

<https://doi.org/10.7250/CONNECT.2026.083>

CREATING CIRCULAR ECONOMY MARKETS, BUSINESS MODELS AND BIOBASED VALUE CHAINS WHILE BOOSTING THE URBAN-RURAL SYMBIOSIS

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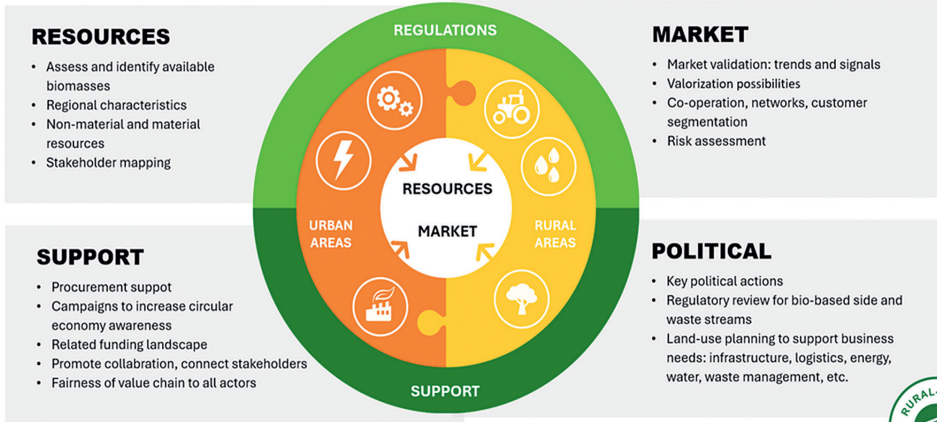
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Abstract – A sustainable circular bioeconomy must rely on the efficient use of raw materials while promoting the utilization of local resources. In close collaboration with farmers, industries, municipalities, and regional stakeholders, TREASoURcE project developed circular bioeconomy markets and business models, fostering the establishment of biobased value chains, and investigates opportunities to utilize urban and rural waste and side streams. During the project time frame, we have developed several circular bioeconomy solutions. **First**, the project has created and launched a digital marketplace for biobased by-products and waste streams, KiertoaSuomesta.fi. The platform connects material suppliers with potential buyers, as well as providers of related services, machinery and other relevant resources. Its primary target groups include companies generating biobased side streams from agriculture, forestry, and food processing, as well as raw material-using industries and public sector organizations. **Second**, the project examined opportunities to develop local bioeconomy ecosystems, with biogas plants at their core. Municipalities play a key role in advancing these ecosystems as they are striving for carbon-neutral energy production, and local biogas generation offers a practical solution. The project conducted surveys to assess local bioeconomy models in small municipalities in the Tampere region (Pirkanmaa), Finland. Based on these findings, a framework outlining the fundamental principles for developing and implementing a local bioeconomy model was created. *The local bioeconomy model* was presented as an example of the objectives promoted by the Rural-urban symbiosis Tool and as a practical illustration of how such a model can be implemented. **Third**, the Rural-urban symbiosis model encompasses both practices presented above and creates a conceptual framework for practical examples. The rural-urban symbiosis refers to the mutually beneficial relationship between cities and their surrounding rural areas. It highlights the exchange of resources, services, knowledge, and innovation in ways that create shared value and strengthen resilient, circular, and regionally integrated economies. *The Rural-urban symbiosis model* was developed to operationalize this concept. Hosted on the widely used Moodle learning management system, the tool is accessible, adaptable, and user-friendly for diverse audiences. The platform enables stakeholders to better understand and implement circular economy strategies tailored to their regional contexts. It serves as a strategic resource for municipalities, planners, businesses, and policymakers, helping them identify and harness biobased side and waste streams through innovative collaboration.

Keywords – *Biobased value chains; biogas ecosystems; circular bioeconomy; digital marketplace; local bioeconomy models; rural-urban symbiosis; waste and side streams*

Rural – urban symbiosis

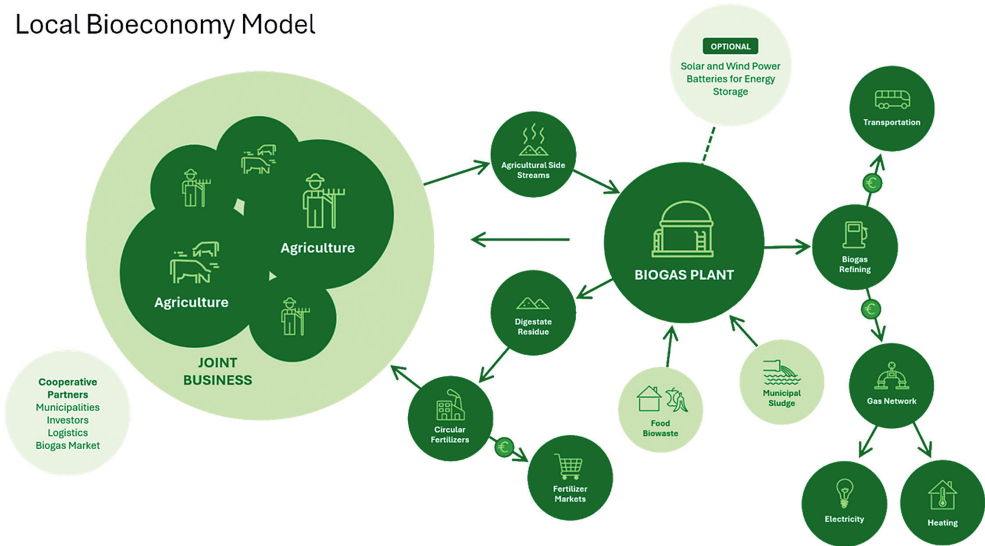
BIO-BASED ECOSYSTEM TO ACCELERATE CHANGE



Funded by the European Union (grant agreement no. 101059491). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.



Local Bioeconomy Model



ACKNOWLEDGEMENT

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