands the leading nation in CE).<sup>26</sup> In 2017 a follow-up conference will be organized. Also the Warsaw University will organise an international event bringing (Dutch) knowledge and business in CE together. In general: more and more the issue of circular economy is figuring as key subject of conferences. Organizations at national level ask the Embassy to intermediate for getting Dutch keynote speakers to their event.</li> <li>- The <b>EU ETV Pilot Program</b> has been <a href="#">adopted locally</a>, providing third party verification of eco-innovation efficacy. This is complemented by <a href="#">GreenEvo</a>, a</li> </ul>

<sup>23</sup> Anders Wijkman and Kristian Skänberg, “The Circular Economy and Benefits for Society: Jobs and Climate Clear Winners in an Economy Based on Renewable Energy and Resource Efficiency; A Study Pertaining to the Czech Republic and Poland,” Prepared for The Club of Rome with support from the MAVA Foundation, p.16

<sup>24</sup> Up from 35% in 2010. Switzerland Global Enterprise, “Waste Management in Poland,” December 2015, p.9

<sup>25</sup> Hodecek, above, slide 12

<sup>26</sup> The City of Utrecht will present its circular economy policies and experience. Representatives of Dutch research institutes and companies will collaborate with the City of Krakow, at the conference and following it.



	government technology accelerator for environmentally-focused SMEs.
<b>Waste management: outlook and opportunities</b>	<ul style="list-style-type: none"> <li>- Poland has significant untapped potential to generate <b>energy from biomass</b>. By 2020, each municipality is projected to have at least one biogas plant.<sup>27</sup></li> <li>- More broadly, Poland's <b>energy-from-waste</b> potential – across all sources – is almost entirely untapped. Just 1% of MSW is thermally treated.<sup>28</sup></li> <li>- Also waste water is a source that more industries find valuable.</li> <li>- With 80% of Polish municipal waste generated in cities, the majority of opportunities lie in <b>urban</b> areas.<sup>29</sup></li> </ul>
<b>Other CE initiatives: outlook and opportunities</b>	<ul style="list-style-type: none"> <li>- In July 2017 a CE study trip for Polish government officials will be organized. NL is exploring a CE/Innovation trade mission to PL in the second half of 2017.</li> <li>- In February 2017 a journalist trip was organized in the field of CE. As a result regularly articles are published in the Polish press about CE and the Dutch progress in this field.</li> <li>- A <b>circular economy pilot program</b> will be carried out in non-urban areas, to disseminate good practices at municipal level.</li> <li>- A recent study commissioned by the <b>Club of Rome</b> notes that job creation would be particularly effective if Poland focuses on transitioning towards a <b>bio-based economy</b>, where agriculture and forest play key roles.<sup>30</sup> Dutch expertise in this sector could be of great value to the Polish.</li> <li>- <b>Renewable energy</b> accounts for less than 10% of the Polish energy mix.</li> </ul>

## Market overview

### General state of play

#### Waste management: market

[Poland](#) is the sixth largest waste producer in Europe (2011), with around 12 Mt per year. Its per capita waste output, however, at 315kg/inhabitant, is among the lowest on the continent – although this is set to rise to 377kg by 2020.<sup>31</sup>

Waste management took time to gain ground. However, in 2012, a major milestone was reached when ownership and responsibility for domestic waste was [transferred](#) to municipalities. Integrated municipal waste management systems have been evolving since. Promising advancements have been made. The packaging recycling rate rose to 55% in 2014.<sup>32</sup> Public tendering procedures are much improved, and believed to be fair across all regions. MSW now has to be treated before landfilling. Waste is prohibited from being shipped outside of its region of origin. Industries using RDF are required to source at least 50% from domestic producers.<sup>33</sup> Nevertheless, the majority of waste is still landfilled.

Poland successfully introduced a landfill tax for untreated waste. In 2014 it was set at €32/tonne, rising to €45/tonne in 2015, and has driven investments in sorting and MBT, prices for which have become increasingly competitive.

Poland has a landfill ban (since 2013) on combustible waste that's separately collected.

There is some suggestion that local governments are not fully engaged with the government's plans to establish regional waste management facilities. Rather, they are lobbying for small, municipal landfill sites (though these are not compliant with legal and technical EU standards). This friction is delaying progress, and may continue to do so. Other, system-related difficulties yield data issues, too.<sup>34</sup>

<sup>27</sup> Switzerland Global Enterprise, above, p.9

<sup>28</sup> Switzerland Global Enterprise, above, p.5

<sup>29</sup> Switzerland Global Enterprise, above, p.5

<sup>30</sup> Wijkman and Skånberg, above, p.6

<sup>31</sup> Switzerland Global Enterprise, above, p.11

<sup>32</sup> Up from 35% in 2010. Switzerland Global Enterprise, "Waste Management in Poland," December 2015, p.9

<sup>33</sup> Hodecek, above, slide 12

<sup>34</sup> Switzerland Global Enterprise, above, p.9



Poland also has RDF-related problems, although not to the extent of Romania or Slovakia. Industries using RDF are required to source at least 50% from domestic producers.<sup>35</sup> Despite generating significant amounts of MSW, local companies are capable only of producing 700 Kt of fuel that matches cement industry requirements. Almost twice as much (1.2 Mt) is needed. The major issue lies in the poor quality and high humidity level of current production. Moreover, the RDF production market remains underdeveloped and dispersed. Substantial RDF imports are brought in from Germany as a result.<sup>36</sup>

In 2010, the Council of Ministers adopted a series of directions for agricultural biogas plants, for the period 2010-2020. Technical biogas generation potential of Poland's agricultural materials is 5 billion m<sup>3</sup> annually. Combustion would yield 450 TJ of electricity and 720 TJ of thermal energy.<sup>37</sup>

In waste management, recent efforts have focused specifically on the following objectives:

- Establishing an organised system of municipal waste management covering the whole population
- Introducing separate collection for all, by 2015 at the latest
- Reducing the share of landfilled MSW, from 86.6% in 2008 to 60% in 2014
- Reducing the number of landfill sites for non-hazardous and inert waste, to which MSW is sent – from 578 at the end of 2011 to 200 in 2014
- Increasing collection of used portable batteries and accumulators from 25% in 2012 to 45% by 2016-10-19
- For packaging waste, achieving a minimum recovery level of 60% and a minimum recycling rate of 55%, by 2014.<sup>38</sup>

A number of detailed targets have also been set for hazardous waste, packaging waste and various specific streams, for example end-of-life tyres.

### Waste management: legislation & planning

Poland's **National Waste Management Plan** was published in 2014 (KPGO 2014). Under it, municipal waste management is organised regionally, each region having its own Regional WMP. KPGO 2014 specifically embraces:

- Mechanical-biological conversion of MSW, storage of mixed and recycling waste and composting of green waste in regions with greater than 150.000 residents.
- Thermal conversion of MSW in regions with greater than 300.000 residents.<sup>39</sup>

Each region was required to have between 5 and 15 waste management plants by the end of 2014.

