

CONVERSID

Market & Strategy



Abstract

Plastic related waste streams in Germany 2019

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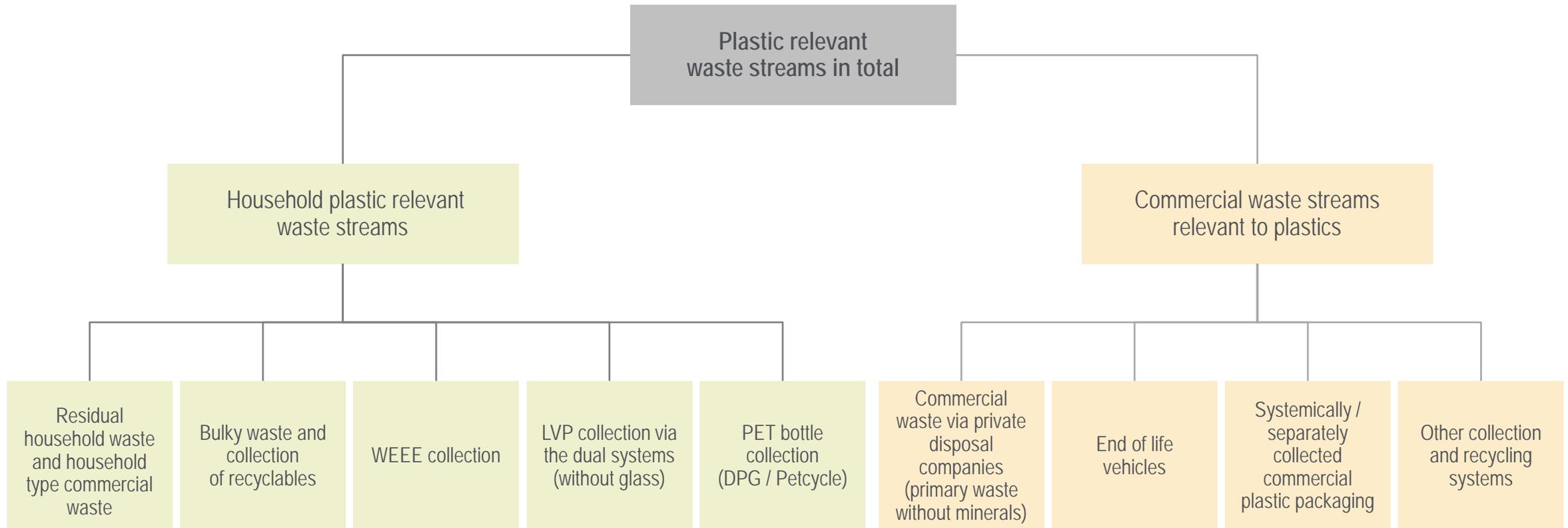
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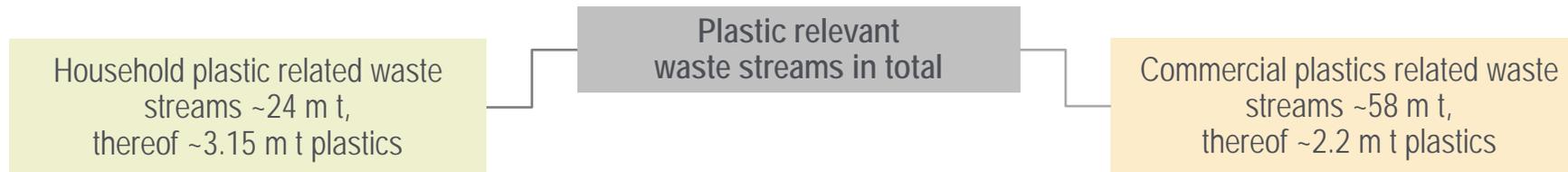
Management Summary (1/4)

Overview of household related commercial plastic-related waste streams



Management Summary (2/4)

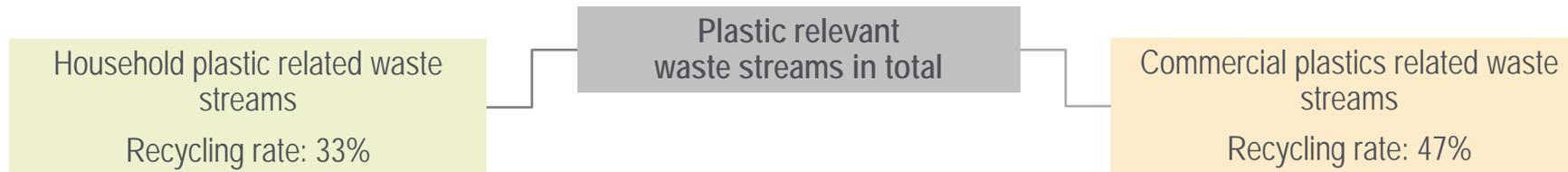
Collection of household related and commercial plastics-related waste streams



