

Dissemination report

Workpackage WP5: Logistics Concept
Lead beneficiary: KLU
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Project Website: www.creatorproject.eu

DISSEMINATION REPORT WP 5

LOGISTICS CONCEPT

TASK 5.1: Mapping of Best Practices for reverse cycle logistics. (KLU)

In the deliverable we aim to identify challenges and best practices in recycling supply chains. The analysis comprises the recycling supply chains of waste electrical and electronic equipment (WEEE), plastics packaging, construction and demolition, glass, and paper waste. 36 interviews with actors from different stages of the recycling process are analysed using qualitative content analysis. The results show that the main challenges are related to impurities in the waste streams resulting, among other reasons, from wrong disposal, treatment with unsuitable equipment, or inadequate product design. Furthermore, we highlight that a joint effort of the different actors in the supply chain is necessary to overcome the current challenges and improve the quantity and quality of secondary raw materials.

The deliverable has been successfully handed in in July 2020 as a public report. Additionally, it is published on the CREAToR website and as a white paper under the title "Challenges and Best Practices in Recycling Supply Chains: A Qualitative Analysis of Five Major Waste Streams" at SSRN (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3715565). Task completed.

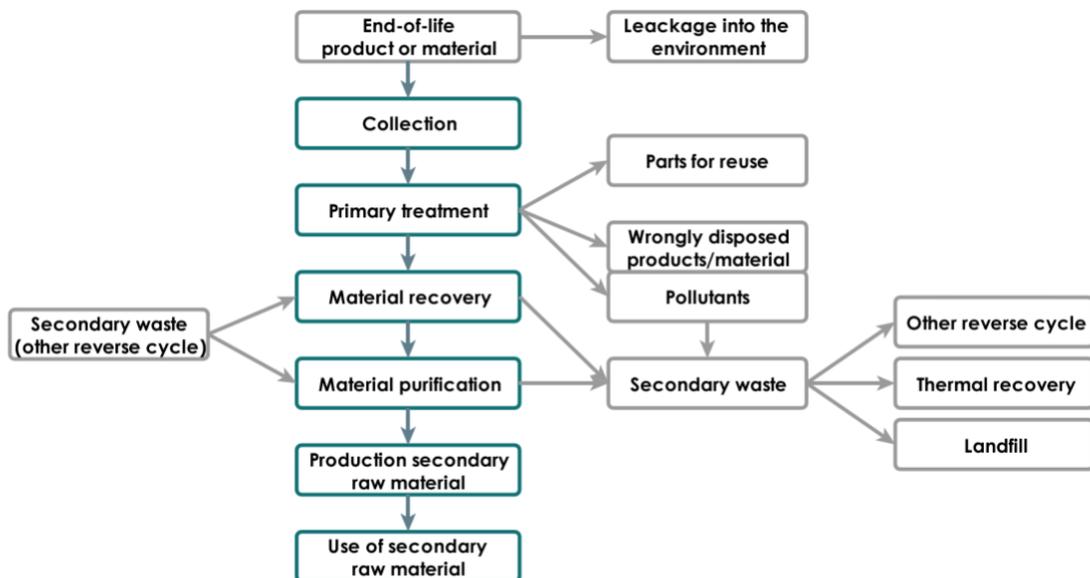


Figure 1: General treatment steps of reverse cycles

TASK 5.2: Requirements engineering for logistics concept (KLU)

In the deliverable we develop requirements for a logistics concept for CREAToR. To engineer these requirements, we analyse the supply chains of the three CREAToR waste streams: Waste of Electrical and Electronic Equipment (WEEE), Construction and Demolition (C&D) waste and aviation waste. For all three waste streams, we do a quantitative analysis of the waste stream as well as a qualitative analysis of the processes and actors involved in the recycling supply chain. Finally, we assess the supply chain readiness of all three supply chains and derive the changes necessary to implement the CREAToR process.

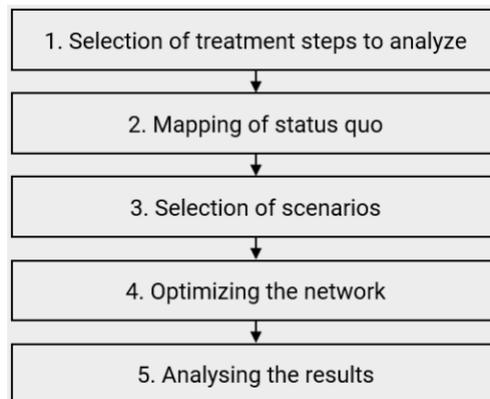
The deliverable "Status Quo, developments, and requirements from CREAToR" has been successfully handed in in November 2020 and a confidential report. Task completed

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TASK 5.3: Development of a reverse cycle design and evaluation method (KLU)

In this task we develop a reverse cycle design and evaluation method. The method allows us to simulate and optimize a certain supply chain design. The design parameters include the number of treatment facilities their location, size and treatment steps carried out. The input parameters include capacity of facilities, supply of waste and demand for recycled plastics, cost for facilities and transport and material quality. Based on these input parameters the model derives supply chain costs based on (i) treatment cost, (ii) storage costs and (iii) transportation costs.

The deliverable 5.3. "Reverse cycle design and evaluation method" is currently still being developed. The conceptual phase is finished. Currently KLU is implementing a prototype in the software AnyLogistix. COL, REL and ITRB are supporting the process. The finished model will describe all the steps necessary to put the data into the model and carry out the different types of analysis. It will be handed in in November 2021 as a public report. Task ongoing.



TASK 5.4: Derive specific logistics concept (KLU)

In this task we apply the reverse cycle design and evaluation method to the WEEE recycling supply chain. We study different scenarios to understand the how different supply chain designs affect the supply chain. The scenarios include different sorting scenarios, different location and size of the CREAToR purification process. REL and COL are supporting the task and are actively supplying data necessary to apply the method to the CREAToR case for recycling of WEEEP.

The deliverable 5.4. "Specific Reverse Logistics Concept for CREAToR material" is currently still being developed. It will be published as a confidential report in September 2022. Task ongoing

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