

Survey Report 3

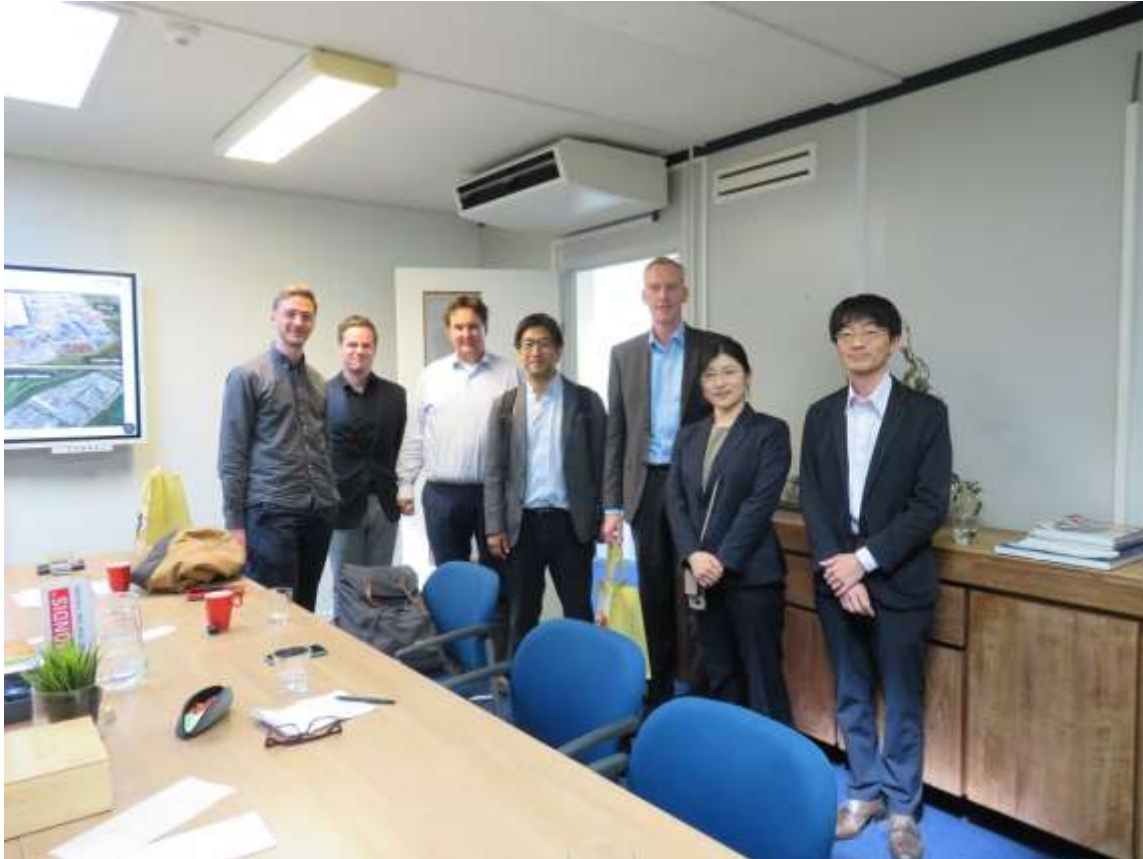
Remondis

(Construction and demolition waste recycler)

