

Optimizing the use of secondary raw materials in the construction industry

A comparative analysis of regional material flows and processing capacities

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Material flows of building waste in Germany and Saxony

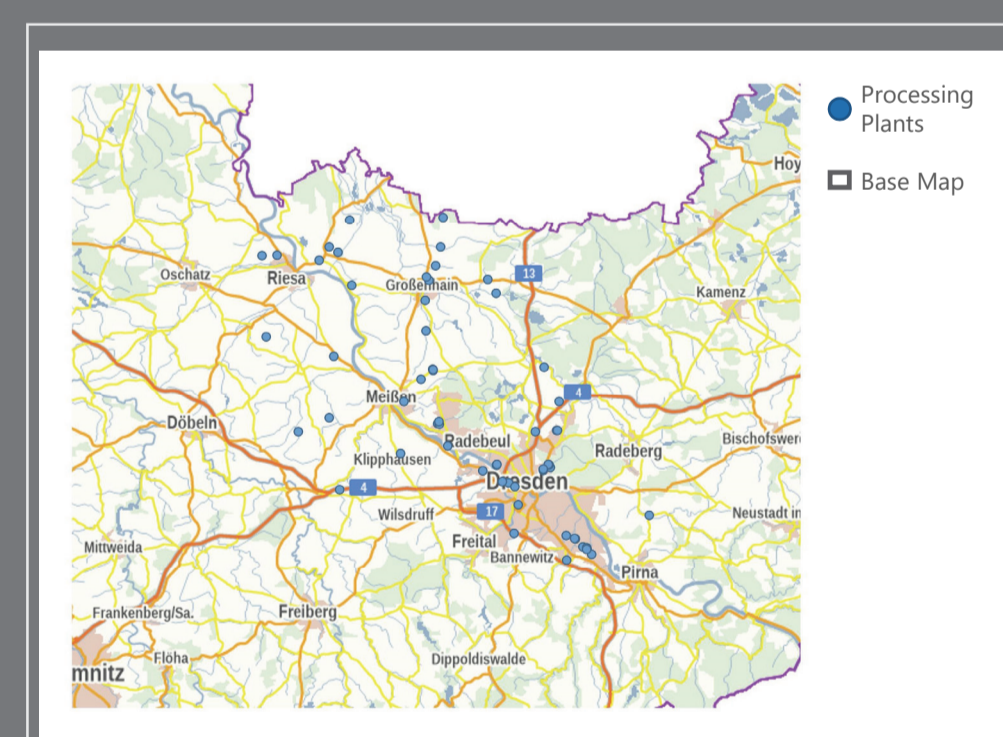
Regardless of their potential, high quality secondary building materials see limited use in the German construction sector. There is a lack of detailed information about volume and spatial distribution of construction and demolition (C&D) waste and the usage potential for recycled building materials. Statistical data is available only on state level. This hinders efficient planning of recycling and logistic processes and ultimately the use in construction of new buildings and infrastructure.

