ACTION A.2: Peittoo Recycling Park – Planning a testing environment for productisation of industrial waste materials.

Beneficiary responsible for implementation:

City of Pori

External assistance: framework contract with in-house consulting unit Prizztech Ltd. Prizztech Ltd has a mandate from the City of Pori to develop the Peittoo Recycling Park and to manage and run this action. Prizztech Ltd is a non-profit business development company owned by municipalities in Satakunta region. The main stakeholder of the company is the City of Pori, (77.1%).

Description:

What

This action is related to the aims 1.2., 2.1., 2.2., 3.3., 5.1. and 6.2. of the NWP.

This action aims at planning a major multi-purpose recycling park for industrial by-products and wastes. The aim is to increase the handling, testing and recycling of industrial by-products, to reduce industrial waste and phase out industrial landfilling. In the action, the potential for recycling industrial by-products and wastes in Satakunta region will be identified and analysed.

The action aims at developing the Peittoo area into one of Finland's cutting-edge recycling parks with dynamic recycling and productisation of industrial waste materials. The target groups of the action are recycling and resource-effective companies as well as service providers for the network. The action will create a win-win situation for the interest groups - one company's waste material becomes the raw material for another. The action will play an important role in launching new business solutions and disseminating good practices on national and EU level.

In the action, planning of the testing environment for industrial by-products and wastes will be conducted in two stages – subaction 1 involves identification and data collection on potential new industrial by-products and wastes for recycling, sub-action 2 includes environmental acceptability and economic feasibility studies.

This action is integrated with two complementary actions: 1. *Circular economy and industrial symbiosis in Satakunta region* and 2. *Gas Economy 2020 in Rural Areas of Satakunta Region.* The purpose of the first one is to build an operation model for promoting the utilization of by-products generated by industrial processes in Satakunta region. In the other complementary action, raw material sources for biogas will be identified, and new applications for residual solid material from digestion process are identified. The aim of the complementary actions is to reduce waste and the usage of natural resources, to increase utilization of by-products and renewable resources, and to improve waste management performance.

How

Sub-action A.2.1: Identification and data collection on potential new industrial by-products and wastes for recycling

In sub-action A.2.1, new potential for recycling and processing industrial by-products and wastes in Satakunta region will be identified. Communication and interaction in the form of

workshops and partner meetings, for example, will be used as a method of identifying the potential. To promote the recycling and handling possibilities at the Peittoo recycling park, brochures and a presentation video will be produced and disseminated, and a Peittoo website will be launched. These actions are expected to raise awareness and interest among potential industrial partners that could take part in the project. Furthermore, data on industrial by-products and wastes will be collected in a national database (SYNERGie). The database will be used for identifying recycling potential and finding new partners. Motiva Oy manages the database, and non-profit business development companies like Prizztech Ltd own sub licences as specified areal managers.

Sub-action A.2.2: Environmental acceptability and economic feasibility studies

In sub-action 2, the identified cases with the most potential will go through an analysing process consisting of feasibility studies, environmental acceptability tests and profitability calculations. Thus far, the following potential cases have been identified and will be further studied and analysed during the action:

1. Separation of NdFeB magnets from metal scrap (See C.4)
2. Infrastructure application for sand waste generated by the mould production process of Componenta Finland Oy's foundry (See C.4)
3. Use of waste rock generated by Boliden Harjavalta Oy's nickel smelter as ballast material for applications where weight is required.
4. Collection and recyclability of gypsum waste from demolition and industrial processes in Satakunta region; the plasterboard producer Knauf Oy located in Satakunta (Kankaanpää) is a potential user of gypsum waste.
5. Development of new methods for landfill mining, and recovering critical metals in controlled environments; e.g. Ekokem Oy's landfill sites at Peittoo as a study field.

The first two cases will be followed by concrete demonstration actions (see C.4). If proved applicable, the actual full implementation of the cases 3 - 5 described above, and eventually further cases identified and analysed in this action, will take place through complementary measures or actions financed outside the CIRCWASTE -project, using other available funding (EU, national or private).

Where

The vast Peittoo area (760 ha) is located in Satakunta, outside the city centre of Pori but at a reasonable distance (23 km) from the city centre, which makes it possible to use the area for large-scale testing, demonstrations and technology pilots. Concentrating environmental business in one area will create synergy benefits, and material and resource efficiency will be enhanced in a way that would not be possible if waste and material handling operations were divided into multiple areas scattered around the Pori region.