Remondis

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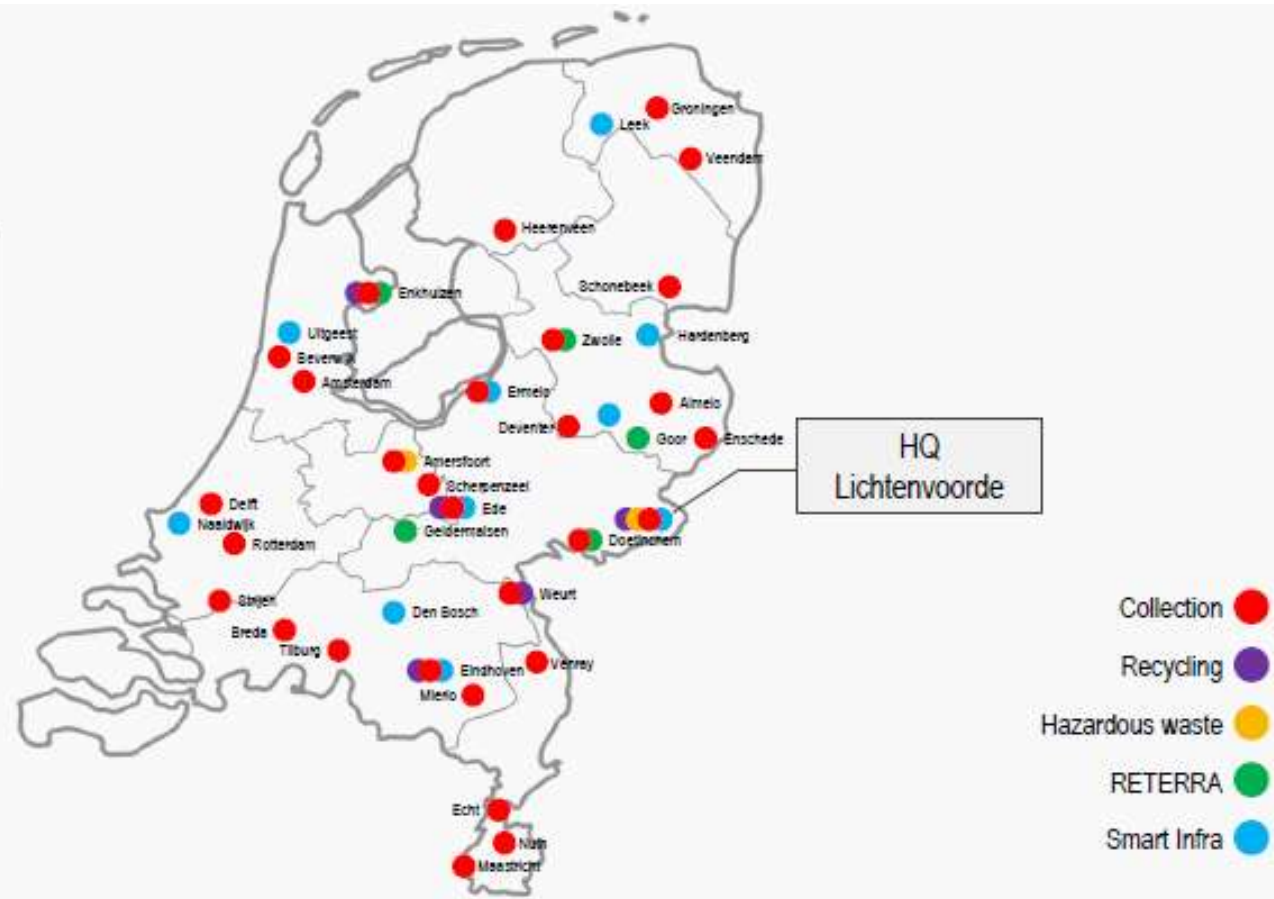
Visiting location: Son En Breugel, The Netherlands



Company Profile

- It is a group of German companies with operations throughout the Netherlands.
- It collects, treats, and recycles demolition waste, wood waste, food waste, hazardous waste, etc.

Services from more than 50 locations



Company Profile

Main waste flows

Waste flows	Ton
Debris	222.763
Demolition Waste	220.486
Wood	126.209
Bulky waste	17.884
Industrial waste	16.435
Total	603.777



Waste Disposal & Recycling Business

- **When houses are demolished in the Netherlands, debris and timber have to be separated, so debris and timber yards are set up outside.**
- **About 90% of the demolition waste is collected from construction companies. On-site separating by construction companies is rarely carried out at construction sites, such as house renovation, because there is no space for containers to separate and store waste. Wood wastes and debris may be sorted and discharged by setting up containers.**
- **80% of the collected waste is recycled and 20% is incinerated. Waste electricity is generated by incineration and sold to the city in which the incineration facility is located.**

Waste Disposal & Recycling Business

Photos: Debris, construction and demolition waste stock yard (outside)



Waste Recycling Business (Wood Waste Recycling)

- **Wood waste is recycled into three types. The top grade of A-wood is exported to Belgium as a raw material for the manufacture of wood products. The next grade of B-wood is used by furniture manufacturers, and C-wood is used as a raw material for cement production and for bio-recycling (fermentation and power generation fuel).**