Background in numbers

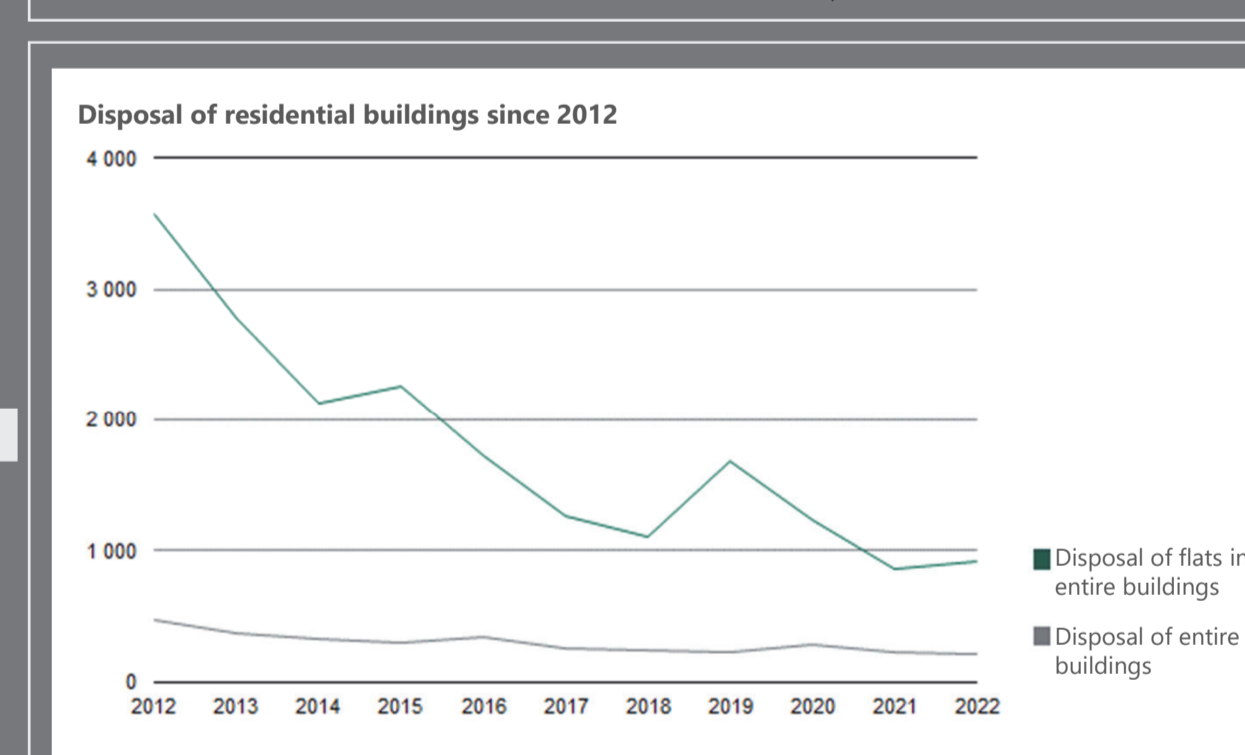
- **200 mio. tons** of C&D waste is produced in Germany each year, making it the biggest waste stream.
- Only **15 mio. tons** recycled aggregates are used in asphalt and concrete production.
- **30 km** is the estimated transport distance threshold for CO2 negative recycled building materials.