When

The action is scheduled to take place during 11/2016 – 12/2019. Both sub-actions will be carried out in parallel. Some of the complementary measures or actions will be linked to the CIRCWASTE implementation, while others might be carried out after its completion.

Why

The action is necessary in the preparation of the concrete action C.4.

The action will support the main targets of the Finnish NWP: increased utilization of mineral waste, industrial by-products, and construction and demolition materials. The knowledge,

experience and information created in this action will be very valuable because the amount of industrial waste per capita in Finland is very high in comparison to other EU countries.

Increased cooperation and communication due to the action will give synergy benefits for companies operating at the Peittoo recycling park. This will boost new business solutions, new demonstrations and new ways of reducing waste. Furthermore, the information generated and disseminated during the project will improve waste management performance especially in the SME sector, hence setting forth improvements that will have wide and long-term effects on climate, health and environment.

Constraints and assumptions:

The software for the national database (SYNERGie) is a product of International Synergies Ltd. The confidentiality of the database is ensured by licence agreements. In Finland Motiva Oy manages the database by a licence agreement, and specified areal managers – non-profit business development companies like Prizztech Ltd - own sub licences.

Each new operation process starting in the Peittoo area will go through an environmental impact assessment process (YVA). Potential constraints might include getting the environmental permit for handling the industrial waste or utilizing the industrial waste treated. This constraint is tackled by openness during the development work and by putting effort to high quality environmental risk management. Water and air protection is organized by the companies operating in the area and monitored regularly.

The development of the Peittoo area into a significant centre for the environmental industry requires long-term development actions as well as local, national and EU funding. EU and national legislation, municipal decision making, funding, taxation etc. set the rules and define which actions can and have to be promoted. To secure the continuance of the activities after CIRCWASTE-project, the financial prerequisites must be ensured during the project.

Expected results:

Tests to analyse the recyclability and treatability of industrial by-products and wastes will be carried out, e.g. for magnetic metals, foundry waste, nickel smelter waste, gypsum waste, and industrial landfill waste recovery, and reported, including feasibility studies, environmental acceptability tests and profitability calculations.

New development projects on utilizing industrial waste or by-products will be boosted: at least two (2) new development projects with external funding, such as demonstrations of new waste treatment and material handling methods, and testing of recovered materials and technology pilots. This will lead to reduction in industrial waste generation, and increase the utilisation of industrial side streams and waste materials.

New circular economy related business will be established at the Peittoo recycling park: at least two (2) new enterprises operating in the area; at least 30 companies participating in the actions each year. New companies in the area will increase opportunities for co-operation, and networking will open up new cost-effective ways to turn wastes into new products.

New information on potential circular economy actions, material flows and value chains will be generated by communication and interaction.

Together with the integrated projects, this action offers the CIRCWASTE- network new possibilities for research and development projects to be implemented, and for long-term testing and monitoring processes to be performed in a controlled environment. The action aims at launching new demonstrations that will run through the entire CIRCWASTE-

project, some of them even further. The results will set forth improvements that have wide and long-term effects on climate, health and environment.

Cost estimation:

City of Pori:

External assistance 234 000 € + 7% overheads = 250 380 €, procedure: framework contract with in-house consulting unit Prizztech Ltd. The costs of Prizztech Ltd will not include any elements of profit or overheads, and they will present the best value for money.

All public permanent staff will be specifically seconded to the project.

Deliverables:

- Annual materials on potential circular economy actions, material flows and value chains published in the Peittoo workshops (can be downloaded from the website).
- Test reports on case tests carried out for industrial waste producer customers (e.g. for magnetic metals, foundry waste, nickel smelter waste, gypsum waste, and industrial landfill waste recovery), including feasibility studies, environmental acceptability tests and profitability calculations.
- At least two final plans for new development projects with external funding.
- Peittoo presentation video and website.
- Peittoo brochures (500 pcs Finnish, 100 pcs English).
- Final report on the action.

Milestones:

- Annual materials on potential circular economy actions, material flows and value chains published in the Peittoo workshops (can be downloaded from the website) / 1.12.2017, 1.12.2018.
- Peittoo presentation video, website and brochures / 31.5.2018.
- Case tests carried out for industrial waste producer customers (e.g. nickel smelter waste, gypsum waste, and industrial landfill waste recovery) / 30.6.2019.
- Final plans for new development projects / 31.12.2019.