

Healthy Cities – Resilient Cities.

Urban development in the context of climate change



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The author puts forward a thesis about the influence of the climate agenda on the transformation of the idea of Healthy Cities into the concept of Resilient Cities. The work includes an analysis of the development strategies of European cities, with particular emphasis on the largest cities in Poland, regarding the adaptation of the urban environment to the existing and projected climate hazards. The research goal is to evaluate the strategies for city development adopted by cities in their strategic documents as well as to assess the scale of climate change and its impact on the spatial development policy.

Given that over 70% of Europeans live in urban areas [1], the ability to cope with problems and threats in cities determines the quality of life for a large portion of the population. Therefore, it is crucial to devise a formula for development which will help to accurately diagnose current and future problems, identify crisis situations and prepare for them.

Even though it is difficult to identify changes caused by global warming in the complex urban context and despite inaccurate estimates of the scale of local threats and the uncertainty in projections regarding the directions and scope of impacts [2], there is a growing awareness that actions are needed to prevent or minimize damage.

Sustainable, healthy, and resilient cities

The scale of transformations in cities stimulates the search for solutions to emerging threats and problems. Concepts which have long been studied, interpreted and evaluated and have inspired conclusions and solutions are subjected to a process of verification. The very popular idea of sustainable development (Sustainable Cities) has prompted discussions regarding subsequent concepts based on the interpretation or further development of this idea [3]. New development models focused on specific aspects, for example those related to management (smart, competitive), connections (connected, walkable), structure (compact, creative, slow) or quality of life (for people, wellbeing).

A concept that stands out is the concept of Healthy Cities which has been developed for over thirty years and is included in the WHO program. Much like the definition of health, it has been evolving towards a holistic approach [4]. The aspiration to shape a healthy urban environment (both physical and social) arising from the growing importance of prob-

lems related to climate change, is increasingly associated with the protection of living conditions against risk factors (Fig. 1.). The concept of Resilient Cities, currently in the spotlight, emphasizes the development of cities with respect to resilience to crises and threats related to climate, resources, finance and epidemics.

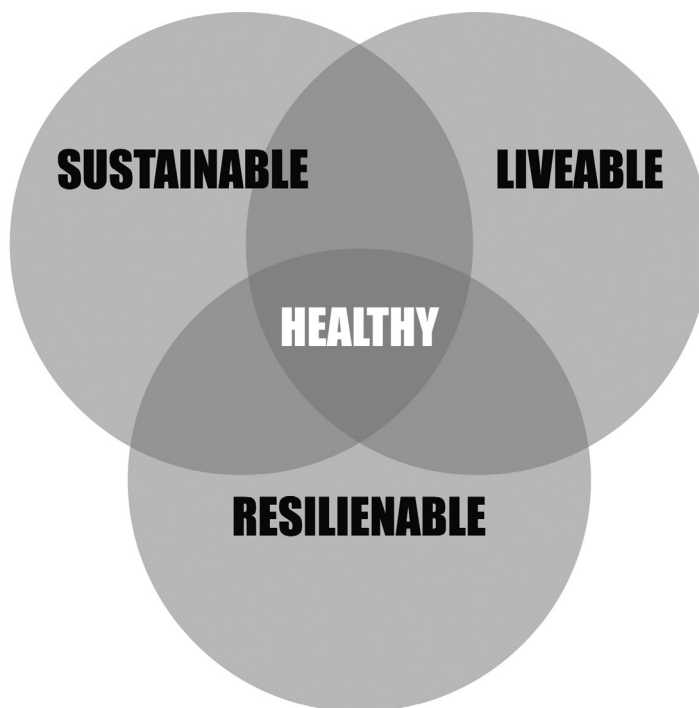


Fig. 1. Correlations concept of sustainable, resilient, liveable with health



Fig. 2. Concepts of city development. Between the passive and conservative principles of development without prejudice to future generations and the reactivity and creativity of development adapted to the dynamics of change.

The development of the idea of Resilient Cities draws on previous concepts of urban development, including those focused on health, but this approach is particularly interesting as it is broader and clearly related to the current challenges of climate change.

