

# TEMPLATE

## Output factsheet: Strategies and action plans

Version 1

<b>Project index number and acronym</b>	CE1125 - CIRCE2020
<b>Lead partner</b>	ARPA VENETO - Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto
<b>Output number and title</b>	Output O.T2.4 - Circular economy business models supporting cross value chain by-products remanufacturing
<b>Responsible partner (PP name and number)</b>	2 - ETRA spa
<b>Project website</b>	<a href="https://www.interreg-central.eu/Content.Node/CIRCE2020.html">https://www.interreg-central.eu/Content.Node/CIRCE2020.html</a>
<b>Delivery date</b>	04.2019

### Summary description of the strategy/action plan (developed and/or implemented)

(Max. 2.000 characters)

According to Plans for prioritization(AT.1.4), economic & environmental scenarios (AT2.2 & AT2.3) and available/cost-effective technologies (AT2.1) that might be introduced or optimized with perspective “donors” & “recipient” pool of companies, 5 business models (D.T2.4.3) addressed to waste utility & Public Administration profile have been developed in the 5 pilot areas, highlighting: A) cut of costs from use of raw materials, B) a reduced dependence from natural resources, C) cost/effective technologies and attitude to investment of the business sector D) fulfilment of local /national waste regulations.

Since they represent the summary of the circular pilot actions, they could be exploited for transferability and dissemination purposes, even if benefits and barriers are described according to the single experience of the partner. This could hamper the transferability beyond the geographical burdens of the region because local / national factors affecting the results are numerous. However it is a useful synthesis of the assessment procedures implemented so far.

Within the Italian pilot area, partners experienced three different business models:

- 1) Treatment of landfill leachate and potential recovery of ammonium sulphate
- 2) The production of biomethane from the biogas generated by an anaerobic digester (AD) treating municipal organic waste

A third pilot has been developed, even if without the technical support of the reports conceived within the CircE2020 approach (Life Cycle Assessment, Life Cycle Cost, Technology Readiness Methodology) due to delayed beginning respect to the project timetable. The activity consists in the separation of PVC post-consumption waste from the flow going to incineration plant in order to pursue its material recycling.

**NUTS region(s) concerned by the strategy/action plan (relevant NUTS level)**

Max. 500 characters

Country (NUTS 0) : IT

Region (NUTS 2) : ITH3, Veneto

Sub-region (NUTS 3) : ITH36, Padova

### Expected impact and benefits of the strategy/action plan for the concerned territories and target groups

(Max. 1.000 characters)

The business model inserts environmental and economic benefits of circular economy action within a more holistic approach involving also technology availability and regulation / legislation compliance. In particular, the specific expected impact and benefits are:

Business model 1: Landfill leachate

- Reduction of tank-trucks trips > Lowering of air pollution at local scale
- Potential recovery of ammonium sulphate > Substitution of traditional products
- On site leachate treatment (nitrogen removal) > Performance benefits for downstream wastewater treatment plant
- On-site treatment + transport by sewage system > Money save

Business model 2: Biomethane

- Improving the recovery of biogas according to European waste hierarchy (from energy recovery to material recovery)
- Contribution to the national biofuel target
- Incentive system will lead to economic profitability
- Increasing the environmental profile of the collection service company will reduce the local pollution

Business model 3: Recycling of PVC waste:

- Reduction of disposal quantity (landfill and incineration) and increase in material recovery
- Improvement of secondary plastic waste management
- Improvement of the environmental profile of the company services (positive message to companies and citizens)

### Sustainability of the developed or implemented strategy/action plan and its transferability to other territories and stakeholders

(Max. 1000 characters)

The sustainability of the proposed activities is embedded in the nature of the involved partner (ETRA), that has the interest to improve its managerial and technological solutions in the field of waste and wastewater management. In particular, the landfill leachate treatment plant and the upgrading process of AD biogas are approved as business development of the company, while the selection of PVC products can be integrated completely in the ordinary management of waste flows already implemented.

The transferability of the studied solutions is possible (and wished) because they target common challenge of the sector:

- The landfill leachate is generated in all the landfill sites. Then, new similar flows could be potentially accepted at the existing treatment plant (after a modification of the authorization) or new plants could be strategically designed according to the needs of the territories.
- The biogas upgrading is knowing a relevant expansion, boosted also by public incentives as modular solution for the existing anaerobic digesters.
- The selection of PVC waste and further recycling needs to scale up in order to optimize logistic

management (numerous potential collection points producing low quantities transported to few recycling industries)

## Lessons learned from the development/implementation process of the strategy/action plan and added value of transnational cooperation

(Max. 1000 characters)

Business models highlight that environmental and economic sustainability of the circular actions have to be carefully assessed, not taken for granted. Moreover local / national regulation sometimes does not move in the same direction of European framework of circular economy, creating barriers and limitation to the business venture. Sustainability (economic and environmental) results vary according to the point of view (donor VS recipient perspective). Specific challenges are further specified:

Business model 1: Landfill leachate

- Uncertainty on the correct description of the output material in compliance with existing legislation
- Quali-quantitative variability of the inflow > difficult to optimize the process performances

Business model 2: Biomethane

- Risk of slowdowns because of the complex public procedures
- Fixed deadline to gain incentive (key factor for the pilot action sustainability): December, 31st 2022
- Potential leakage of methane from the plant strongly affected the environmental profile of the scenario

Business model 3: Recycling of PVC waste:

- Difficulty in the selection of multimaterial items
- Transportation cost related to possible low amount collected

The transnational cooperation supported the actions sharing information and best practices, but also highlighting common barriers and challenges on the expansion of circular economy in local productive districts. Plastic waste have bene recognized a relevant topic in many areas of the projects. All for this reason the Italian partners have considered important to start the PVC pilot action, even if with some delayed.

## References to relevant deliverables and web-links If applicable, pictures or images to be provided as annex

(Max. 1.000 characters)

AT1.4 Prioritization of interventions and identification of most promising by-products physical flows

AT2.1 Scout clean-up technologies and organizative models to support the switch to circular economy models

AT2.2 Design of PEF-compliance environmental based on LCA tools to estimate industrial ecology benefits

AT2.3 Design of economic scenarios about self-sustainability of new secondary raw materials markets

Deliverable D.T2.4.3 Design of the circular economy business model as driver for the pilot tests (AT3.2) for each area

<https://www.circe2020-wiki.eu/>

<https://www.interreg-central.eu/Content.Node/CIRCE2020.html>

For pictures and images, please refer to the websites.