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Abstract

Prepared by Pia Qvintus and Jukka Kantola 15.10.2023

Evolving Cellulosic textile fibres – case Finland

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Abstract

Finnish Forestcluster Ltd.(later Fibic) was founded in 2007 to aid in the implementation of the National Research Strategy of the Finnish forest-based sector. Forestcluster was one of the six Strategic Centres for Science, Technology and Innovation in Finland.

Forest Cluster was formed by three largest Finnish forest industry companies: Metsä Group, Stora Enso, and UPM. Also producers of forest industry equipment and services and chemical providers were involved. Forest Cluster was later fusioned with cleantech cluster and FIBIC Finnish Bioeconomy Cluster was established in 2011. Forest Cluster/FIBIC had remarkable impact to directing the development of Forest industry R&D.

The Future Biorefinery (hereinafter: FuBio) was one of the three strategic focus areas of Forest cluster. It might have had the most remarkable impact on research leading to development of new cellulosic textile materials. FuBio was planned to last for five years. The main objective of FuBio was to establish in Finland globally competitive knowledge platforms within the field of wood biorefinery R and D for the renewal of the forest industry and creation of new business. FuBio focused on development of novel value chains, in which wood was refined especially into materials and chemicals. A knowledge platform, in this context, includes people, but also new process concepts, improved processing technologies, including new propriety technologies, as well as state-of-the-art preindustrial processing equipment, novel business ideas and coarse tools to evaluate the business potential of the concepts. The FuBio activities were initiated in March 2009, when the 2-year research programme, 'FuBio Joint Research 1', was launched. In June 2011, two new programmes were launched, namely: 'FuBio Joint Research 2' and 'FuBio Products from dissolved cellulose'. The FuBio programmes were partly financed by the Tekes BioRefine programme.

Besides Fubio there were several ongoing research programmes which supported the renewal of the Finnish Forest Industry and the whole Forest Cluster like above mentioned Tekes Biorefine program 2007-2012, VTT's Industrial Biomaterials Spearhead Program 2009-2013, and other programs funded by Forest Clusters like EffTech (Intelligent and resource efficient technologies), Future customer applications (Focus) and as continuation to these EffFibre (added-value on intensive and efficient fiber production) and EffNet (Effiecient networks and processes) starting in 2010.

Finland's first national Bioeconomy Strategy was adopted in May 2014 as part of the Government resolution on "Leading Factors of Growth". It was consistent with the content of the EU Bioeconomy Strategy adopted in 2012. In quantitative terms, the Strategy aimed at increasing the output of the Finnish bioeconomy to EUR 100 billion by 2025 and to create 100,000 new jobs. The Strategy's four strategic goals were: 1. A competitive operating environment for the bioeconomy; 2. New business from the bioeconomy; 3. A strong bioeconomy competence base; and 4. Accessibility and sustainability of biomasses. The strategy acknowledged the importance of sustainable consumption and production patterns for sustainable economic growth and well-being of the Finnish people. It provided an overall picture and outlined the strategic choices that were a precondition for achieving the bioeconomy objectives. In the area of sustainable food and agriculture, new businesseswere expected to be generated by exploiting the opportunities offered by closed systems, biorefineries, domestic animal production side streams and field biomasses. By exploiting the side streams of the food industry, the Strategy foresees the production of new biorefinery products for the chemical industry. Moreover, energy fractions from side streams could also be used for energy production.

In the presentation we will elaborate what are the key takeaways from Finland case. Any lessons learnt applicable to other circumstances. The presentation will envision how the textile fibre narrative could possible evolve.