The [National Waste Prevention Programme: 2014-2020](#) was published in 2014, as was the [Operational Programme Infrastructure and Environment: 2014-2020](#).

Local authority waste management responsibilities are set forth in three Acts:

- Act on Waste 2001
- Act on Packaging and Packaging Waste 2005
- Act on Maintaining Cleanliness and Order in Municipalities 2011

### Waste management: EU funding

The [National Fund for Environmental Protection and Water Management](#) is to allocate €0.44 billion for implementation of the "Rational waste management" program. This will be partially EU-subsidised (€93 million), but the majority of the funding (€350 million) will be repayable. The program will be financed between 2015-2023; contracts are to be signed by 2020. Participation is open to government, businesses and non-profits. Support will be available for all activities relating to:

- waste prevention

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<sup>35</sup> Hodecek, above, slide 12

<sup>36</sup> Switzerland Global Enterprise, above, p.16

<sup>37</sup> Switzerland Global Enterprise, above, p.9

<sup>38</sup> Switzerland Global Enterprise, above, p.10

<sup>39</sup> Switzerland Global Enterprise, above, p.8



- selective waste collection
- integrated networks of waste management installations
- reduction of illegal trans-boundary movement of waste
- collection and legal dismantling of end of life vehicles
- building environmental awareness.

Poland has a large demand for CleanTech solutions, and will receive €1.3 billion between 2014-2020 for MSW management. Investments are mainly funded via EU structural fund, which already has attracted hundreds of projects, planned for 2015-2022. Several billion euros will be spent on each of the following:

- **District heating and CHP** (€2,2 billion): district heating network, CHP and waste burning facilities, including bioenergy.
- **Managing water and sewage** (€2,4 billion): water infrastructure, including 20.000 km of sewer networks, over 200 new or modernised sewage treatment plants and over a hundred sludge treatment plants.
- **Managing municipal waste** (€1,3 billion): MSW management, including collection, recycling, sorting and waste treatment plants; ten or more 200 MW waste burning plants will also be built in the next few years.

Poland will also receive EEA/Norwegian grants. In May 2016 a further €809 million of support was [announced](#), one of five priorities being “environment, energy, climate change and low-carbon economy.” The Ministry administers a [projects database](#), with details of funding allocations. This funding comes on the back of the €558 million Poland received, through 17 operational programmes, between 2009-2014.

### Waste management: key players and influencers

The [Ministry of Environment](#) is the primary responsible ministry for CE and waste management-related activities. Minister is **Jan Szyszko**.

The [Ministry of Economic Development](#) has a key role to play, as it is in the lead for developing a CE Action Plan (inter-ministerial working group). [Mateusz Morawiecki](#) is the responsible Minister (as well as the Deputy Prime Minister).

[MPO](#) is a large, Warsaw-based waste management firm.

### Circular economy beyond waste management

SOKOL (€230 million; 2015-2020) is part of the National Fund for Environmental Protection and Water Management – the main pillar of the Polish environmental protection financing system. SOKOL aims to implement innovative environmental technologies that reduce the impact of facilities, installations and appliances. To be eligible, technologies must fit within one of the National Smart Specialisation areas: sustainable energy, natural resources, waste management. Funds in the form of credits (€100k to €20 million, on preferential terms; remission up to 20%) are planned to be spent up to 2023.<sup>40</sup>

Poland’s CE pilot program was mentioned in the summary table above. The Ministries of Development and Energy collaborated on the program design, under which each municipality must focus activities around a minimum of two “areas of support” (on top of one mandatory area: local education). These are: energy-saving investments; conservation and sustainable management of water resources; improving air quality; rational waste management; distributed, renewable energy sources; reducing consumption of primary raw materials; and a low carbon economy (including transport). Examples of the types of projects that may be funded include:

- reuse centres: e.g., clothing, furniture, consumer electronics, toys
- food waste prevention: centres of family culinary education, eco-shopping, rational use of fertilisers and plant protection products, promotion of organic farming
- local distribution systems for food near its expiry date
- repair/regeneration units: e.g., electrical equipment, toys, bicycles, furniture
- backyard composters

<sup>40</sup> [https://ec.europa.eu/environment/ecoap/sites/ecoap\\_stayconnected/files/poland\\_eco-innovation\\_2015.pdf](https://ec.europa.eu/environment/ecoap/sites/ecoap_stayconnected/files/poland_eco-innovation_2015.pdf) p. 22



Strategy: the Ministry of Economic Development has the lead in developing an Action Plan on Circular Economy (to be finished June 2017). Minister of Environment Jan Szyszko is promoting circular economy in non-urban areas. In general: the Netherlands are a point of reference for Poland, particularly in the CE field.

## Events

In Spring 2016 the Minister organised [Circular Economy: A Chance for Sustainable Development of Non-Urbanised Areas](#). Charge d’Affaires of the Dutch Presidency, Adriaan Palm, was invited – through the Dutch embassy – to give an introduction.

The [Cities of the Future: Smart & Sustainable](#) conference took place in Krakow on **26-27 October 2016**. The co-organisers also organised the (larger and more international) [Open Eyes Economy Summit](#) on **15-16 November 2016**, again in Krakow.

Looking ahead, [SOS Expo](#) – Poland’s international waste management forum – was held in Warsaw on **1-2 February 2017**. A month later, [EKOTECH](#), the 18<sup>th</sup> international environmental protection and waste management expo, was held in Kielce (**1-2 March 2017**).

The final event of City Labs (series of discussions organized by Gazeta Wyborcza on o.a. urban developments) took place in Rzeszow on March 29 2017, figuring a Dutch keynote speaker on CE.

The Embassy organised two round tables in March 2017 on CE, one with the government officials responsible for CE and one with experts and practitioners.

The [Pol-Eco-System](#) conference will be held in Poznan on **17-20 October 2017**. CE was the theme of the 2016 conference.

In November the Open Eyes Economy Summit will be organised for the second time in Krakow by the university of Krakow. Circular economy is one of the priorities and discussions and workshops will be organised. Just like last year Dutch experts will be present and Dutch examples will be presented.

In November the university of Warsaw will organise an international conference/Warsaw on CE with Dutch patronage, speakers and examples.

## Dutch-Polish relations

Waste management used to be a focus of the work of the Economic Section. However, in mid-2012, it was decided that there was insufficient common interest to justify further cooperation in this field. At that time Poland’s priorities were heavily skewed towards quicker incineration, whereas The Netherlands wanted to push its expertise in reducing waste. The concepts of CE and integrated solutions offer fertile new ground for cooperation – not only because of the availability of national and European funds, but also because Polish companies are working on sustainable/circular chains.

