

The significance of the project stems from the very timely and important topic, as resilience of the cities and their food chains are under global pressure. There is an increasing number of people in the world, United Nations estimated that by 2050 population would reach almost 10bn. The consequence of great population growth is high pressure on each country's agricultural resources as they are being converted into residential areas. The matter of providing food security to growing population when global arable land is decreasing troubles many minds nowadays. What is more, unfortunate events such as the outbreak of COVID-19 or war in Ukraine demonstrated that large cities are fragile to unpredicted global risks and crises. The interrelated challenges of urban food security and sustainable development are highlighted in the Sustainable Development Goals - "Zero Hunger" (SDG 2) and "Sustainable Cities and Communities" (SDG 11). In order to address issues mentioned above, the project proposes to understand the way of enhancing the resilience of urban farming systems.

The aim of this project is twofold. Firstly, to measure and evaluate the resilience of urban farming systems (UFS) within metropolitan areas. Secondly, to assess the role of urban and peri-urban agriculture in enhancing the resilience of the entire urban farming system in Poland. The resilience of UFS is the capacity to provide its basic functions (i.e. food supply, environmental services) regardless increasing complexity and accumulation of different types of shocks and stresses, through capacities of robustness (stresses withstanding), adaptability (change of the system's inputs in response to shocks) and transformability (significantly change of the internal structure and feedback mechanisms of the system). Farming system starts with the main product – in this project urban farming goods, and regional context – 6 metropolitan areas in Poland. The farming system includes not only farms, but also their environment - non-agricultural actors. Agricultural actors (family, neighbours, peers) and non-agricultural actors (local authorities, media, policy makers, agricultural associations) can influence each other differently, mutually in the case of the former or unilaterally in the case of the latter. Looking at the resilience of the complete urban farming system and the role of urban agriculture in its strengthening gives an opportunity to investigate the matter in more detail and depth.

The research will use the well-established and appropriate for that study method of structural equation modelling. Although this method is well grounded in existing literature, combining it together in research on resilience of urban farming systems is a novelty. Structural Equation Modelling (SEM) is a statistical method that allows researchers to test complex relationships among variables. SEM offers several advantages over other statistical techniques, including the ability to model complex relationships, test multiple hypotheses simultaneously or account for measurement error. By using the model, the principal researcher can gain a deeper understanding of the factors that contribute to urban farming systems' resilience, and develop interventions for its enhancement. The structural equation modelling will be performed in SPSS IBM Amos software. The novelty in the project stems from the application of resilience assessment methodology. By subordinating the project to strict framework, the results will be more consistent, robust and meaningful.

The key expected outcomes and impact of the research project on the development of science:

- Improved understanding of urban farming systems and their resilience.
- Identified drivers of urban agriculture adoption and its impact on resilience of urban farming systems.
- This research employs Structural Equation Modelling (SEM) to validate and apply the method to a previously unexplored system.
- Conference paper presented at the recognized international conference (for instance European Association of Agricultural Economists Congress or Transition in Agriculture Conference).
- Outline of the paper for the peer-reviewed journal and submitted after the project, such as Land Use Policy (Elsevier), Agricultural Systems (Elsevier), Agriculture (Springer) etc.
- Policy brief of the future possibility for CAP support for the urban farming system.