Crisis resistant cities

The concept of Resilient Cities has been generally considered as the process of increasing the resilience of cities to "chronic stresses" or "sudden shocks", and more specifically, as a process aimed at mitigation of risk associated with extreme climatic events, protection and development of biodiversity and ecosystems, resource and food security, efficiency of management and social stability [5].

The improvement in the quality of life, including the strive for physical, mental and social health, serves as the cornerstone of both ideas and implies a form of development that takes into account the needs of future generations (sustainable), but also meets the current needs, including the need for high quality of life (health), without disruption (resilient) (Fig. 2.).

The identification of needs includes criteria that are difficult to measure as their interpretation greatly depends on the the individual and on subjective characteristics of the respondents. However, there are research areas which can be measured using uniform indicators and thus can be examined through a comparative analysis and allow for the monitoring of the progress in implementation of strategies. These include environmental problems (pollution and degradation of the environment, and climate change) and urban problems (development of suburban areas, ineffective spatial management). The above-mentioned areas of interest are common for healthy and resilient development.

The need to devise a development formula that would better respond to contemporary challenges is justified by the existing and forecasted crises related to climate, environment, resources, migration and pandemics. The COVID-19 pandemic is an important reason to assume that the concept of Resilient

Cities will be significantly expanded and more readily implemented in an increasing number of cities around the world.

Experiences of Polish cities on the example of Radom, Wroclaw, Krakow and Warsaw

Of all the Polish municipal adaptation plans, RadomKlima was the first one in Poland to be selected in the LIFE programme competition managed by the European Commission [6]. The plan focuses on slowing rainwater runoff by building green and blue infrastructure and on improving air quality through pollution monitoring and reporting and through air quality and biometeorological forecasts. The activities within the strategy are based on the implementation of effective environmental planning.

The study of air quality and the introduction of modern methods and technologies for measuring and modeling elements of the urban climate under the LIFE-APIS/PL project is also carried out in Wroclaw [7]. This project started in Wroclaw in 2013 and consists in daily measurements of biometeorological and air quality indicators that are published on the Internet.

The strategies of individual cities have different profiles and focus on different aspects. In Radom, the main emphasis was on water management and many projects focused on a river, a reservoir or a floodplain and its adaptation to climate change. Wroclaw's adaptation plan includes projects related to rainwater management as well, but there is also a wide range of organizational and educational activities and a large number of projects related to the revitalization of degraded areas, the protection and development of green areas, as well as to the adaptation of public space and leisure and recreation space to climate change [8]. Despite the comprehensive program of urban-scale activities, the action plan does not offer a method for evaluating its implementation, does not indicate the location for spatial activities, and does not allocate a budget for this project.

In the Krakow adaptation plan, the assessment of risk from climate change was carried

out for four basic sectors: built-up areas, water management, transport and health [9]. In terms of health risks, the vulnerable groups mostly included the elderly, the chronically ill and children, whereas stress factors included heat, smog and floods.

The Warsaw adaptation plan is based mainly on the optimization of city management and horizontal cooperation between individual organizational units of the city and vertical cooperation with partners at the local, regional and national level [10]. The adaptation action plan is to be carried out by means of implementing acts, which is difficult to coordinate because tasks are delegated to individual units, whose responsibilities and competencies are not clearly defined.

Conclusions

Climate change stimulates adaptation actions related to city planning and management. An analysis of the spatial development policies of individual cities in Poland reveals that threats are not diagnosed accurately and are defined in rather general terms without following the guidelines formulated under programs aimed at supporting adaptation actions. Additionally, these strategies fail to specify the expected results and monitoring indicators to assess whether the objectives set by the city were achieved. At the same time, there are clear differences regarding adaptation objectives. This makes it difficult to apply a uniform monitoring and measurement procedure and thus to compare the results and exchange experiences.

In order to develop adaptation plans it is necessary to evaluate the results of their implementation based on specific goals, clear defined indicators and objectives monitoring methods. The development of resilient cities can also be stimulated by increased cooperation at the local, regional and global level.

