

The Polish Market for Municipal Waste Affords High Potentials

Sandra Biering, Dirk Briese and Hilmar Westholm

Especially the guidelines of the EU landfill directive and of the waste framework directive increase the pressure on the Polish waste management to change the disposal structures. Experts already assume that Poland will not manage many of the short and medium term deadlines and has to expect to pay high fines partly, despite of exceptions and temporally delay by the EU. There is a strong need to catch up, and in the coming years substantial investments into the retrofit and new construction of treatment, recovery and disposal facilities have to be effected.

There is a rising amount of collected waste [1]. It has to be announced that not only the will of the population regarding collection of waste material has slightly improved but also the state initiated important steps for the implementation of EU directives. According to a survey to experts the implementation occurs very slowly. Since January 1st 2011, for instance, an obligation to make waste available to the local authority exists. However, this is to be expected for the middle of 2011 at the earliest. So far households have free choice by their waste disposal contractors. Therefore it is often impossible to collect all waste because the households searched for their own *ways of disposal*. The new arrangement will cause a higher contingent of collected waste.

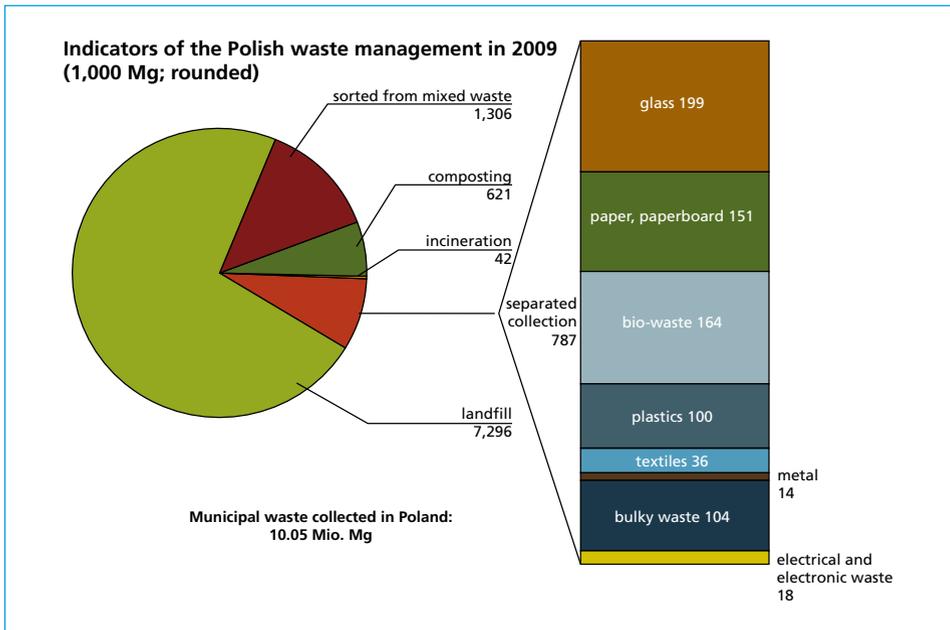


Figure 1: Municipal waste in Poland, 2009

Sources:

Główny Urząd Statystyczny: Ochrona środowiska Environment 2010 – Informacje i opracowania statystyczne (Central Statistical Office – Statistical information and elaborations), 609 pp.

<http://www.stat.gov.pl>, access on January 4th 2011

The main way of waste disposal in Poland is still landfilling. Nearly 78 percent of municipal waste goes to landfills in 2009 (87 percent in 2008). Only 14 percent are recycled and about 7 percent are composted (2009).

Incineration of waste de facto plays no role because there only exists one waste incineration plant with a capacity of 42,000 tons per year in Poland so far.

Up to now it does not succeed to achieve a waste sorting in households in spite of strongly increased disposal fees [3]. First of all, packaging waste is sorted collected, especially those of paper, plastics and glass.

The Polish waste management act envisions the publishing of a national waste management plan (KPOG), which includes the aims to achieve for every four years. Until the end of 2013, every household should be linked to an organized waste disposal system according to the concept of the Polish government. The waste volume of landfilled municipal waste should be decreased to a maximum of 60 percent until 2014. The reuse and recycling rate of paper, glass, plastics and metal should be increased by 50 percent until 2020. Incineration is directed as main disposal method for disposal areas with more than 300,000 inhabitants. Instead, in smaller disposal areas mechanical-biological treatment plants should play an overriding role [4].

In the reference scenario the first new waste incineration plants will be brought on line in 2013. Their total capacity will increase to about 1.8 million tons per year by bringing into service more incineration plants until 2016. By this time, the plants which get an EU-advancement by the funding period from 2007 until 2013 have to be built because otherwise the payback of the funding has to be done. Until 2020, the capacity of waste incineration plants increases to about 2 million tons.

Based on the continuing strong economy in the building industry, also the incineration capacities in cement plants will increase. This leads to the fact that simultaneously to mechanical-biological treatment plants increasingly mechanical-physical and mechanical-biological stabilization plants with the main goal of RDF production will be built from about 2017.

