Visit in Demonstration region Styria – Austria, Recycling Centre of the City of Graz, Müllex-Umwelt-Säuberung-GmbH, 28, 29/01/2019

The team of BIOREG project visited 2 facilities in Graz, Austria in January 2019 as a part of the project strategy to learn more about the Demonstration regions and to explore how the good practices can be transferred into recipient regions.

**Recycling Centre of the City of Graz**
The Recycling Centre of the City of Graz is a good example of a well working public wood waste collection system. The inhabitants of the city of Graz and small companies located within the city borders can bring their recyclable (paper, plastic, metals, glass etc.), hazardous (batteries, paints etc.) and bulky waste (waste wood, furniture etc.) free of charge to the collection centre. Combined with the many collection stations spread over the city, a high return rate of recyclable material can be achieved. The centre deals with recyclable, hazardous and bulky waste. The waste can be directly handed in by inhabitants and small companies of the City of Graz. The Recycling Centre forms together with the many waste collection points (for paper, glass, metals, plastics, bio waste) spread over the city of Graz the backbone of the municipal waste management system. The throughput of recyclable waste is about 25,000 t/year. The total
recycling rate of that waste stream is about 70%. The main problem that prevents higher recycling rates is the problem of mixed fractions, i.e. recyclable waste is not always collected in the correct bins (e.g. plastic bags in the bio waste bins or residual waste in any of the recyclable waste bins). The Holding Graz addresses this problem by organizing roadshows, where the correct way of using the different bins in the waste collection system are explained, in schools and areas with low recycling rates.

About 23,000 t organic waste and 7,900 t green waste per year will get prepared and mixed for biological treatment at the Recycling Centre. The material is used for production of quality compost done by 19 contracted farmers located in the area of Graz. The generated soil is partly used in the parks and swimming pools in the City of Graz. Other fractions are only collected and stored intermediately before they are transported to recycling companies.

In addition, residual waste collected in the City of Graz is processed in a sorting plant located directly at the Recycling Centre to generate different recyclable fractions, which are then transported to specialized companies for further processing. About 7,000 tons of waste wood are collected every year in the Recycling Centre. The waste wood is pre-treated by crushing it. Since the amount of waste wood collected every year is not high enough to use a shredder to its capacity, the wood is crushed by throwing it from a height of about 7 to 8 meters to the ground. The crushed waste wood is then transported to recycling companies for further treatment.
During the visit the new legal situation in Austria was discussed (amendment of the recycling wood ordinance in 2018, which come into force on the 1st of January) regarding the collection of wood waste in Austria. The amendment was made to fulfil the provisions of the EU Waste Framework Directive (WFD, 2008/98/EC) regarding the five level waste hierarchy. The WFD gives top priority to waste prevention, reuse and re-use in the five-level waste hierarchy (Avoid waste, reuse, recycle, exploit, eliminate). The amendment makes the separate collection of different waste wood fractions at their source mandatory (source sorting). Starting from 1 January 2019, wood waste has to be sorted in two separate fractions, i.e. wood waste for material recycling and wood waste for thermal recovery. In case only one wood waste fraction is collected, post-sorting is required.

The two categories are specified as follows:

- **Wood waste for material recycling**: untreated wood (e.g. planks, posts, cap timber etc.), clean pallets, plywood, particle board, wooden indoor furniture, OSB board, glued wood, parquet floors without residual glue, wooden packaging etc.
- **Wood waste for thermal recovery**: wooden windows and window frames, wooden doors and door frames, impregnated wood, MDF board, contaminated pallets, parquet floors with residual glue, burnt wood, cable drums, railroad ties, etc.
The Operators of the Recycling Centre face the challenge that the current layout of Centre is not designed for a separated collection of different wood waste fractions. Moreover, wood waste from households is often not sorted and/or the persons that hand it in do not know if the waste is specified as wood waste for material recycling or thermal recovery. Therefore, there is the need for additional personnel at the wood waste collection point to assist the people that bring in the waste. In order to solve the problems, a new wood waste collection centre will be built across the street of the Recycling Centre. The new centre will be brought on line in early 2021.
Müllex-Umwelt-Säuberung-GmbH - Waste treatment plant
Müllex is collecting and processing different recyclable waste fractions like plastics and wood waste. About 15,000 to 20,000 tons of wood waste are processed each year. Wood waste is firstly sorted into three different sections:

- clean wood for material recycling (like pallets or similar wood packaging material): this fraction is mainly used in the paper industry or for reuse,
- treated wood for material recycling (like sheathings, OSB-boards and similar material): this fraction is mainly used as recycling material in the board industry and
- contaminated wood (windows, wood with preservatives): this fraction is incinerated in dedicated waste incineration plants.

The collection and treatment of hazardous wood waste (like railroad ties or caissons) is not possible at Müllex and has to be done by specialized companies. Whenever possible, the individual fractions shall be separated at source (e.g. demolishing sites) in order to generate dedicated fractions for material recycling or thermal recovery (as statutory requirement defined in the 2018 amendment of the Recycling Wood Ordinance), reduce the effort to separate at the treatment site (Müllex) and increase the recycling rate. Nevertheless, each incoming load of wood waste is inspected visually.
Depending on the composition of the load, it is redirected to one of the storage areas for separated fractions or manually sorted (if two or more fractions are mixed). Loads with hazardous wood waste or with too much impurities are rejected. The separated fractions are stored in different sections on site. Each individual fraction is then shredded in a crusher. Ferrous metals are separated from the shredded material by magnets. The treated waste wood is then transported for further processing (e.g. for the use in the paper or board industry) to dedicated companies. One main recipient of the processed waste wood is the Austrian board industry. Since, 2012, the Recycling wood ordinance (RWO 2012) enables the use of processed waste wood in the board industry. This ordinance was prepared with the aim to increase the recycling rate of waste wood in the timber product industry (board industry) from about 28% to 45%.

The maximum share of wood waste that can be recycled in a product increases with increasing quality (e.g. decreasing contents of harmful substances).
The 2018 amendment of the RWO also affects the operation of Müllex. Consequently, the company is currently erecting a new wood waste collection and sorting centre to meet the requirements regarding the separate collection of wood waste for material recycling and wood waste for energy recovery and to increase capacities. In the new collection centre people and companies from the surrounding communities will be able to hand in their waste wood and will be guided by operators on site that help to assign the waste to the correct fractions (clean wood waste for recycling, treated wood waste for recycling and treated wood waste for incineration). Thus, the wrong assignment of wood waste fractions and the quality of the individual fractions shall be controlled.