## Twinning cities

Dutch city	Polish city	Activity
Rotterdam	Gdansk (since 1977)	[no information]
Veendam	Gniezno	[no information]
Eindhoven	Bialystok	[no information]
Stadskanaal	Bielsko-Biala	[no information]
Meerssen	Chojna	[no information]
Tholen	Ilawa	[no information]
Heerhugowaard	Kalisz	[no information]



Roermond	Koszalin	[no information]
Tilburg	Lublin	[no information]
Halderberge	Międzyrzecz	[no information]
Vlagtwedde	Międzyrzecz	[no information]
Schiedam	Piotrków Trybunalski	[no information]
Assen	Poznan	[no information]
Nieuwegein	Pulawy	[no information]
Heiloo	Świętochłowice	[no information]
Leiden	Torun	[no information]
Den Haag	Warsaw	Twinned since 1991
Breda	Wroclaw	[no information]
Helmond	Zielona Góra	[no information]
Ommen	Znin	[no information]
Aa en Hunze	Zerkow	[no information]

## Further information: Poland

### Ministry of Environment

Switzerland Global Enterprise, “[Waste Management in Poland](#),” December 2015

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## Appendix 2: Country and Capital Factsheets

### Poland

National Fact Sheet: Poland

## National factsheet on separate collection

### Poland

**Note:** This ‘National factsheet’ has been prepared within the EC study “**Assessment of separate collection schemes in the 28 capitals of the EU**”. The document represents the status-quo of the EU Member State (MS) in September 2015. The information included in this document has been elaborated for all 28 EU-MS based on publically available documents, i.e. national legislation, Waste Management Plans, Waste Prevention Programmes, strategies, implementation reports, and statistics. All information is cited in the factsheet, a complete list of information sources can be found at the end of this document.

For quality assurance purposes the ‘National factsheet’ has been sent to the EU Technical Advisory Committee (TAC) Members on waste for verification and commenting, the comments received are included in this final version.

### 1 General requirements on separate collection based on national legislation

Two Polish acts, the Act on Waste [PL AW 2012] and the Act on Keeping Cleanliness and Order in Municipalities [PL AKCOiM 1996] are the main legal regulations transposing the separate collection requirements of the Waste Framework Directive 2008/98/EC (WFD) into national law. The AW was adopted on December 14, 2012 and is in force since 23rd January 2013. It has been amended several times. The AKCOiM was adopted on September 13, 1996 and was amended several times. The last consolidated text of this Act was issued on September 13, 2013. After then it has been already amended several times.

General definition of separate waste collection included in Art. 2 (11) of the WFD was transposed by the [PL AW 2012] analogously. The requirement of providing a separate waste collection of at least the fractions paper, metal, plastic and glass as included in Art. 11 (1) of the WFD was implemented in [PL AKCOiM 1996] that was assessed as **deviating information** because it does not include the targeted year of implementation (**comment** [PL TAC 2015]: according to the transition provisions the new municipal waste management system should have been implemented by 1st July 2013, so it is a year of implementation).

To date not all requirements of the WFD have been transposed into national law via those two acts. These are Art. 10(2) and partially Art. 11(1) of the WFD, which include requirements on: separate waste collection if technically, environmentally and economically practicable, meeting necessary quality standards for the relevant recycling sectors and measures to provide high-quality recycling (Art. 11(1) of the WFD). The requirement that waste shall not be mixed with other waste and/or materials of other properties (Art. 10(2) of the WFD) has been transposed “additionally” into national law.

Art. 22 of the WFD on measures to encourage the separate waste collection of bio-waste with a view to the composting and digestion process have been implemented into national law in [PL AKCOiM 1996]. However, this implementation cannot be considered as full adoption of the WFD requirements.



**Table 1: Overview of national law(s) that implement separate collection**

Year and Abbreviation	Title of the law (translation)
[PL AW 2012]	Ustawa z dnia 14 grudnia 2012 r. o odpadach (Dz.U. z 2013 r. poz. 21, z późn. zm.) (Act of December 14, 2012 on Waste, Polish Journal of Law 2013 item 21, with later amendments).
[PL AKCOiM 1996]	Ustawa z dnia 13 września 1996 r. o utrzymaniu czystości i porządku w gminach. (Dz.U. z 2013 r. poz. 1399, z późn. zm.) (Act on Keeping Cleanliness and Order in Municipalities of September 13, 1996 Polish Journal of Law 2013 0 item 1399, with later amendments).

**Table 2: Overview on evaluation categories**

Evaluation	Explanation
additional	The requirements of the WFD have been transposed and additional information or requirements are set out in the national legal requirement, i.e. additional definition, precision of requirement that goes beyond the text of the WFD
one:one	The requirement of the WFD has been transposed exactly / literally or transposed analogously. No additional requirements or explanations are set out.
deviating	The requirements of the WFD have been implemented into national legal requirements but have been adjusted, left out or deviated
not included	The requirement of the WFD is not transposed into national law

**Table 3: Assessment on national transpositions**

Law & Article	Evaluation	English text	Original text
1. Article 3 (11) WFD: Definition separate collection: "separate collection" means the collection where a waste stream is kept separately by type and nature so as to facilitate a specific treatment"			
[PL AW 2012] Art. 3 paragraph 1 point 24	one:one	Art. 3 paragraph 1 point 24: Separate collection refers to collection in which a waste stream, in order to facilitate a specific treatment, includes only waste characterized by the same characteristics and features.	Art. 3 ust. 1 pkt 24: Ilekroć w ustawie jest mowa o: (...) selektywnym zbieraniu, rozumie się przez to zbieranie, w ramach którego dany strumień odpadów, w celu ułatwienia specyficznego przetwarzania, obejmuje jedynie odpady charakteryzujące się takimi samymi właściwościami i takimi samymi cechami.
2. Article 10 (2) WFD: "waste shall not be mixed with other waste/material with other properties"			
[PL AKCOiM 1996] Art. 9e paragraph 2	additional	Art. 9e paragraph 2: It is forbidden to mix selectively collected wastes with municipal mixed wastes collected from households and selectively collected wastes of different kind with each other.	Art. 9e ust. 2: Zakazuje się mieszania selektywnie zebranych odpadów komunalnych ze zmieszanyimi odpadami komunalnymi odbieranymi od właścicieli nieruchomości oraz selektywnie zebranych odpadów komunalnych różnych rodzajów ze sobą.
3. Article 11 (1) WFD: "measures to promote high quality recycling"			
	not included		
4. Requirement WFD: 11 (1) "separate collection if technically practicable"			
	not included	<p><b>Comment [PL TAC 2015]:</b></p> <p>Art. 3 paragraph 2 point 5: Municipalities are to ensure cleanliness and order in their territory, in particular provide separate municipal waste collection for at least paper, metal, plastic, glass and multi-material packaging as well as biodegradable waste including biodegradable packaging waste.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement; taken into account below to</p>	Art. 3 ust. 2 pkt 5: Gminy zapewniają czystość i porządek na swoim terenie (...), a w szczególności: (...) ustanawiają selektywne zbieranie odpadów komunalnych obejmujące co najmniej następujące frakcje odpadów: papieru, metalu, tworzywa sztucznego, szkła i opakowań wielomateriałowych oraz odpadów komunalnych ulegających biodegradacji, w tym odpadów opakowaniowych ulegających biodegradacji.