Methods

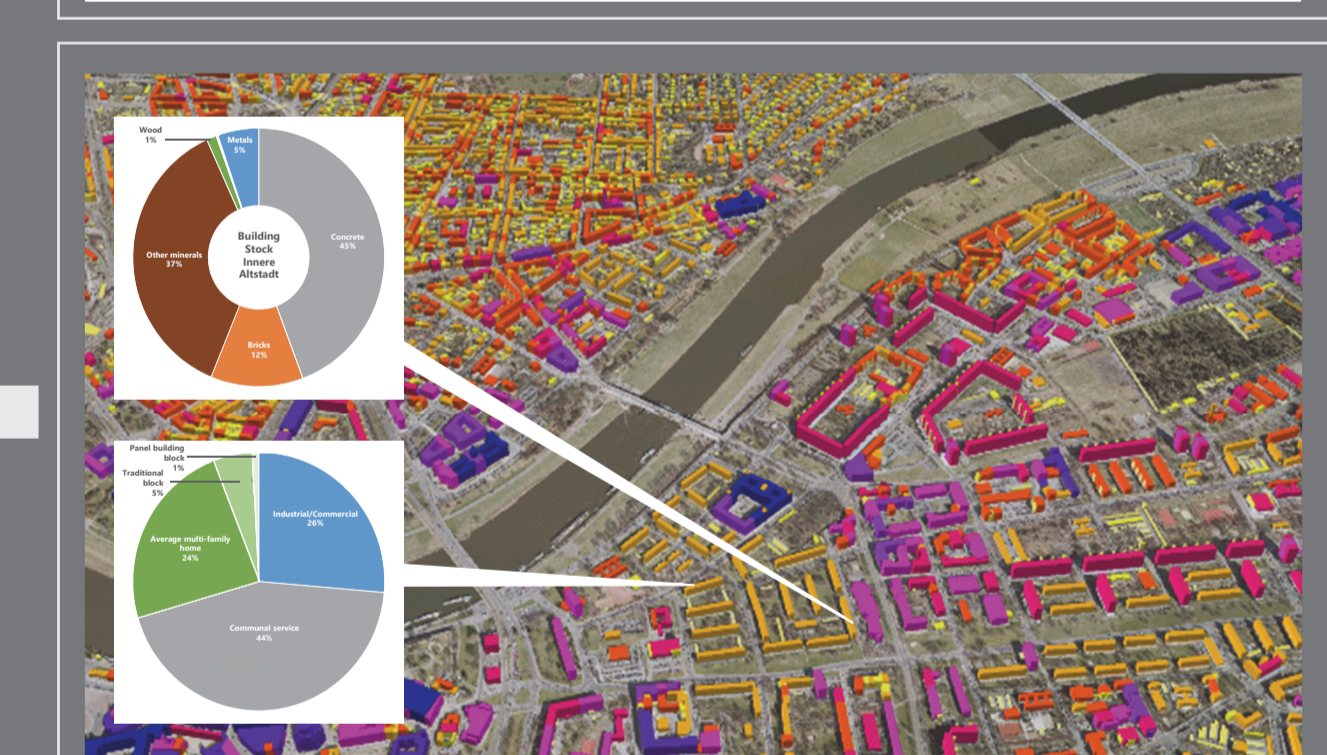
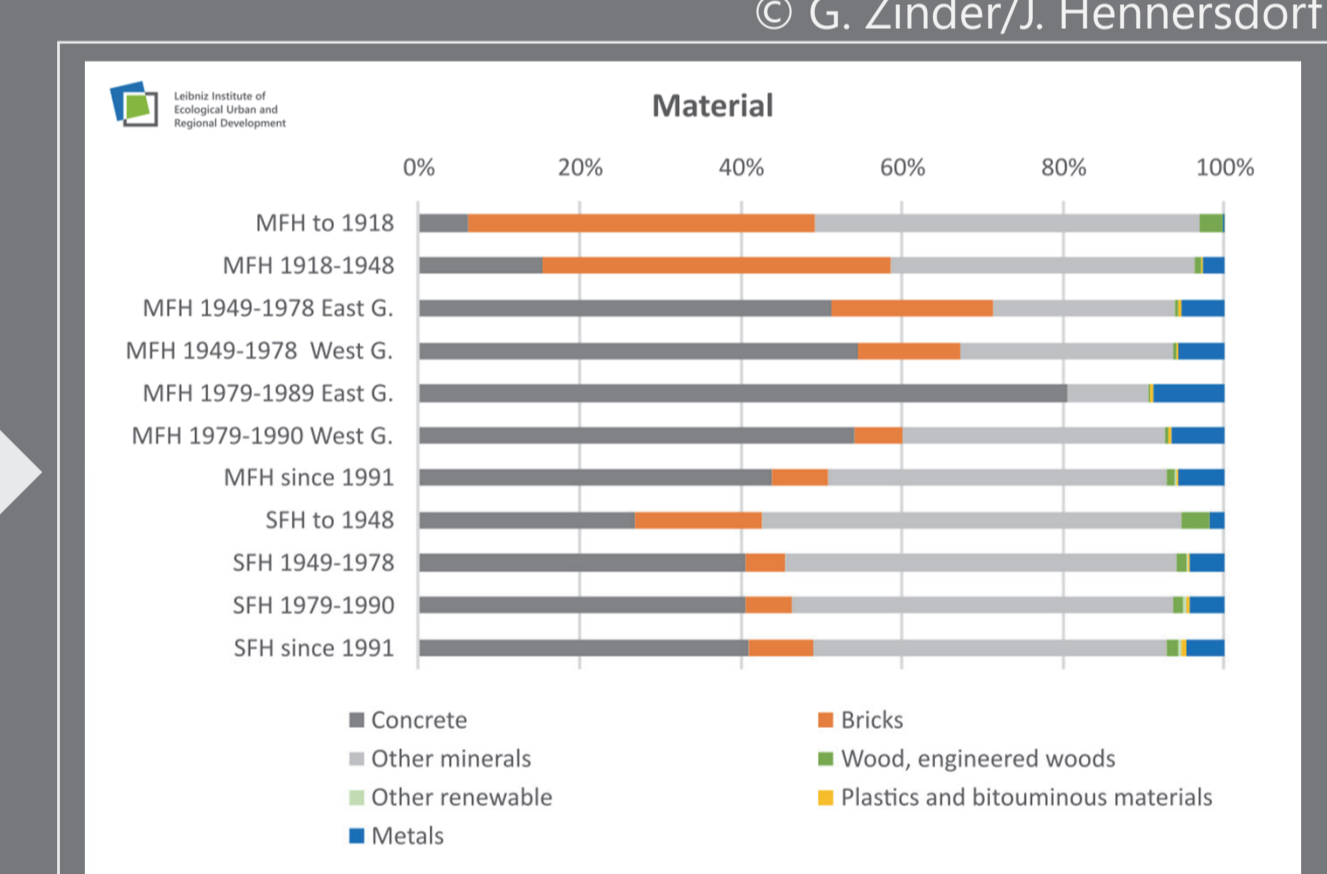
- The analysis follows the principle of a Bottom-Up material flow analysis.
- Geospatial data is correlated with material indicators specific to various building types.
- The derived "anthropogenic stock," when integrated with construction activity data, elucidates material flow dynamics.
- Administrative datasets regarding waste treatment facilities enable the comparison of these material flows with respect to geographic distribution and treatment capacities.