- In Germany, approx. 24 m t of household waste were collected in 2019.
- A large proportion of the plastic contained in various waste streams (~3 m t) is contained in **residual household waste and household type commercial waste** (plastic content between 6-7% of 17.5 m t total waste, corresponding to ~1.05 m t of plastic waste).
- A further ~1.2 m t of plastic waste is collected within the separate **light weight packaging collection** (yellow bag). In addition to metal fractions (aluminium, tinfoil) and paper/cardboard, mainly plastic packaging is collected (plastic share of the total stream ~43%).
- The **PET bottle collection** (~96% plastic content), subsumes a plastic quantity of approx. 0.45 m t.
- As the proportion of plastics in waste electrical and electronic equipment has increased in recent years (~26% plastics content), the amount of plastics in the **WEEE collection** has also risen to around 0.2 m t.
- A further 0.3 m t of plastic waste was collected by the **bulky waste/recyclable material collection**.
- Around 58 m t of commercial waste (primary waste) were collected in Germany in 2019. The proportion of plastics is rather low compared to the total amount collected, at 3-4%.
- Despite the very low proportion of plastics of only ~2% in total, the largest amount of plastics is collected via mixed **commercial waste** (~1.2 m t). The basis for this is a very high total amount of waste (~56 m t) from various branches of industry.
- In comparison, only about 0.9 m t of waste were collected via special **systemic/separate collection of commercial plastic packaging**, but the amount of plastic waste was ~0.8 m t with a share of ~87%.
- **Other collection and recycling systems**, which focus on the collection of individual types of plastics or specific applications (primarily from the construction and agricultural industries), have collected ~0.1 m t and primarily sent them for recycling.
- A relatively small amount of plastics results from collected **end of life vehicles** (~0.09 m t).

Management Summary (3/4)

Sorting and recycling of household and commercial waste streams relevant to plastics



- The sorted collection of **PET bottles**, stimulated by a deposit system, achieved a very high recycling rate of over 95% or a recycling quantity of ~425 kt.
- For the plastic packaging within the **LVP collection**, a recycling rate of around 43% was achieved in 2019. Thus, from this waste stream, approx. 500 kt of plastics could be sorted for recycling.
- In the dismantling of **old electrical equipment**, larger plastic parts were removed, but also shredded plastic parts were sorted out and sent for recycling.
- Separately collected plastics (especially HDPE and PP) from **bulky waste and recyclable material collection** can be easily recycled, plastics from mixed containers are primarily used for energy recovery.
- In Germany, apart from individual pilot projects, no plastics are currently sorted and recycled from **residual household waste or commercial waste similar to household waste**. These waste streams contained around ~1.05 m t of plastics and were primarily used for energy recovery.
- Plastic waste collected via **Other collection and Recycling systems** is usually sorted by type (e.g. Rewindo: PVC windows). From this waste stream, easily recyclable plastic fractions can be obtained, which is reflected in a recycling rate of ~96% in 2019.
- A high recycling rate (~83%) was also achieved through the predominantly systemic/separate **collection of commercial packaging**.
- In contrast, the sorting focus for **end of life vehicles** in Germany today is still on metals, which is reflected in a comparatively low plastics recycling rate of ~24%.
- On the other hand, the sorting focus for end-of-life vehicles today is on plastics from mixed **commercial waste via private disposal companies**. Due to the increased waste heterogeneity and the pollution it contains, plastics are difficult and hardly economically recyclable at present. The sorting of plastic fractions from mixed waste is cost-intensive and requires a correspondingly high investment. There are positive approaches due to the amended Commercial Waste Regulation ("Gewerbeabfallverordnung"), which requires larger companies to keep waste separated. As a result, fractions can be sorted at the waste generator and thus be more easily recycled. Germany is still based on metals, which is reflected in a comparatively low plastics recycling rate of ~24%.

Management Summary (4/4)

Result and conclusion

- A **mechanical recycling** of household & commercial plastic waste is currently only carried out if the plastic waste is collected **separately** or "**relatively unmixed**". Household "PET bottle collection" and "LVP collection", as well as commercial "Other collection and recycling systems" and "Collection of commercial packaging" make this clear due to their high recycling rates. In future, the **focus should therefore be on further expanding the separate/sorted collection systems**. Moreover, an expansion in sorting capacities for mixed waste streams could make a significant contribution to future plastics recycling. In many European countries there are corresponding plants available. Particularly in the commercial sector, care should be taken to ensure that the Commercial Waste Ordinance "Gewerbeabfallverordnung", which prescribes separate collection (exceptions exist), is strictly met. Also in the household sector, for example, misplaced household waste can be reduced by regulations or educational measures.
- **Sorting of mixed waste streams**, such as residual household waste and household-related commercial waste, mixed commercial waste via private disposal companies, is currently not yet recognizable as a general trend. These **mixed-collected plastic wastes** are usually highly **contaminated/polluted** and **not sorted by type**. A separation and sorting of this waste or preparation for recycling is currently very costly and not economically profitable. However, individual pilot projects show that with the help of further developed sorting technologies, sorting of plastics from mixed waste streams would be possible in order to increase recycling volumes in Germany. However, the decision regarding sorting and recycling of these waste streams is usually made on the basis of economic factors at the waste collector and processor, due to the fact that rates are not specified.