Law & Article	Evaluation	English text	Original text
		<p>assess the requirement "by 2015 separate collection shall be set up for at least the following: paper, metal, plastic and glass";</p> <p><b>Comment [PL TAC 2015]:</b> Regulation of Minister of Economy and Labour of 25 October 2005 on the detailed procedures for packaging -&gt; in this regulation are specified requirements of selective collection for packaging wastes. Those requirements consider economical, technical and environmental aspects.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement, since the WFD requirement does not refer to packaging waste only; in addition, further specifications on "separate collection of packaging waste if technically practicable" could not be identified.</p>	ROZPORZĄDZENIE MINISTRA GOSPODARKI I PRACY z dnia 25 października 2005 r. w sprawie szczegółowego sposobu postępowania z odpadami opakowaniowymi Dz. U. z 2005 r. Nr 219, poz. 1858)
5. Requirement WFD: 11 (1) "separate collection if economically practicable"			
	not included	<p><b>Comment [PL TAC 2015]:</b> Art. 3 paragraph 2 point 5: Municipalities are to ensure cleanliness and order in their territory, in particular provide separate municipal waste collection for at least paper, metal, plastic, glass and multi-material packaging as well as biodegradable waste including biodegradable packaging waste.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement; taken into account below to assess the requirement "by 2015 separate collection shall be set up for at least the following: paper, metal, plastic and glass";</p> <p><b>Comment [PL TAC 2015]:</b> Regulation of Minister of Economy and Labour of 25 October 2005 on the detailed procedures for packaging -&gt; in this regulation are specified requirements of selective collection</p>	<p>Art. 3 ust. 2 pkt 5: Gminy zapewniają czystość i porządek na swoim terenie (...), a w szczególności: (...) ustanawiają selektywne zbieranie odpadów komunalnych obejmujące co najmniej następujące frakcje odpadów: papieru, metalu, tworzywa sztucznego, szkła i opakowań wielomateriałowych oraz odpadów komunalnych ulegających biodegradacji, w tym odpadów opakowaniowych ulegających biodegradacji.</p> <p>ROZPORZĄDZENIE MINISTRA GOSPODARKI I PRACY z dnia 25 października 2005 r. w sprawie szczegółowego sposobu postępowania z odpadami opakowaniowymi Dz. U. z 2005 r. Nr 219, poz. 1858)</p>
Law & Article	Evaluation	English text	Original text
		<p>for packaging wastes. Those requirements consider economical, technical and environmental aspects.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement, since the WFD requirement does not refer to packaging waste only; in addition, further specifications on "separate collection of packaging waste if economically practicable" could not be identified.</p>	
6. Requirement WFD: 11 (1) "separate collection if environmentally practicable"			
	not included	<p><b>Comment [PL TAC 2015]:</b> Art. 3 paragraph 2 point 5: Municipalities are to ensure cleanliness and order in their territory, in particular provide separate municipal waste collection for at least paper, metal, plastic, glass and multi-material packaging as well as biodegradable waste including biodegradable packaging waste.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement; taken into account below to assess the requirement "by 2015 separate collection shall be set up for at least the following: paper, metal, plastic and glass";</p> <p><b>Comment [PL TAC 2015]:</b> Regulation of Minister of Economy and Labour of 25 October 2005 on the detailed procedures for packaging -&gt; in this regulation are specified requirements of selective collection for packaging wastes. Those requirements consider economical, technical and environmental aspects.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement, since the WFD requirement does not refer to packaging waste only; in addition, further</p>	<p>Art. 3 ust. 2 pkt 5: Gminy zapewniają czystość i porządek na swoim terenie (...), a w szczególności: (...) ustanawiają selektywne zbieranie odpadów komunalnych obejmujące co najmniej następujące frakcje odpadów: papieru, metalu, tworzywa sztucznego, szkła i opakowań wielomateriałowych oraz odpadów komunalnych ulegających biodegradacji, w tym odpadów opakowaniowych ulegających biodegradacji.</p> <p>ROZPORZĄDZENIE MINISTRA GOSPODARKI I PRACY z dnia 25 października 2005 r. w sprawie szczegółowego sposobu postępowania z odpadami opakowaniowymi Dz. U. z 2005 r. Nr 219, poz. 1858)</p>



Law & Article	Evaluation	English text	Original text
		specifications on "separate collection of packaging waste if environmentally practicable" could not be identified.	
7. Article 11 (1) WFD: "separate collections [...] appropriate to meet the necessary quality standards for the relevant recycling sectors"			
	not included	<p><b>Comment</b> [PL TAC 2015]:</p> <p>Art. 3 paragraph 2 point 5: Municipalities are to ensure cleanliness and order in their territory, in particular provide separate municipal waste collection for at least paper, metal, plastic, glass and multi-material packaging as well as biodegradable waste including biodegradable packaging waste.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement; taken into account below to assess the requirement "by 2015 separate collection shall be set up for at least the following: paper, metal, plastic and glass";</p> <p><b>Comment</b> [PL TAC 2015]:</p> <p>Regulation of Minister of Economy and Labour of 25 October 2005 on the detailed procedures for packaging -&gt; in this regulation are specified requirements of selective collection for packaging wastes. Those requirements consider economical, technical and environmental aspects.</p> <p><b>Comment by evaluator:</b> regarded as "not included" in the sense of the WFD requirement;</p>	<p>Art. 3 ust. 2 pkt 5: Gminy zapewniają czystość i porządek na swoim terenie (...), a w szczególności: (...) ustanawiają selektywne zbieranie odpadów komunalnych obejmujące co najmniej następujące frakcje odpadów: papieru, metalu, tworzywa sztucznego, szkła i opakowań wielomateriałowych oraz odpadów komunalnych ulegających biodegradacji, w tym odpadów opakowaniowych ulegających biodegradacji.</p> <p>ROZPORZĄDZENIE MINISTRA GOSPODARKI I PRACY z dnia 25 października 2005 r. w sprawie szczegółowego sposobu postępowania z odpadami opakowaniowymi Dz. U. z 2005 r. Nr 219, poz. 1858).</p>
8. Article 11 (1) WFD "by 2015 separate collection shall be set up for at least the following: paper, metal, plastic and glass"			
<p>[PL AKCOIM 1996]</p> <p>Art. 3 paragraph 2 point 5,</p> <p><b>Comment</b> [PL TAC 2015]:</p> <p>Art. 4 paragraph 1 point 1 letter a, Art. 4a</p>	Deviating	<p>Art. 3 paragraph 2 point 5: Municipalities are to ensure cleanliness and order in their territory, in particular provide separate municipal waste collection for at least paper, metal, plastic, glass and multi-material packaging as well as biodegradable waste including biodegradable packaging waste.</p>	<p>Art. 3 ust. 2 pkt 5: Gminy zapewniają czystość i porządek na swoim terenie (...), a w szczególności: (...) ustanawiają selektywne zbieranie odpadów komunalnych obejmujące co najmniej następujące frakcje odpadów: papieru, metalu, tworzywa sztucznego, szkła i opakowań wielomateriałowych oraz odpadów komunalnych</p>
Law & Article	Evaluation	English text	Original text
<p>Act of 1 July 2011 on amendment of the act on keeping cleanliness and order in municipalities and other acts and other acts (Journal of Laws No. 152, item. 897, with later amendments) – Art. 16, 22 and 23</p>		<p><b>Comment</b> [PL TAC 2015]:</p> <ol style="list-style-type: none"> <li>1) Art. 4 paragraph 1 point 1 concerning rules of procedures on keeping cleanliness and order in municipalities on selective collection.</li> <li>2) According the transition provisions the new municipal waste management system should have been implemented by 1st July 2013, so it is a year of implementation.</li> </ol> <p><b>Comment by evaluator:</b> regarded as "deviating" in the sense of the WFD requirement since year 2015 as included in the WFD is not mentioned;</p>	<p>ulegających biodegradacji, w tym odpadów opakowaniowych ulegających biodegradacji.</p> <p>Art. 4 ust. 1 pkt 1 lit. a: Regulamin określa szczegółowe zasady utrzymania czystości i porządku na terenie gminy dotyczące wymagań w zakresie utrzymania czystości i porządku na terenie nieruchomości obejmujących prowadzenie selektywnego zbierania i odbierania lub przyjmowania przez punkty selektywnego zbierania odpadów komunalnych lub zapewnienie przyjmowania w inny sposób co najmniej takich odpadów komunalnych jak: przeterminowane leki i chemikalia, zużyte baterie i akumulatory, zużyty sprzęt elektryczny i elektroniczny, meble i inne odpady wielkogabarytowe, zużyte opony, odpady zielone oraz odpady budowlane i rozbiórkowe stanowiące odpady komunalne, a także odpadów komunalnych określonych w przepisach wydanych na podstawie art. 4a (...)</p> <p>Art. 4a: Minister właściwy do spraw środowiska może określić, w drodze rozporządzenia:</p> <ol style="list-style-type: none"> <li>1) szczegółowy sposób selektywnego zbierania wybranych frakcji odpadów oraz kiedy wymóg selektywnego zbierania uważa się za spełniony,</li> <li>2) odpady komunalne podlegające obowiązkowi selektywnego zbierania spośród wskazanych w art. 3b ust. 1 i art. 3c ust. 1 (tj. 4 frakcje odpadów komunalnych i odpady budowlano-remontowe)</li> </ol> <p>– kierując się potrzebą ujednolicenia wymagań w zakresie zbierania i odbierania odpadów komunalnych oraz uzyskania wymaganych poziomów recyklingu, przygotowania do ponownego użycia i odzysku innymi metodami odpadów komunalnych oraz ograniczenia</p>



