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SUMMARY

Subject: Responsible Industry leads the sustainable development – Industry Clusters and Circular Economy Kemi, 11-12.02.2020

The conference "Responsible Industry Leading the Sustainable Development on the example of Industry Clusters Connecting Circular Economy", organized by the Regional Council of Lapland in cooperation with European Commission (GROW.F2), Digipolis Oy (circular economy cluster) and City of Kemi, Finland was held in Kemi, Finland on the 11th-12th of February.

On the first day of the conference, more than 100 representatives of local, regional, national and European public authorities together with industry and civil society stakeholders and researchers shared their experiences and provided insights on how industry clusters can foster the industrial transition to circular economy.

Openings have been made by Mika Riipi, County Governor of Lapland and *Tero Nissinen, Mayor of Kemi,* who introduced the landscape of circular economy and clusters in Lapland and in the city of Kemi as a smart specialisation strategy based on cluster 'format' have been adopted to better reach one of the main aim of the region – the sustainable use of resources. From EU level, openings statements by *Joanna Drake, Deputy Director General at DG ENV* and Slawomir Tokarski, *Director Industrial Policy and Innovation, DG GROW* gave an overview of the political agenda at EU level linked to the implementation of the European Green Deal, with notably the launch of the second circular economy plan in March 2020, the Sustainable Europe Investment Plan which has just been published, but also the future Just Transition Fund, which will notably assist regions that may struggle to adapt to and adopt circular economy strategies.
EU policies will include a stronger focus on high potential sectors and global value chains, which shall facilitate the production of affordable and sustainable products (prolong life of protects, reduce cost of CE products, environmental cost of products) and boost recycling of materials. Industrial Alliances, such as the one for Clean Hydrogen already created, will assist in this transition, and industry clusters are and will be key accelerators as they reach out to SMEs, the backbone of our economy. On the European Cluster Collaboration Platform, 250 clusters amongst the 1 000 registered clusters, operate in the field of green technologies. Involvement and engagement of citizens will also be fully integrated in new strategies, with the potential launch of local Green Deals. Many of the implementation actions of the Green Deal are still under consultations as they involve all industries, e.g. energy/geo-energy and decarbonisation,

and all stakeholders shall commit together to find new business models adapted to the climate challenge.

Then, policy sessions included public authorities' representatives from different level of governance: EU level, national government, macro-regional and regional.
At EU level, clusters policies (Internationalisation's activities, Innovation and Industral change support and capacity-building) and instruments for clusters aiming at greening the industry (European Resources Efficiency Knowledge Centre, Low Carbon and Circular Economy Business Actions in the Americas) have been introduced along with the 100 intelligent Cities Challenge by *Ulla Engelmann, Head of unit, DG GROW,* and then completed by *Océane Peiffer-Smadja, DG GROW*. Macro-regional strategies on the example of the EU Strategy for the Baltic Sea Region aiming at transforming the macro-region's S3 success by scaling up successful actions in areas such as business-research and science collaboration, open innovation, value chain creation and strengthening, leveraging innovation investment was presented *by Esa Kokkonen, Director of the Baltic Institute of Finland*. Finally, *Nani Pajunen, Leading Specialist on Circular Economy at SITRA* introduced the Finland's road map to the circular economy 2.0, bringing several examples of new business models to a more circular economy and emphasized the role of education and training to achieve the green transition. The Finnish Minister of Finance has sent a video message supporting the transition to circular economy and stressing the importance of collaboration and coordination between public bodies and private sector.

The conference has also been the opportunity to host joint sessions show casting experiences in collaboration and coordination of actions leading to the green transition, best practices of implementation of circular economy on the grounds, as well as projects at European, regional and city-level aiming at boosting circular economy and.
These sessions have involved cluster managers; *Luca Donelli, President of the Lombardy Energy Cleantech Cluster, Santiago Cuesta-López, General manager of the Iberian Sustainable Mining Cluster and Kari Poikela, cluster manager from the Arctic Industry and Circular Economy Digipolis*, industry representatives; *Juha Ylimaunu, Vice President of Sustainability and Environment at Outokumpu and Jari Voutilainen from Metsä Group*- together with expert on services provided to SMEs - *Paula Eskola, Senior expert at Motiva, Ola Skalska, project coordinator at FundingBox and Bernard Gindroz, Circular Ecobomy Expert at N-ABLE* - but also policy-makers at local level - *Raimond Tamm, Deputy mayor of Tartu, Tero Nissinen, Mayor of Kemi and Mika Riipi, County governor of Lapland*.