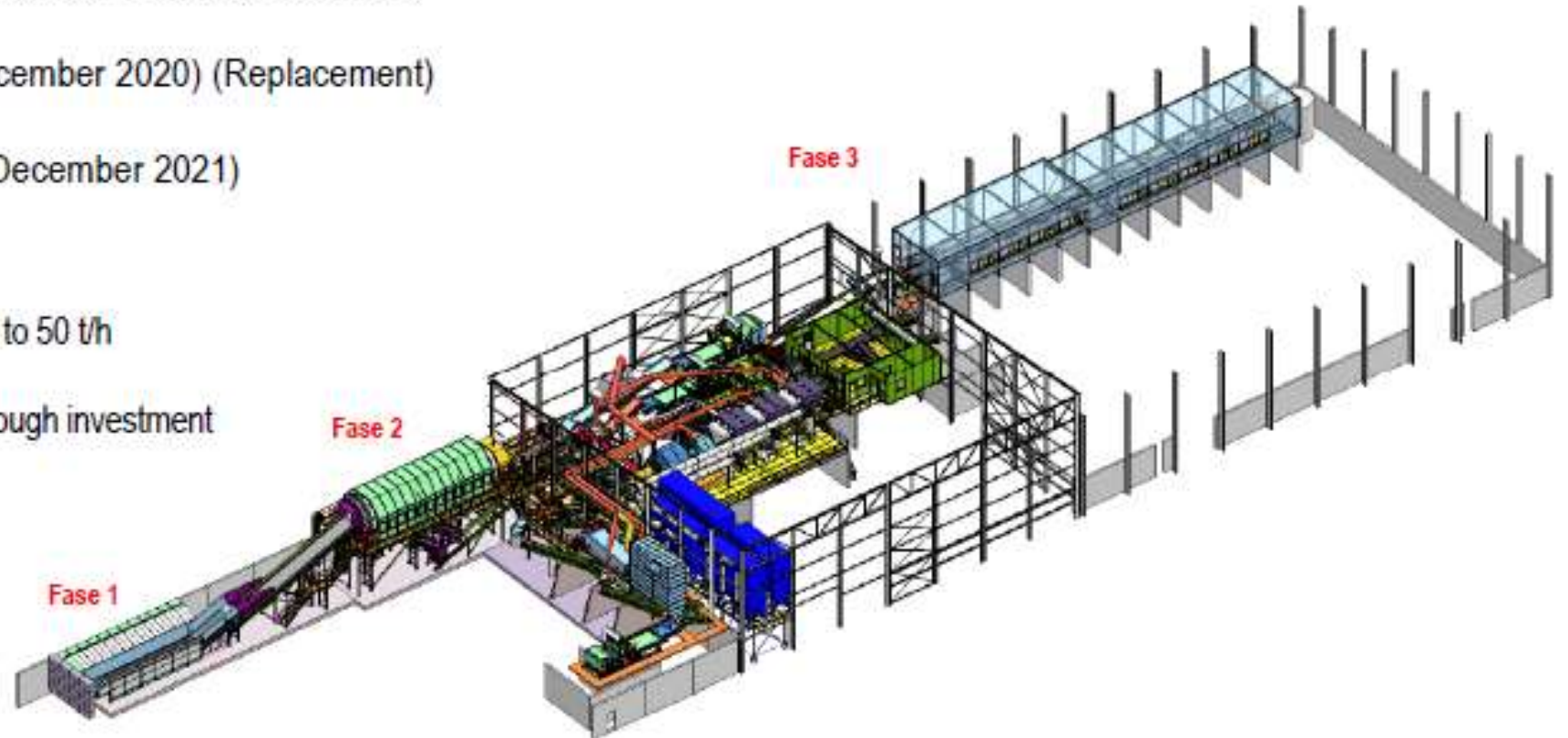
Waste Recycling Business (Sorting line)

Recycling Installation

- Fase 1 – New conveyor chain (August 2020) (Replacement)
- Fase 2 – New sorting drum (December 2020) (Replacement)
- Fase 3 – Upgrade sorting line (December 2021)

Goals:

- Increase in plant throughput up to 50 t/h
- Reduction of manual labour through investment in automatic sorting equipment
- Increase recycling rate



Photos: Pre-treatment and hand sorting



Photos: Inputting waste into sorting line (Fase1)



Photo: Sorting line (Fase2, 3)



Photo: Hand sorting line



Challenges and proposals for the Waste Recycling Business

- **There is a risk of fire if the container contains batteries. It is necessary to inform the waste dischargers that the batteries must be removed and discharged.**
- **In the Netherlands, landfilling was banned in 1998 excluding asbestos, so it was necessary to steer the country towards material recycling of wastes. In some European countries other than the Netherlands, waste is allowed to be landfilled and should be banned in all of Europe.**
- **If the quality of the collected waste is not uniform, the scope for reuse and recycling is reduced.**

Challenges and proposals for the Waste Recycling Business

- **Cinder(bottom ash) is used as a raw material for cement or the ash is washed to make it usable for various purposes, including as a material for concrete and floor finishes. Dust(fly ash) is also used as a raw material for asphalt. The use of cinder and dust is still a matter of debate.**
- **In the Netherlands, inexpensive incineration facilities are also used, and the ash may not be clean. The Dutch standard is a combustion temperature of 600° C.**