Law & Article	Evaluation	English text	Original text
			masy odpadów komunalnych przekazywanych do składowania.
9. Article 22 WFD: Bio-waste - Member states shall take measures, as appropriate (...) to encourage: "a) the separate collection of bio-waste with a view to the composting a digestion of bio-waste"			
<p>[PL AKCÓIM 1996] Art. 3 paragraph 2 point 5,</p> <p><b>Comment [PL TAC 2015]:</b> Art. 4 paragraph 1 point 1 letter a, Art. 4a</p> <p>Act of 1 July 2011 on amendment of the act on keeping cleanliness and order in municipalities and other acts and other acts (Journal of Laws No. 152, item. 897, with later amendments) – Art. 16, 22 and 23</p>	Deviating	<p>Art. 3 paragraph 2 point 5: Municipalities are to ensure cleanliness and order in their territory, in particular provide separate municipal waste collection for at least paper, metal, plastic, glass and multi-material packaging as well as biodegradable waste including biodegradable packaging waste.</p> <p><b>Comment [PL TAC 2015]:</b> Art. 4 paragraph 1 point 1 concerning rules of procedures on keeping cleanliness and order in municipalities on selective collection.</p> <p><b>Comment by evaluator:</b> regarded as "deviating" in the sense of the WFD requirement since separate collection is mentioned, but "with a view to the composting a digestion of bio-waste" is not mentioned;</p>	<p>Art. 3 ust. 2 pkt 5: Gminy zapewniają czystość i porządek na swoim terenie (...), a w szczególności: (...) ustanawiają selektywne zbieranie odpadów komunalnych obejmujące co najmniej następujące frakcje odpadów: papieru, metalu, tworzywa sztucznego, szkła i opakowań wielomateriałowych oraz odpadów komunalnych ulegających biodegradacji, w tym odpadów opakowaniowych ulegających biodegradacji.</p> <p>Art. 4 ust. 1 pkt 1 lit. a: Regulamin określa szczegółowe zasady utrzymania czystości i porządku na terenie gminy dotyczące wymagań w zakresie utrzymania czystości i porządku na terenie nieruchomości obejmujących prowadzenie selektywnego zbierania i odbierania lub przyjmowania przez punkty selektywnego zbierania odpadów komunalnych lub zapewnienie przyjmowania w inny sposób co najmniej takich odpadów komunalnych jak: przeterminowane leki i chemikalia, zużyte baterie i akumulatory, zużyty sprzęt elektryczny i elektroniczny, meble i inne odpady wielkogabarytowe, zużyte opony, odpady zielone oraz odpady budowlane i rozbiorowe stanowiące odpady komunalne, a także odpadów komunalnych określonych w przepisach wydanych na podstawie art. 4a (...)</p> <p>Art. 4a: Minister właściwy do spraw środowiska może określić, w drodze rozporządzenia:</p>
Law & Article	Evaluation	English text	Original text
			<p>3) szczegółowy sposób selektywnego zbierania wybranych frakcji odpadów oraz kiedy wymóg selektywnego zbierania uważa się za spełniony,</p> <p>4) odpady komunalne podlegające obowiązkowi selektywnego zbierania spośród wskazanych w art. 3b ust. 1 i art. 3c ust. 1 (tj. 4 frakcje odpadów komunalnych i odpady budowlano-remontowe)</p> <p>– kierując się potrzebą ujednolicenia wymagań w zakresie zbierania i odbierania odpadów komunalnych oraz uzyskania wymaganych poziomów recyklingu, przygotowania do ponownego użycia i odzysku innymi metodami odpadów komunalnych oraz ograniczenia masy odpadów komunalnych przekazywanych do składowania.</p>



