

GREENCYCLE

Introducing circular economy system to Alpine Space
to achieve low-carbon targets

SO2.1 – Establish transnationally integrated low carbon policy instruments



WPT3 Toolbox

D.T3.3.1 Common evaluation report on pilots

20th of May 2019 by project partner AURA-EE

Program priority: Priority 2 – Low Carbon Alpine Space

Work package: T3 - Development of implementation toolbox for circular economy

Activity: A.T3.3 Final evaluation report & fine-tuning of toolboxes

Deliverable: D.T3.3.1 Common evaluation report on pilots



The focus of WP3 is the development of a circular economy toolbox and testing the toolbox in real environments with so called “pilots”. Pilots are city-specific circular economy (CE) initiatives and derive from the real needs, focusing on the cross-sectoral cooperation to improve CE processes. Therefore, the 5 municipalities involved in the project have implemented and tested their own pilot according to their strategy and with help of the developed toolbox. Pilots have been tested for a 6 months period (S1 2018).

The goal of this document is to present the pilots and evaluate the results.

1 The 5 pilots in a nutshell

The 5 pilots were about conducting **studies for a better implementation of circular economy in municipalities**, with regards to waste or energy management, by creating loops and/or synergies between economic actors. The common goal of all these studies was to move on with each pilot’s circular economy strategy.

Two kinds of studies have been launched: some partners have chosen to build-up their pilot on projects, buildings or initiatives that had already been launched in the past and to add a “circular economy” part to them (detailed actions, workgroups etc.), whereas some others are only beginning their thinking process on circular economy strategy and action plan.

The fact that pilots are immaterial studies is directly linked to the short duration of the pilot period, dictated by the project calendar: 6 months. Obviously, in terms of **timeframe**, the resulting actions will take much longer to implement: all circular economy projects will follow a longer-term process. Indeed, only close cooperation between public companies, industries and local-governments can lead to a stable interconnected system, which optimizes resources. Time will be needed to implement projects and consequently see their results in form of new revenues, added value, new green jobs and multi-layered city’s development. In any case, all pilots will continue after the testing phase and after the end of GREENCYCLE project.

Regarding **involved stakeholders**, all pilots are led by the public authority / the municipality and involve different kind of stakeholders: public and private companies (Energy & waste companies -ENGIE, GRDF, SYSTEPUR and 30 SME’s in France, waste management company Snaga, utility and road maintenance company Nigrad, energy company Energetika, water distribution company Maribor vodovod and public mobility company Marprom in Slovenia, two municipal companies in Germany, the "Freiburger Stadtbau GmbH" and the waste management company "Abfallwirtschaft und Stadtreinigung Freiburg GmbH", waste company - Dolomiti Ambiente and professional networking - Consorzio Lavoro Ambiente in Italy, and Impulszentrum GmbH - 100% owned by the municipal Vorau + SPIN Tec GmbH and Energieregion Oststeiermark GmbH in Austria). For all pilots, it is foreseen that in the later stages of the implementation, other public and private entities will be included in the project so that everyone in the urban area could benefit from the developed initiative.

Finally, the pilots target whether the **whole territory or only a part of it** (for Vienne Condrieu and Vorau, where specific facilities have been selected).

