The team of BIOREG project visited 2 facilities in UK in June 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.

**ENVA WOOD RECYCLING - Wood waste sorting plant**

ENVA’s experience in manufacturing high quality wood chips for industrial biomass boilers spans more than a decade. Their fuel was used for the UK’s first wood-only biomass boiler – Wilton 10 – back in 2007. Since then the company is supplying wood chips to many energy plants in the UK, including MVV at Ridham Dock in Kent, Wilton 10 (Sembcorp) in Middlesbrough and Stevenscroft at Lockerbie. ENVA also exports fuel to plants in Sweden, Germany, Holland and Estonia.

ENVA accepts all grades of non-hazardous waste wood including:
- All soft and hard woods;
- Pallets;
- Off-cuts, boxes, packing cases;
The received wood is put through a stringent segregation and cleaning process before it is used to manufacture a range of award-winning recycled products. The platform has an area of 22 ha, including 2 ha covered. Piles are separated to respect waste wood fire prevention plans (FPPs), developed by the Wood Recycling Association (WRA). Waste wood treatment includes crushing and ferrous (by magnetic separation) and non-ferrous (by an eddy current) metals separation. There is no screening step to extract the fine fraction. The processing plant runs with batches of 1,000 t. Each batch is analyzed. 80,000 t of the processed wood is transported to the Wilton biomass plant, 1 km away.
SEMBCROP (SUEZ) - Power Plant Wilton

The Wilton 10 Power Station (so called because it was the tenth boiler constructed at the Wilton Power Station), at the cost of £30 million for construction, was built alongside the other Wilton Power Station units. It began generating electricity in September 2007, but was officially opened on 12 November 2007. 400 people were employed in the station's construction and there are 15 permanent jobs at the station. The station burns 300,000 tonnes per year of a combination of used wood from ENVA, sawmill waste and otherwise unusable wood offcuts to produce 30 megawatts (MW) of electricity, as well as 10 MW of thermal energy in the form of steam, which is transported to chemical industries nearby. It operates separately from the fossil fuel power station. About 80,000 tonnes of processed waste wood is being supplied to the station each year from neighbouring company ENVA. The engineering, procurement and construction contract was Foster Wheeler. The contract included designing, building and commissioning the complete boiler island. This included the fuel handling system, biomass fuel boiler and flue gas treatment system.

The bubbling fluidized bed boiler works with high moisture content fuels and fuels that are difficult to handle or have difficult ash characteristics. It is therefore suitable for forest waste, short rotation coppice wood and processed waste wood. The plant burns green and processed
waste wood and meets emission limits of the EU’s Large Combustion Plant directive and Waste Incineration directive. The 35MWe steam turbine and power island ware supplied by Siemens PG, using the SST 400 steam turbine/generator set. This came complete with condenser, Flender gearbox, oil system, and PCS7 control system. The wood for the station comes from four separate sources. About 80,000 t per year (or close to 40%) are processed waste wood from the ENVA waste wood sorting plant in Middlesborough (less than 1 km away).

Chipped offcuts from sawmills account for 20% of the total input. SembCorp is working with the Forestry Commission to bring another 20% from northeast forests in the form of small round wood logs – items sometimes left on the forest floor after routine tree felling operations. Finally, 20% comprises specially grown energy crops in the form of short rotation coppice willow. The company Greenergy is supplying the wood, to be grown by farmers and other landowners within a 50-mile radius of the site. All the wood needs to be chipped and mixed in careful proportions before being fed into the boiler. SembCorp’s ‘wood to energy’ approach comes in response to a call from the UK Government, following the 1997 Kyoto Agreement, for more energy throughout the UK to be generated from renewable sources. Generating power and steam by burning renewable fuels instead of fossil fuels is carbon neutral because the carbon dioxide emitted to atmosphere is that absorbed by the trees during their growth cycle.