## 2 General requirements on separate collection based on main strategies

Poland	314 kg MSW/capita 19.43% recycling
<p><b>Definition of Municipal Solid Waste (MSW):</b></p> <p>Municipal (solid) waste is waste generated in households (excluding end-of-life vehicles) and other waste from other waste generators, which is similar to waste from households and does not contain hazardous waste. Sources of generation of MSW are: households and infrastructure (e.g. from trade, services, crafts, education, industry – except for waste generated during the production processes and other) [PL WA Art. 3 paragraph 1 point 7]; [PL NWMP 2014];</p>	
<p><b>Main strategies implementing separate collection</b></p>	
<p><b>Comment</b> [PL TAC 2015]: The National waste management plan will have been updated by the end of 2015. Separate collection of municipal waste is one of the key issues.</p> <p>The main strategy implementing separate waste collection is the NWMP 2014, which is an update of the National Waste Management Plan 2010 (NWMP 2010), it was prepared based on Art. 14 paragraph 1 of the [PL AW 2001]. The NWMP 2014 was adopted by the Resolution of the Council of Ministers dated December 24, 2010 on the basis of Art. 14 paragraph 4 of the Act of April 27, 2001 on Waste. In the NWMP 2014, it is stated that <b>‘the implementation of a sustainable municipal waste management system in Poland requires above all the organisation of a separate municipal waste collection system including all inhabitants by 2015 at the latest’</b>. [PL NWMP 2014]</p> <p>Fulfilment of the recycling targets for municipal waste and the diversion of biodegradable municipal waste going to landfill require the implementation and maintenance of an appropriate <b>separate municipal waste collection system</b> of at least fractions such as: green waste from gardens and parks, paper and cardboard (including packaging, newspapers, magazines, etc.), glass packaging, plastics and metals, waste batteries and accumulators, waste electric and electronic equipment, outdated medicines, chemicals (paint, solvents, waste oils, etc.), bulky waste and construction and demolition waste. [PL NWMP 2014]</p> <p>The promotion of separate municipal waste collection among inhabitants, especially in <b>rural and sub-urban areas</b> through educational actions, financing and co-financing of the home-composters is also very important. [PL NWMP 2014]</p> <p>Since the NWMP 2014 is a strategic document the implementation of the sustainable municipal waste management system in Poland is coordinated by the national laws (i.e. the AW and the AKCOiM). Based on this, since 2012 each commune is responsible for the waste management in its area. The main principles of separate collection (e.g. <b>collection frequency, charges, schedule</b> etc.) are established in the regulations on maintaining cleanliness and order, which are adopted by the each Commune Council in Poland. [PL NWMP 2014]</p>	



### 3 Implementation of separate collection

#### Overview on separate collection systems in place

Since 2012, a new municipal waste management system in Poland is being implemented. The MSW **collection system is organised by communes** based on fees, collection frequency and schedule specified in local regulations adopted by each commune. In general the implemented system may differ in different communes but the MSW separate collection system is **based on separation of recyclable materials** such as plastic (and metals), glass and paper in separate containers. In sparsely populated areas (i.e. single- and multi-family houses, rural areas) the **primary separate waste collection system is door-to-door**. It is very popular to provide a **co-mingled door-to-door collection system for plastic and metal**. In densely populated areas (i.e. residential blocks in cities, public places) the primary separate waste collection system are **bring points**, in which a separate collection containers for collection of plastic together with metal, glass and paper are available for inhabitants. According to the [PL MSO/Population in Poland in 2011], at the end of 2011 majority of the Polish population (app. 60.7%) have lived in cities [PL ME/Separate collection 2013].

Depending on the area, a co-mingled separate waste collection is provided using only two bins ('dry' waste, which includes paper, glass, plastic and metal and remaining 'wet' waste). This is the least preferable (cost-effective) method due to the need for further separation [PL ME/Separate collection 2013].

Bio-waste is usually included in the mixed MSW stream in densely populated areas. In sparsely populated areas, separate bags or containers for bio-waste are available for inhabitants (generally during vegetation period, i.e. April-November), but the preferred option is to treat bio-waste in home composters [PL ME/Separate collection 2013].

Hazardous waste and bulky waste are (mainly) collected free of charge in separate municipal civic amenity sites organised by communes (PSZOK in Polish). **Comment** [PL TAC 2015]: There was an amendment to AKCOiM which extended municipal wastes collected by civic amenities to at least waste batteries and accumulators, waste electric and electronic equipment, outdated medicines, chemicals (paint, solvents, waste oils, etc.), green wastes, used tires, bulky waste and construction and demolition waste.

**The situation prior to the introduction of the new waste management system** [PL NWMP 2014, p. 13]):

In Poland approximately **10 036 000 t of municipal waste was collected in 2008, including 682 000 t (app. 6.8%) from separate collection**. **78.1% of the Polish population was covered by the municipal waste collection system in 2008**.






The mass of waste collected separately has increased compared with previous years, i.e. between 2004 and 2008, the mass of municipal waste collected separately has been systematically increased from 243 000 t (in 2004) to 682 000 t (in 2008). The largest quantities of material collected separately in 2008 were: glass (i.e. 4.6 kg per capita), paper and cardboard (i.e. 3.8 kg/cap).

**The situation after the new waste management system has been introduced since 2013** [PL MSO/MSW collection system coverage 2013] and [PL MSO/MSW collected separately 2013]:

Since the new waste management system has been implemented in 2013 a significant improvement in separate waste collection and population collection coverage took place in Poland: **in 2012 10.5% of generated MSW came from separate collection**. At the time **80.4% of population was covered by a MSW collection system**, while **in 2013 14.4% came from separate collection** where **100% of the population was covered by a MSW collection system**.



Table 4: Overview of main separate collection systems in Poland

Collection type	Paper	Glass	Plastic	Metal	Bio-waste
Door-to-door collection 	Secondary <sup>1</sup>	Secondary <sup>1</sup>	Rare	Rare	Rare; if so - separate bins or bags
Co-mingled (door-to-door) 			Secondary (plastic and metal collected together)		Rare; if so - separate bins or bags
Bring points <sup>2</sup> 	Primary <sup>1</sup>	Primary <sup>1</sup>	Primary (co-mingled)		Very rare
Civic amenities 	Rare; Municipalities organize a separate waste collection point (PSZOK in Polish) – for all waste stream, usually used for the collection of hazardous and bulky MSW				
Producer/retail take-back 		Rare; Beverage bottles (mainly beer) – deposit and return system in shops			



## Capital factsheet on separate collection


**Note:** This 'Capital factsheet' has been prepared within the EC study "Assessment of separate collection schemes in the 28 capitals of the EU". The document represents the status-quo of the EU Member States capitals in May 2015. The information included in this document has been elaborated for all 28 EU-capitals based on expert interviews with various stakeholders on capital level, e.g. capital administrations, waste management operators, associations etc. as well as further publically available reports, statistics and websites.

All information is cited in the factsheet and a complete list of information sources including the interviews held can be found at the end of this document.



