



BSSSC region Tavastia leads the way for Circular Economy

The consumption of natural resources has already exceeded the Earth's regeneration capacity, and the effects of global climate change are reflected on the whole society. In order to solve such problems and ensure the availability of natural resources, committed cooperation and high technology expertise are needed.

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By Reetta Sorjonen

Tavastia profiles itself as an expert on bioeconomy and circular economy – a region with successful business activities and higher education in the field. While the Finnish government seeks to become a European pioneer in bioeconomy, circular economy and cleantech, Tavastia aspires to become a forerunner in the same fields in Finland. The attainment of this leading position requires heavy investments into research and development, education, and communications.

The development of bioeconomy and circular economy operations strengthens the region's economy, creates new business opportunities, and thus brings about sustainable growth and employment. In order to boost the field, goal-oriented development of entrepreneurship and business activities is required. This calls for good cooperation between active and committed companies, development organizations, and cities.

Moreover, the Finnish government aims to increase the use of zero-emission renewable energy to 50 per cent in energy end-consumption in the 2020s.

"We must aspire to reach the same goal in Tavastia, meaning that we must significantly increase the share of renewable energy. We are well positioned for the development of new energy solutions", states Ms Minna Takala, Regional Development Expert for the Regional Council of Tavastia.

Strong Cooperation Needed for a Circular Economy Ecosystem

In the future, circular economy will become a phenomenon that guides business enterprises to a much larger extent. Nevertheless, significant measures and a shared mindset will be needed regionally in all sectors and areas of society. In addition, the regional total financial investment must become higher so that the region may present itself as an appealing research and development platform, both nationally and internationally.

"The efficient use of scientifically strong, modern and cost-efficient research platforms and digitalization increases the region's appeal as a research and business cooperation partner and enables the development of new solutions for future bioeconomy and circular economy challenges", explains Mr Harri Mäkiuokko, Development Manager of the Natural Resources Institute Finland (LUKE).

The foundation for Tavastia's success relies on an extensive network of circular economy actors. Moreover, the region offers an excellent environment for research, innovations and the launching of experiments due to its abundant renewable natural resources, clean nature and high-tech expertise. Cooperation also has an easy starting point, since the actors know each other and the cooperation partners are situated nearby. The region's leading companies have a unique setting for municipal waste treatment and plastic recycling; they have developed a Circular Economy Village concept that incorporates rural and urban actors into the advancement of bioeconomy and circular economy. The recycling rate of the circular economy's ecosystem is 50 per cent and the benefits as much as 96–98 per cent. Research and development are ongoing, although cooperation needs to be strengthened and international partnerships must be sought so as to support the development work. "We are well positioned for the development of new energy solutions."

High Technology and Experiments

Strong development areas that receive a great deal of attention in Tavastia include, among others, energy production and consumption matters, traffic, building and housing, and land use. Tavastia is one of the most developed regions in Finland in terms of energy produced from biomass and recycled waste, fuel production and refining, and the processing of wood. The versatile use of wood for construction, products and energy is, in fact, one of the most central aspects of bioeconomy.

In terms of the development of fuel production, VTT (Technical Research Centre of Finland) and ST1 have launched a high-tech pilot at ST1's biorefinery in Jokioinen, Finland, with the aim of producing hydrocarbons from industrial carbon dioxide. These hydrocarbons can be refined to petrol, diesel and various chemicals, to name a few. The pilot aims to enable the recycling of harmful industrial carbon dioxide emissions to replace coal. Its objective is to demonstrate how hydrocarbons can be produced in a climate-friendly way from carbon dioxide extracted from bioethanol production and from hydrogen produced with water electrolysis.

The Natural Resources Institute Finland strengthens the comprehensive knowledge base at its Jokioinen campus regarding the research platform for bioeconomy, circular economy and food systems with the help of its AgriFood project.

Tavastia also holds a great deal of potential in terms of blue bioeconomy, and the export of agricultural industry and food industry foodstuff is one of the region's most significant areas of development. Future food accessibility and production also raise the question of whether Tavastia could become a fully self-sustaining region in the future?

The proximity of urban and rural regions – alongside the aforementioned hard-expertise branches – creates an excellent platform for the testing and experimentation of innovation activities.

Leading Tavastian businesses in circular economy, such as Fortum Waste Solutions Oy, ST1 and Kiertokapula, form a strong network together with research, development and educational organizations like the Natural Resources Institute of Finland, Lammi Biological Station and Häme University of Applied Sciences. In addition, municipalities and leading businesses engage in close cooperation.

Cities and Municipalities Have Taken Action

The Finnish cities of Forssa and Riihimäki have worked on resource wisdom road maps for the construction of a sustainable future. In Hämeenlinna, resource wisdom is one of the strategic focal points. Cities and municipalities have naturally implemented various nature-related measures for some time now, but not all have converted their development targets into road maps. These road maps line the goals and functions utilized by cities and municipalities to enable sustainable wellbeing, innovative logistical solutions, and the sustainable use of materials and renewable energy solutions as well as to reduce emissions, waste and consumption.

- The road maps are in line with the regional plan. We're also planning a region-wide road map of circular economy and resource wisdom, and we're currently looking at cooperation partners for its drafting, tells Ms Anna-Mari Ahonen, Mayor of the Regional Council of Tavastia.

There are also several ongoing and multisectoral bioeconomy and circular economy projects. These include FRUSH, which aims to boost the field of circular economy, start-ups and internationalization; the SYMBI project, which promotes industrial symbioses and good practices both nationally and internationally; and the LUO Next Step project, which gathers together businesses and educational and research actors who wish to develop new business activities and procedures for the sustainable use of natural resources. The next stage will focus especially on the improvement of the companies' international business opportunities and cooperation.

- We're planning a region-wide road map of circular economy and resource wisdom, says Ms. Ahonen.

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