

In 2015 in Paris, representatives of 196 states unanimously adopted the agreement to reduce global human-made greenhouse gases emissions, so that in 2050 the world's economy emits no more than the natural ecosystem can absorb. In 2021, the global emissions continue to rise. Although the developed countries managed to reduce the emissions of their industries, the reductions are, to some extent, caused by the displacement of carbon-intensive production outside of their borders. The novel methods of assigning the carbon footprint to the place where the final goods and services are consumed (as opposed to assigning them to the place of production) reveal that most of the carbon footprint can be attributed to affluent societies of the developed nations and their urban households. Therefore, the inquiry into the reasons for their high-carbon consumption habits and the factors that influence it, is crucial for the formulation of climate change mitigation policy.

In this project a relationship between the urban households' carbon footprint and their urban environment ('built environment') will be examined. For a long time, it was assumed that some forms of built environment favour less carbon-intensive behaviours – e.g. living in an accessible city centre makes it easier to use a bike instead of a car and living in a multi-family house requires less energy to heat it than in a detached house. However, when total consumption is taken into account (including e.g. consumption of imported goods), the image is much more complicated. The same built environments, regarded as favouring lower emissions, have been found out to group people who emit more due to their consumption levels. It is not yet clear to what extent it is caused by the environment itself or the fact that people of some socio-economic (e.g. income) and socio-cultural (e.g. attitudes) characteristics locate in those environments and it is those characteristics which are the main drivers of their high emissions.

Therefore, the project's general aim is to:

describe the relationship between built environment and urban households' consumption and carbon footprint in the context of other relevant socio-economic and socio-cultural factors.

It will seek to answer the research question:

How does the built environment, in configuration with other relevant socio-economic and socio-cultural factors, influence urban households' consumption and their carbon footprint?

The project will achieve the aim and answer the research question by conducting two studies among the urban households in Poznań agglomeration. The first study will feature a geo-questionnaire in which the 1500 household members will provide information on their consumption, socio-economic (e.g. income, household size) and socio-cultural (e.g. environmental attitudes) characteristics and way of living in their environment. From this data the research team will calculate each households' carbon footprint and characteristics of their built environment (e.g. residential density, accessibility to the amenities etc.). Then, they will check if some characteristics (of the built environment or of the households) are more associated with the household carbon footprint than the others and if they differ between various parts of the agglomeration. The second study will deepen the understanding of the topic by carrying out 20 interviews with the household members. The researchers will look into possible causal mechanisms, by which the built environment may influence their behaviour. Furthermore, they will check if there are such circumstances in which households tend to have higher and smaller footprint.

Overall, the project aims to foster international cooperation with leading researchers in the field, contribute 4 empirical papers to the urban planning and ecological economics literature and bring operational knowledge to both the urban policymakers and urban households concerned with their environmental impact.