Warsaw	Poland
<p><b>SUMMARY:</b> Warsaw has introduced a new waste collection system in August 2014 that includes the source separated collection of glass and bio-waste as well as the co-mingled collection of plastic, metal, paper and cardboard within door-to-door collection schemes. In 2014 19.92 % of the total waste collected in Warsaw was covered by a separate collection scheme. The financing system applied is a fixed fee with PAYT elements where the annual cost to consumers are higher if separate collection is not applied.</p>	
<b>1 Capital general data</b>	
City population (residents)	1 724 404 in 2014 [1] (p. 22)
City area (km²)	517.24 in 2014 [1] (p. 22)
City density (persons/km²)	approximately 3 334 in 2014 [1] (p. 22)
City climate (mediterranean, continental, oceanic, nordic; relevant for bio-waste collection)	Continental
<b>2. Capital waste data</b>	
Total (municipal) waste generation (t in indicated year)	<b>Collected</b> municipal waste in 2014: <b>638 568.43 t</b> [PL City Hall 2015a] <sup>1</sup>
Total (municipal) waste generation (kg/cap)	<b>Collected</b> municipal waste in 2014: <b>370.3 kg/cap</b> (own calculations)
Total separate collection (kg/cap) & (% of generation)	73 kg/cap & 19.92% of the total amount of waste collected (127 202.83 t) [PL City Hall 2015a]
Percentage breakdown of total collection for separate collection by fraction	In <b>2014:</b> [PL City Hall 2015a] Recyclable materials: 61 110.71 t; 48.04%; <ul style="list-style-type: none"><li>• Paper &amp; cardboard: 2 999.33 t</li><li>• Glass: 9 112.11 t</li><li>• Plastic: 1 151.5</li><li>• Metal: 144.74 t</li><li>• Mixed packaging waste: 47 639.92 t</li></ul> Bio-waste: 15 343.58 t; 12.06%; Other: 50 738.47t; 39.9% <ul style="list-style-type: none"><li>• Bulky waste: 32 703.04 t; 25.71%;</li><li>• WEEE: 155.29 t; 0.12%;</li><li>• Hazardous waste: 89.98 t; 0.07%;</li></ul>

<sup>1</sup> Lack of data on waste generation in Warsaw. Only amount of collected waste is known based on reports prepared by entities providing waste collection in the city. [PL City Hall 2015a]






	<ul style="list-style-type: none"> <li>Construction and demolition (C&amp;D) waste: 14 876.57 t; 11.70%;</li> <li>Remaining waste collected separately: 2 913.59 t; 2.30%. (percentages calculated based on total of 511 375.66 t mixed municipal waste collected in 2014).</li> </ul>
<b>3. Description of overall separate collection systems operating in capital</b>	
<p>A <u>new waste collection system</u> has been introduced to all 18 districts of Warsaw as of August 2014 (prior, since February 2014, the new separate waste collection system covered only 8 districts). Residents segregate their waste into three different containers/bags, which are: [3]</p> <ul style="list-style-type: none"> <li>Red containers/bags;</li> <li>Green containers/bags;</li> <li>Black containers.</li> </ul> <p><b>Paper and cardboard:</b> dry waste paper and cardboard is separately collected in red containers/bags. [3]</p> <p><b>Glass:</b> waste glass bottles and jars (without caps - should be placed into the red containers/bags) is separately collected in green containers/bags. [3]</p> <p><b>Plastic:</b> plastic packaging is separately collected together (co-mingled) with paper and cardboard in red containers/bags. [3]</p> <p><b>Metal:</b> metal cans are separately collected together (co-mingled) with plastic, paper and cardboard in red containers/bags. [3]</p> <p>Remaining (mixed) municipal waste is collected in black containers. [3]</p>	
<p><b>Annual Running Costs:</b> for municipal waste management in Warsaw (including separate waste collection) was 265 000 000 PLN (66 250 000 €) in 2014. [PL City Hall 2015a]</p>	
<p><b>Setup costs:</b> Not available</p>	
<p><b>Coverage:</b> Based on submitted declarations: 69.74% of residents have chosen separate waste collection and 30.26% non-separate waste collection [PL City Hall 2015a]</p>	
<b>4. Elements of the collection system</b>	
<b>MUNICIPALITIES OR THEIR CONTRACTORS</b>	
 <p>Door-to-door collection of source separated waste</p>	
<b>Fractions collected</b>	Glass and bio-waste (green waste and biodegradable waste) as defined by [§4 [5]]
<b>Collection frequency</b>	<b>Glass:</b> minimum monthly in single-family house areas and areas of blocks and apartments as defined by [§20 [5]]
	<b>Bio- waste:</b> monthly between May and November as defined by [§7 [5]]
<b>Coverage of collection</b>	<b>Not available</b>
<b>Annual collected quantities</b>	Glass (no differentiation on door-to-door and bring system was available): 9 098.61 t (glass packaging) and 13.5 t (glass) in 2014. [PL City Hall 2015a]
	Bio-waste (no differentiation on door-to-door and bring system was available): 15 343.58 t in 2014. [PL City Hall 2015a]
<b>Setup costs</b>	<b>Not available</b>
<b>Running costs</b>	<b>Not available</b>
<b>Source of funding</b>	Waste budget + Pay as you throw (PAYT) charges [PL City Hall 2015]
<b>Cost to consumer (annual)</b>	<p>Single family houses – monthly charges: (as defined by [§4 PL WAW CWM 2015])</p> <ul style="list-style-type: none"> <li>Separate waste collection: 30-60 PLN (7-15€) depending on the size of the household (number of persons).</li> <li>Non-separate waste collection: 36-72 PLN (9-18€) depending on the size of the household (number of persons).</li> </ul>





	<p>Residents of blocks and apartments – monthly charges: (as defined by [§3 PL WAW CWM 2015])</p> <ul style="list-style-type: none"> <li>• Separate waste collection: 10-37 PLN (2-10€) depending on the size of the household.</li> <li>• Non-separate waste collection: 12-45 PLN (3-11€) depending on a size of the household.</li> </ul>
 <b>Door-to-door collection of co-mingled recyclables</b>	
<b>Fractions collected together in one bin/bag</b>	<p>Plastic, metal, paper and cardboard (dry waste) as defined by [§11 [5]]</p> <p>Only co-mingled door-to-door separate waste collection system of plastic, metal and paper and cardboard (dry waste) is provided [PL City Hall 2015]</p>
<b>Collection frequency</b>	Minimum monthly in single-family house areas and minimum weekly in areas of blocks and apartments as defined by [§20 [5]]
<b>Coverage of collection</b>	<b>Not available</b>
<b>Annual collected quantities</b>	<b>Paper and cardboard</b> (no differentiation on door-to-door and bring system was available): 2 584.44 t (paper and cardboard packaging) and 414.89 t (paper and cardboard) in 2014. [PL City Hall 2015a]
	<b>Metal</b> (no differentiation on door-to-door and bring system was available): 144.74 t (metal packaging) in 2014. [PL City Hall 2015a]
	<b>Plastic</b> (no differentiation on door-to-door and bring system was available): 1 132.78 t (plastic packaging) and 18.72 t (plastic) in 2014. [PL City Hall 2015a]
<b>Setup costs</b>	<b>Not available</b>
<b>Running costs</b>	<b>Not available</b>
<b>Source of funding</b>	Waste budget + Pay as you throw (PAYT) charges [PL City Hall 2015]
<b>Cost to consumer (annual)</b>	<p>Single family houses – monthly charges: (as defined by [§4 PL WAW CWM 2015])</p> <ul style="list-style-type: none"> <li>• Separate waste collection: 30-60 PLN (7-15€) depending on the size of the household (number of persons) → annual costs: 84-180€.</li> <li>• Non-separate waste collection: 36-72 PLN (9-18€) depending on the size of the household (number of persons) → annual costs: 108-216€.</li> </ul> <p>Residents of blocks and apartments – monthly charges: (as defined by [§3 PL WAW CWM 2015])</p> <ul style="list-style-type: none"> <li>• Separate waste collection: 10-37 PLN (2-10€) depending on the size of the household → annual costs: 24-120€.</li> <li>• Non-separate waste collection: 12-45 PLN (3-11€) depending on a size of the household → annual costs: 36-132€.</li> </ul>
 <b>Bring-in Civic Amenity sites owned by the city</b>	
<b>Fractions collected</b>	Based on law regulations (as specified in [§4.2 (1) PL AKCOiM 1996]), at the area of Separate Waste Collection Point Sites (PSZOK in Polish) collection of at least fractions such as: overdue medicines and chemicals, waste batteries and accumulators, waste electronic and electrical equipment (WEEE), furniture and other bulky waste, waste tyres, green waste as well as construction and demolition (C&D) waste, should be provided. [PL City Hall 2015]
<b>Number of sites</b>	<p>0 (currently owned by the city).</p> <p>Planned development: 2 sites (tender processes were already announced). The estimated (optimistic) execution time is May 2015. [PL City Hall 2015]</p>
<b>Collected quantities</b>	<b>Not available</b>
<b>Setup costs</b>	<b>Not available</b>
<b>Running costs</b>	<b>Not available</b>



