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## Background:

- Group 1: Biobased biodegradable (e.g. Starch-based); Group 2: Biobased non-biodegradable (e.g. bio-PET); Group 3: Fossil-based biodegradable (e.g. PBAT).
- Bioplastics are **1%** share of the total plastic production.
- **Group 2** bioplastics share **35.8%**.
- **Group 1 & 3** bioplastics share **64.2%**.
- Total bioplastic market share envisaged to **increase dynamically** in future.
- Wide application area – **48% packaging**.

## Research question:

Is the existing waste management infrastructure equipped to handle the bioplastic waste?

## Methodology:

- Systematic literature review, using Google Scholar and ScienceDirect databases.
- 244 papers related to bioplastic waste management were referred.
- Review paper to be published in a peer-reviewed journal.

### Biobased Non-biodegradable Bioplastics (Group 2)

- Could be collected with the other light weight packaging waste.

- Chemically and physically similar to conventional plastics – so, easily sorted.

- Drop-in bioplastics.
- Could be recycled in the existing conventional plastic infrastructure.

### Biodegradable Bioplastics (Group 1 & 3)

- Confusion about where to collect.
- Biodegradable packaging waste to be collected with light weight packaging or residual waste.
- Certified compostable bags could be disposed with biowaste.
- Different countries, different legislations.

- Variety of bioplastics available.
- Ideally could be sorted out; however, machines need to be taught with the new materials.

- Act as contaminants for the conventional plastic recycling streams.
- Biodegradability major attraction; however, depends on the biowaste treatment facility acceptance & available infrastructure.
- So far, majorly incinerated.

Waste management infrastructure

Collection

Sorting

Recycling

## Conclusion:

- Sustainability of bioplastics could only be accrued when they have a **proper waste management**.
- **Group 2** bioplastics could be effectively handled with the **conventional plastics' recycling scheme**.
- **Group 1 & 3** could be seen as **contaminants** for **conventional plastic recyclates & biowaste**.
- **Current** waste management infrastructure is **not equipped** to **handle recycling** of the biodegradable plastics influx, and **should develop** to meet the **expected rise** in bioplastic quantity.

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