Title: Bio-based plastics for foodstuff packaging

Duration: 04/2016 – 12/2017

Sponsor: Federal Ministry for Food and Agriculture (Bundesministerium für Ernährung und Landwirtschaft)

Project management: Agency for Renewable Resources (Fachagentur Nachwachsende Rohstoffe)

Project partners:

ifeu – Institut für Energie- und Umweltforschung Heidelberg

Fraunhofer IVV

narocon InnovationConsulting Kaeb

Abstract

The Federal Ministry for Food and Agriculture and the Agency for Renewable Resources commissioned the study "Bio-based plastics for foodstuff packaging", to be carried out by the Institute for Energy and Environmental Research (ifeu) in Heidelberg in collaboration with the Fraunhofer-Institut für Verfahrenstechnik und Verpackung (IVV) in Freising and narocon InnovationConsulting in Berlin. The study is part of the bioeconomy strategy of the German Federal Government, which seeks a gradual shift to a sustainable bio-based economy.

The packaging sector promises the greatest market potential for bio-based plastics in the short and medium term.

Service Packs
(Bioware © Huhtamaki)

Carrier bags for fruits and vegetables
(© Unicoop)

Flexible Multi-Layer Foils
(© InnoviaFilm; © Mc Cain)

Rigid Packaging
(© Coca-Cola)

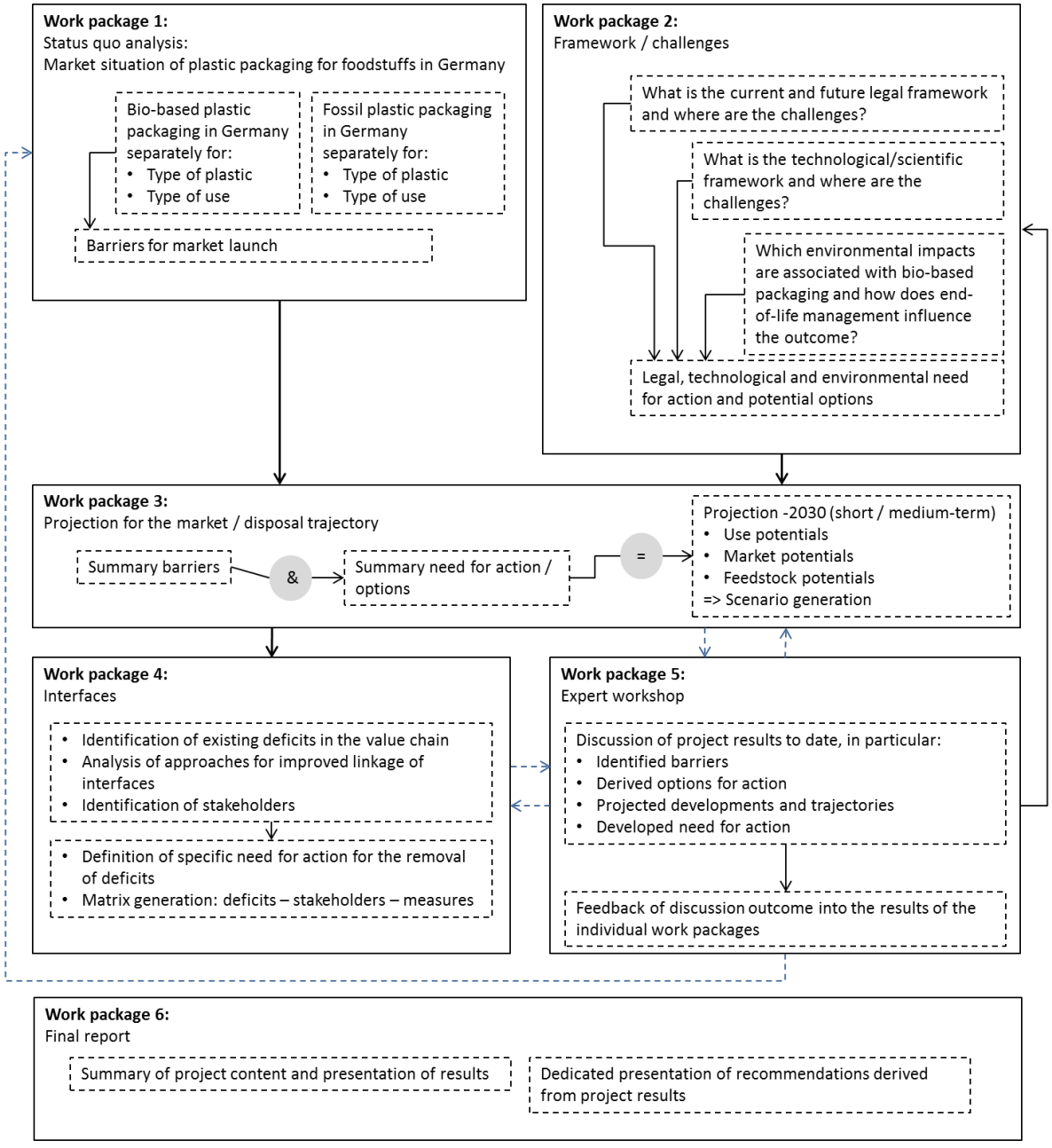
Multi-Layer Beverage Containers
(© Tera Pak)

Examples of existing bio-based plastic packaging itemised by packaging type
(Reference: http://www.european-bioplastics.org/news/multimedia-pictures-videos/)

Bio-based plastics are often associated with physico-chemical properties (e.g. air, steam and oxygen permeability, modulus etc.) that recommend them for the packaging of foodstuffs. Despite their apparent suitability, the presence of bio-based plastics on the German market is low.

