

Project Title : International Collaboration R&D of Circular Process for Unused Plant-based Biomass

Resources (2024~2027*) *scheduled



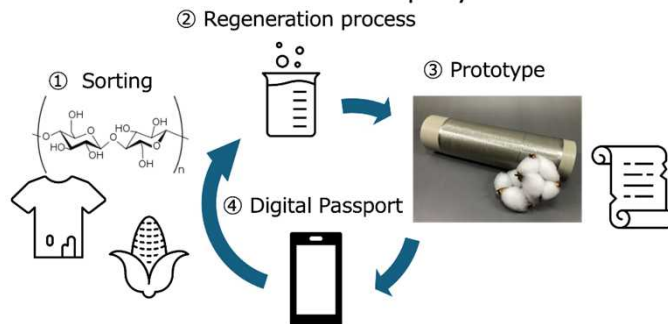
Entrusted Parties : Shinshu University, Doshisha University

Outline of the Project

Background: To realize a decarbonized society by 2050, it is necessary to achieve the technological development and diffusion of sustainable alternatives by 2040 to break away from a fossil-based plastics society. To shift to a circular society with biomass plastics as a promising alternative, it is necessary to advance and lower the cost of molding and processing plant-based biomass resources such as cotton in waste clothing and agricultural waste, which serve as recyclable raw materials.

Objective: Development of a cost-efficient molding process to enhance the properties of cellulose-based plastics

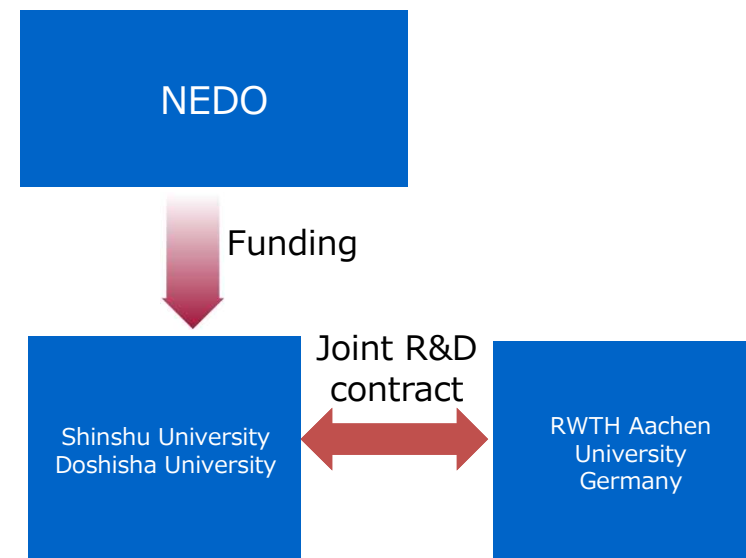
R&D Content: To implement plant-derived biomass plastics, R&D will be conducted on advanced molding processing and nano-composite technology for plant-derived biomass that can be deployed in various applications.



Significance of International R&D

The project will conduct international joint research with RWTH Aachen University, which leads the EU in advanced and ambitious regulations, to create and share new values related to biomass plastics and establish a regionally appropriate process for utilizing biomass resources. Furthermore, an international collaborative human resource network will be established for social implementation.

Project Scheme



Expected Outcomes

Recycling of cotton resources in garment waste: Potential CO₂ emission reduction (CO₂ emission reduction = 220,000 tons-CO₂/year (estimate only in Japan))

Securing resources through conversion to biomass plastics in packaging, plastics, and textiles, as well as conversion of agricultural waste.

The full-scale diffusion of biomass plastic can create a market by establishing a resource-recycling society.