In the reference scenario plant capacities develop slowly in the first instance. There will be a strong extension between 2012 and 2015 and a circa constant slightly extension of plant capacities from 2016 on.

Based on legal requirements (inter alia a landfill ban of untreated and flammable waste, directives of waste sorting and the closing of landfills) the capacities of sorting plants and mechanical-biological treatment plants will increase especially between 2013 and 2016. The surveyed experts act on the assumption that huge foreign companies will change from the erstwhile trend of many small plants to the point of few plants with high capacities (> 100,000 t/a) in particular.

Until 2020, about 3,000 ha acreage of landfills should be closed and recultured. New landfill-capacities for about eight million tons of waste will be developed. Assuming a 20-year useful life, capacities of another 52 million tons have to be developed until 2027.

The Polish market for municipal waste, for the period from 2010 to 2020 in the reference scenario, a total investment of about 2.8 billion Euros for the construction of plant capacities for the treatment and recycling of domestic waste does exist. The incineration-capacities of coal and cement plants are also included into this amount. Based on the high costs per tons of about 900 Euro the highest investment volume exists for the waste incineration plants. For the construction of sorting plants a market volume of about 210 million Euros is assumed in the reference scenario by 2020, for mechanical-biological treatment plants it

is about 570 million Euros and for the retrofit of old landfills as well as for the construction of landfills it is about 800 million Euros. Despite the higher plant capacities, the volume of investments for sorting plants is not as high as the one for mechanical-biological plants because of lower costs per tons. The costs per tons of sorting capacity for sorting plants are up to about 65 Euros; for mechanical-biological plants they lie between 200 and 450 Euros (in relation to the equipment and treatment rate).

The intensity of competition in Poland is rated actually as strong (32 %) to very strong (22 %) by the market members being interviewed within this study (plant constructors, waste manager and experts). Most survey participants (24 %) rated good references as the key criterion for an entry into the polish market. Another important criterion is the contact to businesses of the branch in the country; but for plant constructors also the price for components and plants is worth. First of all the strategy options of cooperation with established national industries is a huge benefit in Poland. Smaller industries are confronted with an intensive competition by the established industries on the polish market for years.

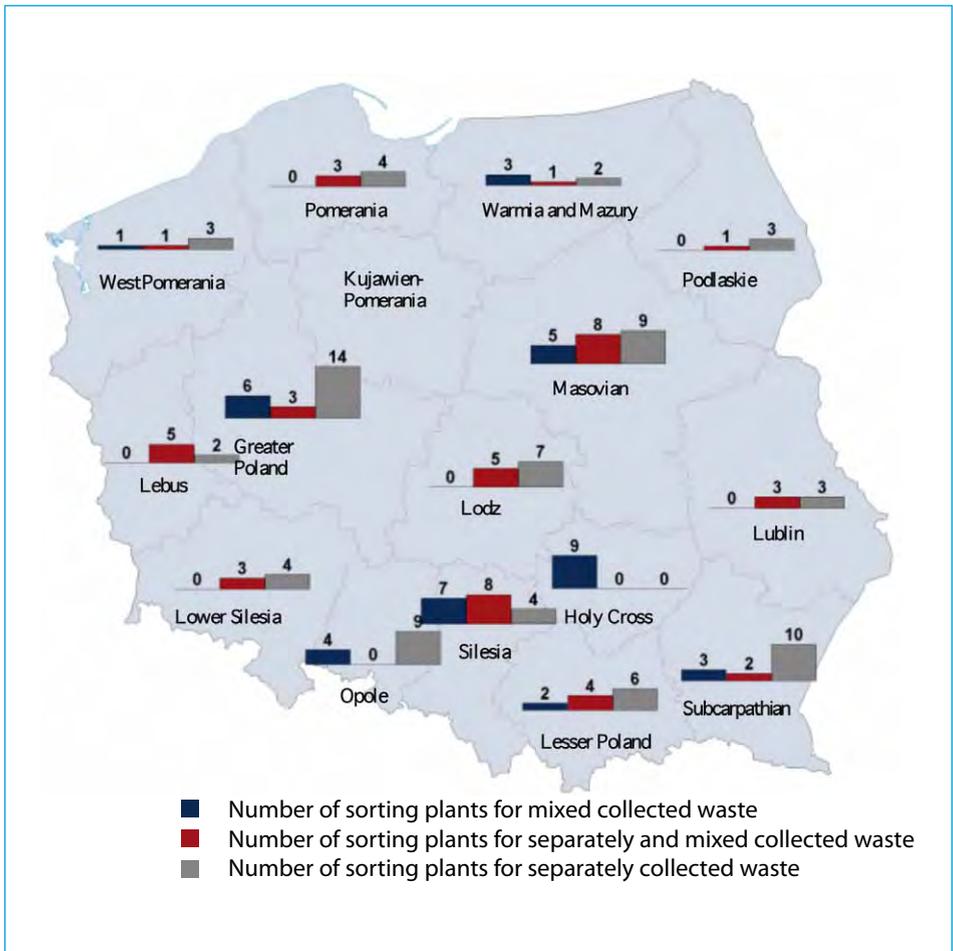


Figure 2: Number of sorting plants in Poland

The risks for the entry into the polish market were asked in the surveys, too. According to an estimation of the market members first of all risks exist in the implementation of the legal framework as for instance the already mentioned obligation to make waste available or the landfill ban of untreated and flammable waste. On the other hand, this results in uncertainty of the investment.