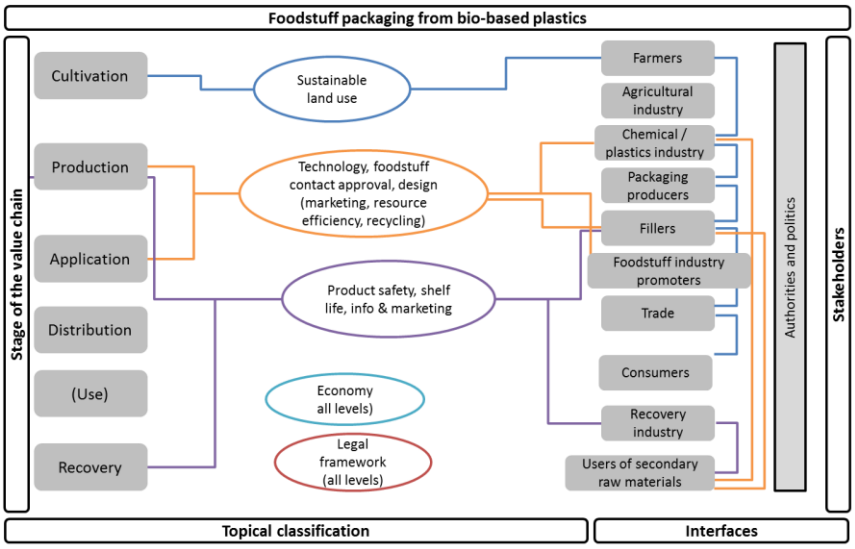
In consequence, the present project aims to identify fields of action to promote the increased use of bio-based plastic packaging for foodstuffs. The current market situation in Germany, existing market potentials as well as barriers preventing market penetration will be explored. In addition, the legal framework for the use of bio-based plastics, health and safety concerns and environmental impacts will be considered over the course of the entire life cycle of bio-based plastic packaging including disposal.

The project is carried out in a modular approach with interacting work packages.



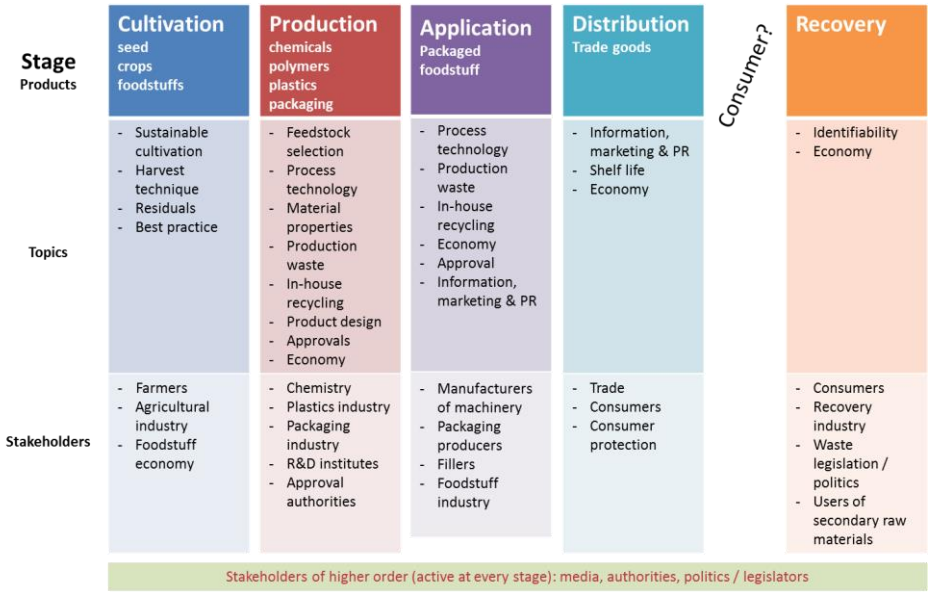
Project structure illustrating links between work packages

Specific recommendations for action will be compiled based on the present situation and the identified barriers and constraints. The aim is to help strengthen the acceptance towards bio-based plastics and their use for foodstuff packaging. So far, an increased market penetration of bio-based plastic packaging may have been prevented due to difficulties and deficits across all stages of the value chain (cultivation, processing, use, disposal). Improvement of the interplay between the different stages of the value chain will be explored in the interest of effective health and consumer protection as well as ecological optimisation. Such measures would further support the concept of the circular economy.



Examples of interfaces for optimisation

The project partners are all established scientific experts and consultants with many years of work experience along all stages of the value chain. For the present project, highly complex links and effects may be expected. In all likelihood, interfaces will exist not only between stakeholders with direct interactions, but also with members of the value chain that are several links removed. Need for creating connections between individual topic areas is also highly likely.



Example of a stakeholder map along the value chain

A number of stakeholders is already actively engaged at each stage of the value chain. These market stakeholders are invited to participate in both the analysis of the problem and the development of proposed approaches and solutions.

Please see press release (in German) of the Federal Ministry of Food and Agriculture (24.06.2016):

http://www.bmel.de/SharedDocs/Pressemitteilungen/2016/079-Lebensmittelverpackungen.html

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