



NRP - Sectorial Collaborative Project (PCS)

Potential of Paper in Plastics Industry - P3I

Currently, 400 million tons¹ of plastics are produced each year, of which about 40% are used for packaging. To reduce this amount, the feasibility to use paper-based materials as substitution is investigated in this project.

Context

Due to environmental concerns, e.g. because of improper disposal practices, there is a growing demand from both consumers and governmental entities for increased recycling rates and the use of alternative materials. One such substitution is paper, which already has an existing recycling loop and is biodegradable. However, the use of paper, compared to plastics, is limited by

Figure 1: Objective of the project - Processing of material for the paper-recycling loop

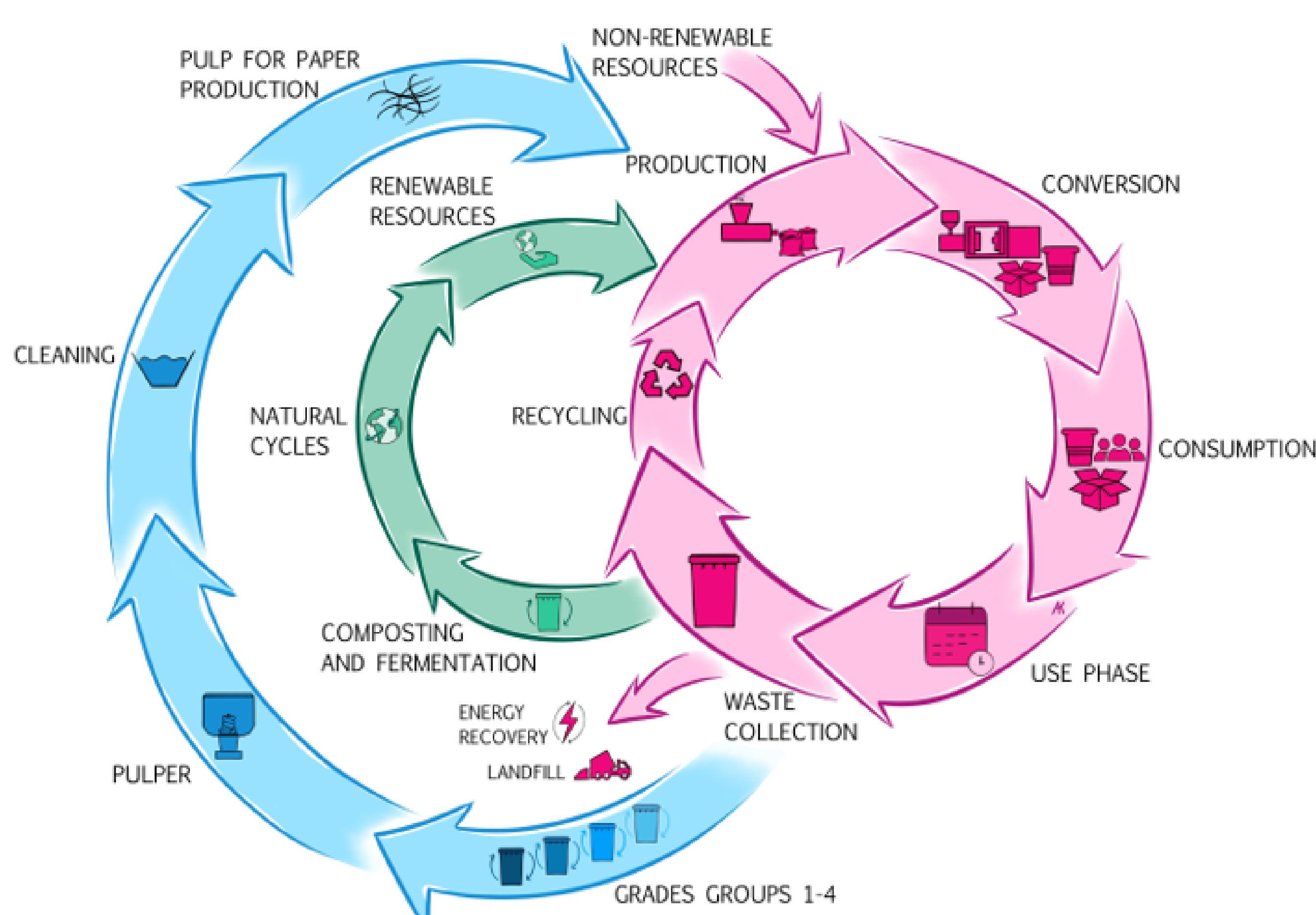


Figure 2: From paper via pulp and pellets to the final injection moulded part

significant constraints, i.e. in terms of shaping or surface quality.

Objectives

The goals of this project include:

- Overview of the regulations (EU & CH) in the field of packaging and paper recycling
- Analysis of existing paper-based materials and their processability (injection moulding, extrusion, thermoforming)
- Show the application, possibilities, and limitations of paper-based materials

Results

In an extensive research, the legal framework regarding plastic packaging and the paper stream and the market situation of paper-based compounds could be investigated. A selection of these compounds were tested and successfully processed (figure 2). However, achieving stable processing and high-quality parts of such materials, requires the adaption of tools and process parameters to the speci-

fic flow behaviour of paper compounds.

These findings, together with the contacts to producers of paper-based compounds, enable the partner companies to make well-founded assessments of the potential for replacing plastic products with paper-based materials, so that specific implementation can be worked on in subsequent projects.

Project funding



Project partners

Bachmann Forming AG, Bloom Biorenewables, Caran d'Ache, Geberit International AG, MedMix, NETSTAL Maschinen AG, Omya international AG, PackSys Global AG, Sonova communications AG, Trisa AG, Wago SA



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