Based on the actual framework conditions and status quo, the study analyses the future development of the polish municipal waste market and gives an overview about the investments needed for new disposal capacities. Strategy advises, based on the competition analysis and the shown trends, chances and risks, make it possible to proof a strategic positioning of plant constructors and waste managers. trend:research uses different field- and desk-research-methods. Simultaneously to comprehensive intra- and internet-database-analysis (incl. magazines, publications, conferences, annual reports etc.), 36 structured interviews are included which were led in Poland and other European countries under this study with plant operators, waste managers and conditioners, plant constructors and component manufacturers, administrations and alliances as well as other experts of the branch. Furthermore the relevant survey results from the actual studies *Waste-to-energy until 2030 (3rd ed.)* and *sorting plants in Europe by 2025* were implicated.

Literature

- [1] Główny Urząd Statystyczny: Ochrona środowiska Environment 2010 – Informacje i opracowania statystyczne (Central Statistical Office – Statistical information and elaborations), 609 pp.
- [2] <http://www.stat.gov.pl>, access on January 4th 2011
- [3] Kapsa, K.: Verfahren für die Systembewertung und Ableitung der Optimierungspotenziale für Entsorgungssysteme am Beispiel eines polnischen Zweckverbandes. Dissertation. Technische Universität Berlin, 2010, 432 pp.
- [4] <http://environet.eu/pub/pubpol/Kpgo2010.pdf>, access on January 4th 2011

Die Deutsche Bibliothek – CIP-Einheitsaufnahme

WASTE MANAGEMENT, Volume 2

Waste Management, Recycling, Composting, Fermentation,
Mechanical-Biological Treatment, Energy Recovery from Waste,
Sewage Sludge Treatment

Karl J. Thomé-Kozmiensky, Luciano Pelloni.

– Neuruppin: TK Verlag Karl Thomé-Kozmiensky, 2011

ISBN 978-3-935317-69-6

ISBN 978-3-935317-69-6 TK Verlag Karl Thomé-Kozmiensky

Copyright: Professor Dr.-Ing. habil. Dr. h. c. Karl J. Thomé-Kozmiensky
Alle Rechte vorbehalten

Verlag: TK Verlag Karl Thomé-Kozmiensky • Neuruppin 2011

Redaktion und Lektorat: Professor Dr.-Ing. habil. Dr. h. c. Karl J. Thomé-Kozmiensky,

Dr.-Ing. Stephanie Thiel, M. Sc. Elisabeth Thomé-Kozmiensky, Janin Burbott

Erfassung und Layout: Janin Burbott, Petra Dittmann, Sandra Peters,

Martina Ringgenberg, Ginette Teske

Druck: Mediengruppe Universal Grafische Betriebe München GmbH, München

Dieses Werk ist urheberrechtlich geschützt. Die dadurch begründeten Rechte, insbesondere die der Übersetzung, des Nachdrucks, des Vortrags, der Entnahme von Abbildungen und Tabellen, der Funksendung, der Mikroverfilmung oder der Vervielfältigung auf anderen Wegen und der Speicherung in Datenverarbeitungsanlagen, bleiben, auch bei nur auszugsweiser Verwertung, vorbehalten. Eine Vervielfältigung dieses Werkes oder von Teilen dieses Werkes ist auch im Einzelfall nur in den Grenzen der gesetzlichen Bestimmungen des Urheberrechtsgesetzes der Bundesrepublik Deutschland vom 9. September 1965 in der jeweils geltenden Fassung zulässig. Sie ist grundsätzlich vergütungspflichtig. Zuwiderhandlungen unterliegen den Strafbestimmungen des Urheberrechtsgesetzes.

Die Wiedergabe von Gebrauchsnamen, Handelsnamen, Warenbezeichnungen usw. in diesem Werk berechtigt auch ohne besondere Kennzeichnung nicht zu der Annahme, dass solche Namen im Sinne der Warenzeichen- und Markenschutz-Gesetzgebung als frei zu betrachten wären und daher von jedermann benutzt werden dürfen.

Sollte in diesem Werk direkt oder indirekt auf Gesetze, Vorschriften oder Richtlinien, z.B. DIN, VDI, VDE, VGB Bezug genommen oder aus ihnen zitiert worden sein, so kann der Verlag keine Gewähr für Richtigkeit, Vollständigkeit oder Aktualität übernehmen. Es empfiehlt sich, gegebenenfalls für die eigenen Arbeiten die vollständigen Vorschriften oder Richtlinien in der jeweils gültigen Fassung hinzuzuziehen.