What is needed to improve the quality of adaptation strategies is not only time, but also the habit of learning from institutions and organizations that have been dealing with these issues for decades and taking advantage of the experience of cities that have been successful in this field.



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CORRECT QUOTATION FORMAT

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Abstract: The impact of climate change is more and more often taken into account in urban development strategies and concerns mainly reducing threats and protection against the effects of extreme phenomena. Stress factors that are mainly related to civilization changes (economic and technological progress) and environmental changes (nature, resources, and climate) test a city's ability to remain functional in spite of crises. With this in mind, it is necessary to review the development strategies of contemporary cit-

ies, identify the main course of action aimed at increasing the resistance to threats at the global, regional and local level, identify instruments that help in the planning of adaptations, and assess the scope of such plans. In Poland, the idea of developing healthy and resilient cities is not as popular as in other countries. The first adaptation strategies generally focus on the risks related to extreme weather events. It is expected that subsequent plans will gradually extend the scope of adaptation, especially after the COVID-19 pandemic made us realize that crisis management is insufficient and that the city's resilience should be developed.

This paper explores the idea of Healthy Cities and other contemporary concepts of urban spatial development in the context of climate change. The author puts forward a thesis about the influence of the climate agenda on the transformation of the idea of Healthy Cities into the concept of Resilient Cities. The work includes an analysis of the development strategies of European cities, with particular emphasis on the largest cities in Poland, regarding the adaptation of the urban environment to the existing and projected climate hazards. The research goal is to evaluate the strategies for city development adopted by cities in their strategic documents as well as to assess the scale of climate change and its impact on the spatial development policy.

Keywords: climate change, healthy city, resilient city

Streszczenie: MIASTA ZDROWE – MIASTA ODPORNE. ROZWÓJ MIAST W ASPEKTCIE ZMIAN KLIMATYCZNYCH. Planowanie i zarządzanie miejskie staje wobec coraz większych wyzwań ze strony chronicznych stresów oraz pogłębiających się problemów. Czynni-

ki stresu związane głównie ze zmianami cywilizacyjnymi (postęp gospodarczy, technologiczny), a także środowiskowymi (przyroda, zasoby, klimat), testują zdolność miasta do zachowania funkcjonalności pomimo kryzysów. Pod tym kątem należy dokonać przeglądu polityki rozwoju miast współczesnych, rozpoznać główne kierunki działań zwiększających odporność na zagrożenia na szczeblu światowym, regionalnym i lokalnym, a także zidentyfikować instrumenty służące planowaniu adaptacji oraz ocenić poziom tego planowania. W Polsce idea rozwoju miast zdrowych, a także odpornych nie jest tak popularna jak na świecie. Pierwsze plany adaptacji koncentrują się na ogół na kwestiach zagrożeń związanych z ekstremalnymi zjawiskami klimatycznymi. Przewiduje się, że zakres adaptacji kolejnych planów będzie stopniowo obejmował szerszy obszar, zwłaszcza że za przyczyną pandemii COVID-19 przekonano się, iż zarządzanie kryzysowe nie wystarcza i należy z większym wyprzedzeniem zwiększać odporność miasta na możliwe zagrożenia. W pracy podjęto problematykę idei zdrowych miast oraz innych współczesnych koncepcji rozwoju przestrzennego miast w kontekście zmian klimatycznych. Autor stawia tezę o wpływie agendy klimatycznej na ewolucję idei miast zdrowych w koncepcję miast odpornych. Poddano analizie plany rozwoju miast europejskich, ze szczególnym uwzględnieniem największych miast polskich, dotyczące adaptacji środowiska miejskiego do obecnych, a także prognozowanych wpływów uwarunkowań klimatycznych. Celem poznawczym jest ocena formuł rozwoju obecnych w dokumentach strategicznych miast oraz skali zmian i zakresu wpływu zmian klimatu na politykę przestrzennego rozwoju.

Słowa kluczowe: zmiany klimatyczne, zdrowe miasto, odporne miasto

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