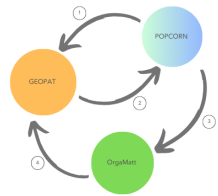




POP-EXTEND

Exploratory project
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Coordination

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Keywords

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INRAE Divisions

[ACT](#)
[AGROECOSYSTEM](#)
[ECOSOCIO](#)
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The « Eating Population » and agri-food metabolism



A systemic vision of the links in the production-consumption-excreta/waste chain provides a basis for reflection and discussion of appropriate enablers for the socio-ecological transformation of cities and territories.

From the extraction of resources to final consumption, the food system is responsible for around one third of global greenhouse gas emissions (Crippa et al., 2021). The transformation of agri-food systems (AFS) will thus play a decisive role in the socio-ecological transition of territories. To understand the characteristics of a territory's agri-food system and to be able to undertake the necessary actions, it is important to characterize the food consumption of the population that spends time there, whether temporarily or permanently. The vast majority of studies on the link between urban metabolism and food consider food consumption as static data based on the resident population. However, understanding consumption solely in terms of the census resident population has proved to be insufficient to precisely identify the number of people who really are present and who consume food. Hence the concept of the "eating population" is used to capture the population actually present over a given period of time and to describe actual food demand.

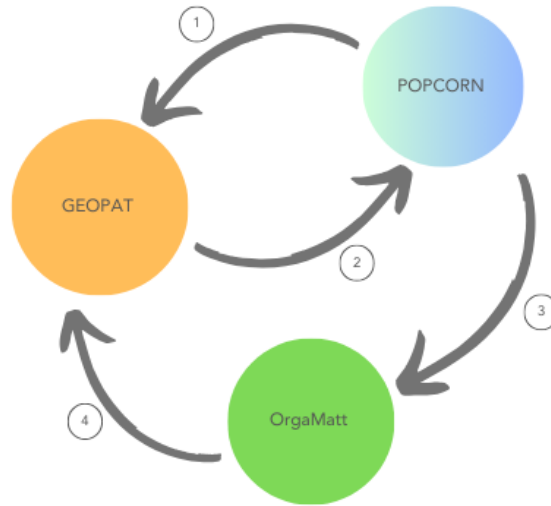
Objectives

The aim of POP-EXTEND is to conduct detailed analyses of the extent to which public policies and local players can influence the material flows associated with AFS. The analysis will focus on extending the POPCORN software tool and connecting its use with other computer software, as well as analyse public policy and direct actions and discussions with local players. The project will apply an integrated approach to the production-consumption-waste system, considering food consumption via the notion of the "eating population", which is one of the project's original features. The analysis will apply the social metabolism approach and its toolbox, including producing diagrams of material flows related to a territory. These representations will be shared with local players involved in public food policies, in order to identify appropriate enablers for the socio-ecological transition.

Based on the knowledge acquired by the [POPCORN consortium](#) (BETTER 2021-2022) and in particular using the prototype tool that was developed (a database structure and a web application for formulating queries on population types and their consumption), POP-EXTEND will connect the models and tools. To this end, existing tools have already been identified within POPCORN, enabling us to propose ways of exploring the connection between the POPCORN tool, GEOPAT



(supported by LISC) and OrgaMatt (supported by LEESU as part of the Circular Agri-Food Ecosystems (CAFE) project).



The schematic diagrams produced by coupling models are intended to question public policies in the food sector, such as the EgAlim law or the Projets Alimentaires Territoriaux, as well as the positions of territorial actors with respect to the material and biophysical dimension of AAS and their inclusion in territories. The knowledge generated by applying a systemic approach to the links in the production-consumption-excreta/waste chain provides a basis for reflection and discussion of the relevant levers for the socio-ecological transformation. Schematic diagrams of material flow analyses will be used as a tool for mediation between researchers and local stakeholders.

Partners

INRAE division	INRAE research units	Expertise and contributions
ACT	UMR SADAPT	Territorial agronomy, social ecology, food self-sufficiency, relocation of food production, food losses and waste.
AGROECOSYSTEM	UMR ITAP	Environmental assessment, territorial life cycle assessment (LCA)
ECOSOCIO	USC Maurice Halbwachs Center (CMH)	Sociology of food
MATHNUM	UR LISC	Modelling complex systems
	UR TSCF	Communicating and agri-environmental information systems
TRANSFORM	UMR SayFood	Eco-design, environmental assessment, life cycle analysis
	UMR TBI	Separation of effluents at the source, nitrogen-phosphorus recycling, closing of biogeochemical cycles
Partner	Research team	Expertise and contributions
Ecole des Ponts ParisTech and Université Paris-Est Créteil	UR LEESU	Biogeochemistry, food-excretion systems, urban metabolism, circularity of nutrient flows
CNRS	UMR Géographie-Cités	Urban planning, territorial ecology, techniques and urban environments