Source of funding	Waste budget + Pay as you throw (PAYT) charges [PL City Hall 2015]
Cost to consumer	Free of charge [PL City Hall 2015]
 <b>Bulky waste separate collection (organised by the city)</b>	
Products covered	Bulky waste
Quantity covered by system (in t)	Not available
Quantity collected by system (in t)	32 703.04 t in 2014 [PL City Hall 2015a]
Funding mechanism	Waste budget + Pay as you throw (PAYT) charges [PL City Hall 2015]
Consumer cost	Free of charge (included in PAYT charges) [PL City Hall 2015]
 <b>Separate Waste Collection Point (PSZOK in Polish) owned and operated by STENA Recycling (outside the auspices of the city [PL City Hall 2015a])</b>	
Products covered	Private site (owned and operated by STENA Recycling): glass, paper and cardboard, plastic packaging, metals, textiles, WEEE, bulky waste and hazardous waste (waste accumulators, oil filters, solvents, oil paints, toner cartridges, aerosols, overdue medicines and thermometers). [4]
Quantity covered by system (in t)	Not available
Quantity collected by system (in t)	Not available
Funding mechanism	Not available
Consumer cost	Mostly free of charge; charges are collected in case of bulky waste and C&D waste (e.g. 5-100 PLN [approx. 1-25€] per piece, depending on type and size of waste). [4]
 <b>Textiles / Used Clothes Collection (outside the auspices of the city [PL City Hall 2015a])</b>	
<b>Organized actions for textiles / used clothes collection</b>	
Products covered	Mainly used clothes and textiles are collected in bags in front of households (announcements are spread a few days earlier). In some places containers for used clothes and textiles collection are also set.
Quantity covered by system (in t)	Not available
Quantity collected by system (in t)	Not available
Funding mechanism	Organized and financed by public benefits organizations: n/a
Consumer cost	Free of charge



 <b>Used Batteries Collection (outside the auspices of the city [PL City Hall 2015a])</b>	
<b>Organized actions for used batteries collection</b>	
<b>Products covered</b>	Used are collected in containers set in public places, i.e.: authorities offices, schools and shops etc.
<b>Quantity covered by system (in t)</b>	<b>Not available</b>
<b>Quantity collected by system (in t)</b>	<b>Not available</b>
<b>Funding mechanism</b>	Extended producer responsibility (EPR) scheme
<b>Consumer cost</b>	Free of charge
 <b>WEEE / Used Accumulators Collection (outside the auspices of the city [PL City Hall 2015a])</b>	
<b>WEEE and used accumulators return system</b>	
<b>Products covered</b>	WEEE and used accumulators may be returned during purchase of the new equipment in shops.
<b>Quantity covered by system (in t)</b>	<b>Not available</b>
<b>Quantity collected by system (in t)</b>	<b>Not available</b>
<b>Funding mechanism</b>	Extended producer responsibility (EPR) scheme
<b>Consumer cost</b>	Free of charge
<b>BARRIERS TO IMPLEMENT SEPARATE COLLECTION</b> Despite informative campaigns, among residents who have decided on separate waste collection (based on declarations), some of them do not perform this. Main reasons of such situation include: [PL City Hall 2015a] <ul style="list-style-type: none"> <li>– Lack of available space in households needed for containers positioning;</li> <li>– Lack of available space in households for bins/bags to collect waste fractions;</li> <li>– Difficulties in splitting into different kind of fractions.</li> </ul>	
<b>ADDITIONAL FINDINGS</b> The new waste management system was introduced in Warsaw in February 1, 2014 (8 districts). Since August 2014 the remaining 10 districts are now covered by the system. Therefore, presented data for 2014 do not represent the fully adopted separate waste management system in Warsaw. There were problems with obtaining data on waste, i.e. lack of publicly available reports on waste management in Warsaw. The City Hall collects only information from entities providing waste collection in the city on amounts of collected waste. No information on amounts of generated municipal waste was/is available. Before 2013 local / regional authorities were not obliged to collect any information with regards to municipal waste generation, collection and management. No data from the past (reports publicly available such as those published by the Main Statistical Office present data on waste generation except for municipal waste).	



5.Materials, Quantities and costs

SUMMARY OF COLLECTION SYSTEMS IN PLACE IN 2014

Collected waste (t)	Paper	Glass	Plastic	Metal	Bio-waste	City Coverage
Door-to-door		9 112.11			15 343.58	
Co-mingled	2 999.33	n/a	1 151.50	144.74		
Bring points						
Civic amenities						
Producer / Retailer take-back						
Total	2 999.33	9 112.11	1 151.50	144.74	15 343.58	

SUMMARY OF COSTS FOR SEPARATE COLLECTION SYSTEMS IN PLACE (setup costs should be total, running costs annual)

Costs (€)	Authorities / waste management companies		Consumer costs	
	Setup (€)	Running (€/year)	Funding type	Amount (€)
Door-to-door	Not available	Not available	PAYT scheme	24-180 annually
Co-mingled	Not available	Not available	PAYT scheme	24-180 annually
Bring points	Not available	Not available	Not available	Not available
Civic amenities	Not available	Not available	PAYT scheme	Free of charge
Producer / Retailer take-back	Not available			
Total	Not available	66 250 000	Not available	Not available

6. Recycling and losses

RECYCLING OF THE COLLECTED WASTE

Recycled (t)	Paper	Glass	Plastic	Metal	Bio-waste	Total
Generated	Not available	Not available	Not available	Not available	Not available	Not available
Collected	2 999.33	9 112.11	1 151.50	144.74	15 343.58	28 751.26
Recycled nationally	Not available					
Exported for recycling						
Rejected						

ADDITIONAL FINDINGS

Required recycling level and preparation for re-use of fractions such as: paper, metal, plastic and glass was 16.64% and met the requirement level (i.e. at least 12% in 2014 [§3b PL AKCOiM 1996]). [PL City Hall 2015a]

No further information on how recycling looks like and how it is measured was obtained.





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