2 Pilots description and results

Pilot description	Pilot results after 6 months
<p>Vienne Condrieu Agglomération</p> <p>Vienne Condrieu Agglomération’s pilot was composed of 2 studies:</p> <p>1/ <u>Development of a local loop based on wastewater, biomethane production and biofuel valorization</u>: The study carried out regarding the circular economy strategy in GREENCYCLE project resulted in the identification of a loop to be developed around the valorisation of biomethane produced from the sludge of a sewage treatment plant. This “closure of the loop” makes the link between waste, energy, transport and economic development and is integrating CE into existing environmental policies. It involves the transformation of a part of the biomethane into bioNGV (Natural Gas for Vehicles) fuel, in order to supply the vehicles of the agglomeration and of other potentially interested actors. In the coming years, the development of this activity is foreseen through the openness of a public gas station to other potential users.</p> <p>2/ Study about territorial synergies between economic actors: In addition, <u>a workgroup has been set up</u> with local companies (called “Cap’synergies - GREENCYCLE”) by Vienne Condrieu Agglomération and a local partner (ADEIR), with the objective to develop synergies and mutualisation between economic actors (local SMEs) through networking at a territorial scale (exchange of flows and mutualisation of needs). The actions undertaken must make it possible to promote reuse of production residues between companies and local authorities (co-products, waste, heat, etc.), <u>creation of synergies</u> and <u>pooling of resources</u> between companies, sharing of equipment and knowledge and reducing costs / improving competitiveness. The themes which were selected for the development of synergies are in line with the strategy that has been defined by Vienne Condrieu Agglomération: waste (repair, reuse, reuse, recycling, pooling) and energy (energy savings, renewable energies, energy recovery). Information workshops were organized in 2018 to discuss about costs, contracts, existing systems (pre-diagnosis of flows, waste diagnostics, energy visits...) and start of a pooling action (waste collection in a specific area (Pont-Evêque / Estrablin) for recyclable waste (plastic films, cardboard) and pooling of energy purchasing project).</p>	<p>1/ Regarding the “closing the loop” project, after the study phase, the public authority has decided to order 5 heavy vehicles which will be filled thanks to the biogas plant (delivering for the moment 40 Nm3h of biomethane). 2 gas stations will be built end of 2018, next to the sewage treatment plant.</p> <p>2/ The territorial synergies study stated that to improve circular economy on the territory, we need to involve public and private companies and motivate them. They need some advice, support and good practices for pooling of waste management and/or energy purchase. The organization of specific workshops on waste and energy has been efficient but is not enough to make them change their habit. They need to be coached so that they can move to CE actions and find an interest in this move: reduction of costs, easier waste streams, better energy price...</p> <p>In Vienne Condrieu agglomeration, the pilot resulted in the study of a new waste collection scheme in a specific area (Pont-Evêque / Estrablin) for recycling plastic films and cardboard boxes. But nothing is done yet, other meetings need to be set up to identify companies motivated to work on this action, characterize the waste streams (current contracts, tonnages, frequency, containers ...), build the specifications for a tender, organize it and chose a solution that meets the expressed needs.</p>

Pilot description	Pilot results after 6 months
<p>Maribor (SLOVENIA)</p> <p>Maribor's pilot project is about <u>creating and implementing a Wcycle systemic approach</u>, recycling and control over waste and secondary material (bio waste, rare metals, building waste). The pilot includes <u>the establishment of Wcycle Institute Maribor</u> by five utility companies in Maribor, acting in the field of waste management, construction, district heating, water supply and public transport.</p> <p>The basic idea of the project is a modular system for managing all the resources, available within the municipality and in the wider urban area. The purpose of Wcycle project is cross sectoral processing of resources that deal with the circular economy in Maribor in seven selected pillars: municipal waste, construction and industrial waste, surplus energy, mobility services, reuse of water, regeneration of degraded land areas and cooperative economy.</p> <p>20 short and long-term projects, which need to concretely establish a Wcycle model within Maribor's urban area, have been identified, such as sorting plan for production of secondary raw materials, factory of composites with the treatment of construction and industrial waste, energy facility for wooden biomass, management of mobility services, city chain of cooperative economy and urban return water cycle of recycled water among them.</p>	<p>One direct result of the pilot testing is that in June 2018 Maribor's City Council approved the Strategy for transition of Maribor to Circular economy. To see some results, at least one of the individual project within the Wcycle model will have to start operating: the first one-sorting plant for preparation of secondary raw materials started operating in July 2018. The same goes for reduction of the use of natural resources and increase of use of renewables.</p> <p>First and immediate impacts and first short-term results when starting the process of the transition from linear to circular economy is the creation of new, predominantly green jobs and, consequently creating added value for circular economy stakeholders. This is a logical result, since the first steps for establishing new circular economy model demand additional human resources and their special expertise and knowledge for a successful project development and implementation. This is an important finding, not only for circular economy stakeholder when planning the transition from linear to circular economy transitions, but also a bonus point when presenting the positive aspects of introducing circular economy project to the cities' officials (mayors, city administration etc.).</p> <p>Use of new technologies, own research and development is an essential part to start individual a circular economy project and circular economy models such as Wcycle. To ease this fact, the way forward to get the needed financial resources for going forward, EU funded programs are optimal for a start of transitioning processes, not only because of financial back-up, needed for sources, but also for better involvement and building a network will local and international stakeholders in different areas of circular economy.</p>