Several points were raised and stressed during these sessions:

- There is a need for collaboration in every level; between value chains, between companies, between public and private sectors, and between EU and non-EU stakeholders. For example, in the development of the Outokumpu steel reclycling site, which is now the largest material recycler in Europe, a strong coordination between national government and the industry has allowed to advance public highways projects when the industry realized traffic will probably increase drastically;
- Sharing knowledge of tools, good practices and research is a must when implementing circularity solutions which can be achieved through networks, industry clusters and ecosystems;

- Clusters, grouping financial institutions, media, organisation of industrial associations as well as non-profit bodies, universities and research centres, institutions from public sector, along with the industry are key accelerators for innovation;
- Interregional collaboration and the regional ecosystems foster European-wide innovations and establish (inter)regional innovation ecosystems;
- Support and improvements are needed to provide the proper trainings for employees to facilitate the transition to a more circular economy. Indeed, SMEs face issues with adopting Circular Economy because of a lack of understanding/value at consumer end but also throughout value chain;
- Strong innovation ecosystems are key actors to profile regions as a hotspot for innovation, to attract industrial investment and to develop regional economy;
- Innovations enabled by interregional collaboration and regional ecosystems will result in reduced costs for technology and hence increased development, and deployment. Further, it provides risk sharing by bringing together all stakeholders along the value chain from academia and the industry and boosts the competitiveness of the ecosystems. For example, in Castilla y Leon, in year and a half, the Iberian Sustainable Mining Cluster strategy has given 20% rise in employment in a region where coal mines were being closed down;
- On the one hand, clusters can help people communicating outside of their factory walls and disseminate new and disruptive methods and technologies. On the other hand, clusters can disseminate information on local circular solutions. For example, the Lombardy Energy Cleantech Cluster has created a circular economy booklet displaying new businesses models and case studies to inspire other companies;
- EREK Network Members based on their experience as green services providers to SMEs, help SMEs to become more competitive by being more resource efficient, they also inform SMEs about EU and national strategies, as for example, the Finnish Energy Efficiency Agreements 2017 - 2025, which develops advice support and communication monitoring for environment impact assessments;
- Large projects at EU-level, such as the INNOSUP projects, can kick-start a cycle of cross-sectoral innovation; for example, C-Voucher with 34 clusters involved, 4 acceleration programs, give direct support to SMEs, or the VIDA project with 10 partners which supports innovation potential of SMEs working across European food chains interested in improving the use and efficiency of water, food and energy;
- In small and medium sized cities, with limited in-house human and financial resources, ecosystems may have the power to deliver creative new solutions that neither of the parties could have realized on its own. For example, in Tartu, Estonia, the set-up of the Smart City lab Cluster has allowed to support the development of co-created smart city solutions in order to improve quality of life in the cities and to accelerate export;
- Measurement and standardization for value and benefits shaped by industries in the field of circular economy can give access to the latest state-of-art, ensure compliance with expectations and requirements from the market, allow comparability, compatibility and interoperability of innovation with what is already on the market, and also enable knowledge transfer and interdisciplinary.
- One of the core problem identified is investment, as it needs flexibility, which is not always possible, notably when investment costs are high such as it is often the case in material recycling production.

Closing remarks of the day were made by Antti Peltomaki, Head of EU Representation in Finland, followed by the **launch of the European Alliance for Cross-Industrial Circular Economy Investment with the aim to accelerate the development of world-class circular economy solutions to industry**.

On the 12th of February, a delegation of 40 participants attended a field trip organized as follows:

1. Visit of Kemi Chrome Mine :

The Kemi Mine is the only chromium mine in the European Union and the biggest underground mine in Finland. Its products fed the Tornio Outokumpu FeCr plant.
Martti Sassi, Senior Vice President and Head of BA Ferrochrome and *Tom Söderman, Vice President of the Kemi mine* introduced the mining process, the different circular and resource efficient solutions implemented in the mine and finally the future expansion project of Kemi mine, which should be finalized in 2021.

2. Visit of Tornio Outokumpu factory site

The Tornio Outokumpu factory 6-km2 site is specialized in stainless steel production and is home to the largest material recycler in Europe. It uses low carbon electricity, ferrochrome with lowest carbon footprint (directly coming from Kemi mine), but also integrated energy efficiency and low emissions solutions. Outokumpu stainless steel contains the highest proportion of recycled content on market with a recyclability rate of more than 85%. Stainless steel produced in China and Indonesia has up to five times higher Carbon footprint than Outokumpu's.
The whole Kemi-Tornio site produces 530,000 tons of Ferrochrome annually, 1,400,000 tons of Stainless steel annually and accounts for over 10 000 jobs in Finland.
The visit included presentations by *Kenneth Ekman CEO of CrisolteQ and Juha Koskinen research and development manager at Tapojärvi* on different processes used in the production of stainless steel at Tornio site.

The CrisolteQ-Outokumpu case: cooperation between a large and a small company for innovation in the field of circular economy
During the manufacturing process of stainless steel production, some metal oxides are formed on stainless, the removal of such oxide and chromium by pickling is one of the most important processes during the production of stainless steel. Historically, the residue waste, which contains iron, nickel, chromium as sulphates and sulphuric has been neutralized with lime and dumped as landfill on site. CrisoltelQ, a SME cooperated with Outokumpu, was able to develop a patent to reclaim the sulphates, nickel and recovered iron/chromium, which can be returned to ferrochromium production. Outokumpu was able to invest for the SME to be able to develop such an innovative solution increasing circularity in the stainless steel production process. In Finland, it is the only example of implementation of such progress.

A wrap-up session followed the field trip where issues of investment in circular solutions for mining and steel recycling, digitalisation and automatization, followed by the need for up- and re-skilling the workers were raised.