

Urban resilience: factors contributing to vulnerability to meteorological risks of Polish towns in the context of revitalization processes

In recent years, many Polish cities have been modernizing. Everyone wants the destroyed and degraded centers to change their appearance and become more livable. Therefore, the municipal authorities implement often very costly revitalization plans. As a consequence, the appearance of old towns and central squares is changing, and the utilitarian functions of the hearts of cities are changing as well. However, not all revitalization investments are positively perceived. Often there is a dramatic reduction in green areas, replacement of natural squares with concrete areas, which are far from being friendly places to live. Such tendencies in Polish cities have been pejoratively dubbed "concretosis" ("betonoza" in Polish). And although this "concretosis" bothers many residents in terms of the comfort of life, it may carry even more serious threats, increasing the risk of loss of property, but also health or even peoples life.

The above mentioned threat may be the result of extreme weather events affecting Polish cities more and more often. Although Poland is far from struggling with the weather on the level of, for example, Asian countries or Australia, a growing number of events is noticed. What is more, as research shows, extreme meteorological phenomena will become an increasingly serious threat, as they are expected to occur more often and with greater intensity. One of such events that are preserved strongly in the common memory was the storm of August 2017, as a result of which two teenagers died and 38 people were injured. This event also contributed to many minor tragedies, such as destruction and loss of property.

Undoubtedly, such events are the most dangerous for the inhabitants of urban areas. This is because cities are a compact, built-up area where there is an accumulation of infrastructure, resources and is densely populated. Thus, even a minor meteorological event can turn out to be fateful. Moreover, urban vulnerability to meteorological risks is also increased by the nature of urban development. A large area covered with impermeable layers, which exposes these cities to the consequences of torrential rainfall, as rainwater cannot naturally drain into the ground.

In this context, it is worth looking at the revitalization processes implemented in Poland. So, constituting a breakthrough moment in which it is possible to transform the urban fabric, also in terms of reducing vulnerability to meteorological risks, do Polish cities take advantage of this opportunity? Or is it quite the opposite and revitalization activities actually contribute to increasing susceptibility to extreme weather events? Or maybe the emerging systems of risk management related to intense meteorological events - arrangements of resilience - are affected by completely different factors?

This project is intended to provide answers to the above questions by combining the approaches of social sciences and natural sciences. Eight selected Polish cities where revitalization activities were carried out will be analyzed. Urban greenery before and after urban investments will be assessed. The threat from heavy rainfall will also be investigated, and the potential future hazard will be identified through near-future rainfall projections. Local risk management systems related to weather extremes and decision-making processes regarding the implementation of revitalization activities will also be subject to analysis. The study will be concluded by combining the above elements and subjecting them to a comparative qualitative analysis, which will allow to determine the factors affecting the vulnerability of cities to extreme weather events and to indicate the role of revitalization investments in this matter.