Pilot description	Pilot results after 6 months
<p>Freiburg (GERMANY)</p> <p>The Freiburg's pilot is about <u>building an action plan to develop and implement a common soil management</u> in the municipality of Freiburg and the municipal companies. The first initiative of a common soil management will be to establish an interim storage place for excavation soil in the area of the new district of Dietenbach.</p>	<p>Two round tables with municipal stakeholders have taken place on this pilot project. The next step is building an action plan to go forward and enter tasks and timeframes for the public authority departments and the involved municipal company.</p> <p>It is expected to become a multiple win situation for the Environmental protection agency, the public waste authority, the Garden and Civil engineering department, the local waste company, the construction businesses and as a result for the actual and future citizens of Freiburg waiting for new housing spaces.</p> <p>The financial dimension of the possible savings brought by the project pilot is considered as enormous. The time frame for the implementation is estimated to take until the end of 2019 due to legal requirements for establishing an intermediate storage in the required dimension. The planning process includes changing of the land use plan, drawing up of a development plan and approval procedures.</p> <p>Creating the formal prerequisite for realizing the pilot project is considerably more complex than initially assumed. Without the triple win situation, implementation would possibly fail due to the effort involved in creating formal legality.</p>

Pilot description	Pilot results after 6 months
<p>Trento (ITALY)</p> <p>Trento focused its pilot on the exploitation of local resources and materials, with the objective to support critical consumption and re-use culture, facilitate industrial symbiosis and innovation. The feasibility study which was carried out allowed the <u>identification of new materials and new recycling processes</u> that are currently not yet treated or are undervalued.</p>	<p>From the pilot's analysis of wastes which are currently going to landfill, and goods that are underused, emerged that some materials could be better exploited through life-cycle prolongation or recycling. These materials are <u>common household goods, adsorbent products and bulky waste</u>.</p> <p>The first solution would be to exploit local services for repair and re-use of material, involving citizens and schools in the process (participative mapping), to raise their awareness and make them part of the project. A second possibility is to exploit the local food producers and SME sellers, help reducing both transportation and food waste (through short supply chain). A good way to achieve this is to educate and facilitate critical consumption.</p> <p>The collecting centres are also a strategic internode for the flow of bulky waste and common household goods that are re-usable. To promote re-use of goods instead of dumping them, a good solution could be to involve a social company, in order to give more value to the requalification process. On top of this, there already are some best practices implemented in the surrounding cities with a similar environmental context, and those good practices could help implementing the pilot project (Fater riciclo tessili, CRM riuso Tione).</p>

Pilot description	Pilot results after 6 months
<p>Vorau (AUSTRIA)</p> <p>The main topic is about applying the circular economy logic to an energy autarkic building. This building is the Impulszentrum Vorau, which already has several sustainable energy systems installed (solar system boiler, rainwater harvesting and free-cooling, PV system, power storage, energy monitoring, electric cars, biomass heating system). <u>The main idea behind the pilot is to reduce the waste flows by creating loops and decrease energy consumption by using renewables.</u> As users also play a significant role, "user training" will be given, where the importance and influence of human beings will be addressed.</p> <p>The pilot progress will be evaluated periodically, and the activities will be adjusted if necessary. The project is planned in the following steps:</p> <ul style="list-style-type: none"> • Analysis of the existing status in terms of energy and waste-streams • Analysis of the users' behavior • Evaluation of the influencing factors relating to circular economy • Preparation and evaluation of further procedures and actions 	<p>The first focus of Vorau's pilot was on energy use and potential savings.</p> <p>The analysis of energy streams has led to the following statement:</p> <ul style="list-style-type: none"> • Ventilation is switched off in rooms where there are enough windows. These rooms are vented more often (open all windows briefly, so that fresh air can flow in). The energy savings through windows is up to 80%. • Lowering the room temperature down to 2°C results in energy savings of 10-12% (with consideration of users' comfort) • To save power, the light is only switched on when necessary. With a reduction from 8 hours to 4 hours a day, the savings are evaluated to 11 130 kWh a year. • Computers are disconnected from the power grid overnight, on Sundays and public holidays. Energy efficient computers consume only about 0.9 to 2.3 watts when shut down. • By consciously printing to maximum performance times, the graphics workshop makes better use of the existing PV power. • Certain devices (lights, radios, laptops, cell phones, monitors) should be disconnected or turned off during lunch and at the end of the working day. • The increasing electrification of vehicle powertrains is key to reduce CO₂ emissions and dependence on oil. Therefore, further charging possibilities will be created at the location. • The average consumption of cars should be lowered by the following measures: <ul style="list-style-type: none"> ○ Drive ahead - driving save fuel and economically ○ Cars with the lowest consumption (out of town) assigned to people with the greatest mileage ○ Increasingly implementing electric cars • If the average consumption of cars is reduced by 3%, a cost saving of € 2,374 per year is achieved.