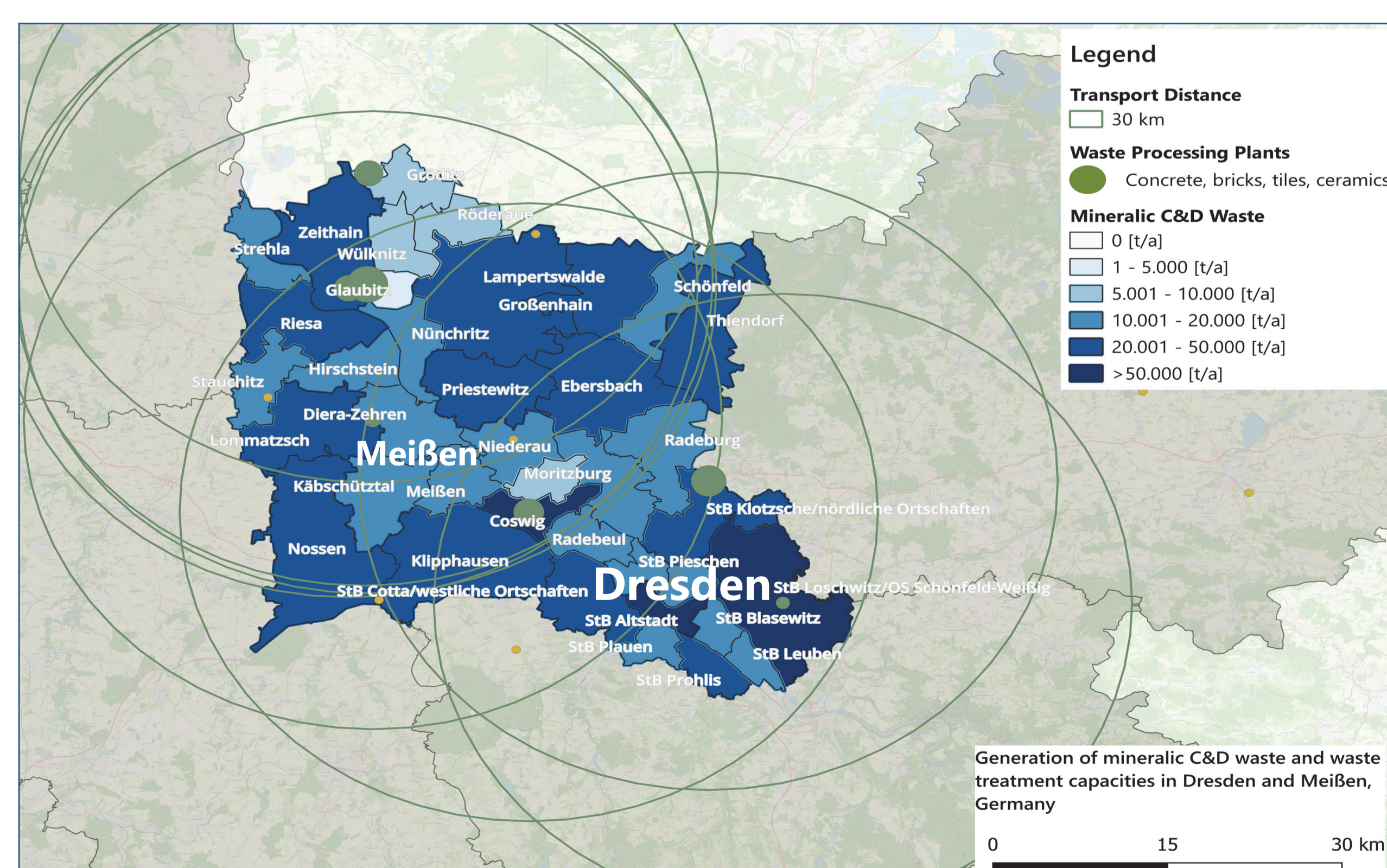
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Results

- Despite data gaps, the material flow analysis successfully identified potential supply and demand for recycled materials.
- Preliminary results on waste generation and processing capacity indicate a need for facilities capable of high-quality recycling.
- The spatial distribution analysis reveals increased waste generation and demand in urban areas.
- Further investigation need to address closing data gaps and providing detailed information on specific waste streams.