

THE MUNICIPAL PLAN FOR ADAPTATION TO CLIMATE CHANGE AND ITS ROLE IN THE STRATEGIC MANAGEMENT OF THE LOCAL AUTHORITY

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Purpose: The purpose of the article is to answer the question of how the challenges and problems of climate change translate into the realm of institutional solutions and strategic management at the local level.

Design/methodology/approach: The article uses the method of analysis and criticism of the literature, making an analytical-synthetic account of the state of knowledge to date on the topic presented. In terms of processing the collected data, inductive and deductive, descriptive and monographic reasoning methods were used.

Findings: Long-term strategies and investments in climate change adaptation as part of strategic management at the local level are essential to protect residents and urban infrastructure from the negative consequences of extreme weather.

Practical implications: The presented study can help local government units make effective decisions related to environmental management at the local level.

Social implications: The analysis presented can help in the process of identifying the benefits of strategic management with climate change adaptation issues.

Originality/value: The presented study represents a new approach to interpreting the assumptions of environmental management systems in the context of supporting climate change adaptation activities from the perspective of strategic management in organizations and local government units.

Keywords: climate change adaptation, spatial planning, city, strategic management, sustainability organization.

Category of the paper: Research paper.

1. Introduction

In the 1950s, 1/3 of the global population lived in cities. Just 50 years later, urban centres were home to half of humanity. According to UN data, in 2050, 2/3 of humanity, or an estimated 6 billion people, will lead their lives in urban agglomerations. The aforementioned upward trend implies a simple conclusion: the city attracts humans (Siekierska-Rosiak, 2016). There is nothing revelatory in this conclusion, emerging social, environmental, economic or cultural trends form in metropolises to then spill over to the rest of administrative units. In this respect, the city should play a pioneering role as an instrument of green transformation.

The process of transforming individual urban systems towards resilient, sustainable cities with a good quality of life is nowadays an essential element of urban spatial policy (Pancewicz, 2021). Space, on a par with forests, waters, mineral deposits, air, should be perceived as a resource and a supreme value, which the legal system must guarantee due protection. Hence, the recognition of the principle of sustainable development as the basis for spatial management is indisputable. The discussion on the concept of sustainable development is characterised by a multitude of definitions and interpretations of this concept, as indicated by various authors. Indeed, the term sustainable development is translated differently in Polish. Initially, it was translated as 'self-sustainable development' (sustain means to maintain, so it is primarily about maintaining the present state in order to be able to think about further development) or eco-development.

In Polish literature, eco-development is often equated with sustainable development. Today, however, there is some controversy about the meaning of the term. Most often, considering the legislation, it is considered that eco-development and sustainable development are synonyms. In such a situation, the terms are used interchangeably.

However, there are also other approaches. According to one of them, eco-development is a concept whose scope is narrower than sustainable development. According to S. Kozłowski (Kozłowski, 2005), head of the Polish delegation to the Earth Summit in Rio de Janeiro, eco-development means development based on natural criteria, whereas sustainable development is development understood integrally in the ecological, cultural and economic sense. Sustainable (self-sustaining) development is used most often in economic terms. According to Kozłowski, this is the broadest approach, very far from the concept of eco-development.

According to other authors, the situation is the opposite. In their opinion, the concept of eco-development includes, apart from the ecological dimension, other areas: cultural-institutional, demographic-social, technological-scientific, ethical-axiological, as well as economic. As a result, it can be concluded that eco-development is sustainable, sustainable and self-sustaining development.

It is significant that when the United Nations Environment Programme's Governing Council introduced the concept of eco-development in 1975, it implied "an imperative to deal pragmatically with the developmental interdependence of nature and society". Therefore, the concept of eco-development (Kukuła, 2003) was intended to encompass such measures for economic, social and civilisational development that take into account the scientific features of zoology and ecology and other natural sciences. It thus guarantees the protection and rational shaping of the living environment of contemporary mankind and the biosphere of our planet as mankind.

Summarising the above considerations, it can be said that the eco-development formula appears to be at least equivalent to the sustainable development formula.

As the scientific discussion develops and the idea of sustainable development becomes more widespread, there is a tendency to expand the three basic elements of the sustainability concept (i.e. the social, economic and ecological factor) to include new ones, such as institutional, institutional-political and moral or ethical.

Regardless of whether and how broadly the conceptual boundaries defining sustainable development are defined, it is very important to make it clear that sustainable development implies the need to maintain a balance in the natural and technical environment, as well as human spiritual balance. Significantly, one of the courses of action on both the local and regional side is the pursuit of sustainable development, and therefore the management of public issues requires that a set of commonly accepted values be adopted and respected, influencing the decisions that local authorities take (Domański, 2000). Local and regional authorities play an important role in the implementation of the sustainable development agenda, as they are responsible for the maintenance and care of technical infrastructure facilities, e.g. municipal management and water supply. The list of activities of local authorities that contribute to improving the attractiveness of an area can include a wide range of undertakings - e.g. concerning: promotion, marketing, financial support and land management. Similar activities should be carried out at the regional level - covering provinces (Szewczuk, 2010).

The issue of implementing the sustainable development programme seems to be the key issue for spatial planning in Poland. Sustainable spatial management should be understood as such planning activities that lead to a balanced spatial development, especially in relation to the projected population, based on respect for resources, especially natural resources. According to the assumption of P. Fogel (Fogel, 2010), spatial planning is the prioritisation and balancing of values based on conditions, including environmental conditions. On the basis of these, decisions are made about the use or development of land. In reality, it is difficult making choices and finding spatial trade-offs between the interests of the individual and the wider public interest. The visible results of local planning, widely reported in the literature, leave no doubt that planning decisions are very often made without taking into account relevant considerations.

In the context of the widespread principle of sustainable and balanced development, it is important to take ecological and social values into account in spatial management.

In the long term, spatial order shaped according to the principles of sustainable development can be a factor in economic development. It undoubtedly provides a stimulus to the economy. This is for several reasons. Firstly, the importance of a knowledge-based economy is now growing. Knowledge, unlike traditional factors of production, is an almost inexhaustible factor, and its growth depends, among other things, on the role of science in society and the amount of investment devoted to its development. The education and R&D sectors, which are largely public services and do not directly pursue economic objectives, in effect generate economic growth. Secondly, the development of a knowledge-based economy does not depend only on the growth of knowledge. It requires high quality human capital. Its quality is shaped not only by a well-developed educational infrastructure, but also by the infrastructure of the health care and cultural systems. As research shows, a favourable climate for innovation is provided by centres with a rich cultural life and a strong artistic environment. Thirdly, some branches of services that were considered to be non-productive, such as culture, are becoming important, innovative and highly profitable branches of the economy in developed countries. Fourthly, companies operating in the knowledge economy, looking for qualified employees, are locating themselves in places offering good living conditions, i.e. a clean environment and well-developed social infrastructure.

The phenomena indicated, although not exhausting the entire spectrum of the issue, clearly indicate that shaping spatial order in the spirit of sustainable development should ensure proper development of these functions. In the short term, they limit the effectiveness of the economic use of space, but in the long term they ensure stable economic growth and favourable living conditions, which is also linked to limiting and controlling the pressure exerted by human activity on the natural environment (Tarkowski, 2007). Shaping spatial order according to the principles of sustainable development also affects the level of investment attractiveness.

An important part of the process of designing adaptation measures can be the development of a municipal climate change adaptation plan. Adaptation actions can be part of good practices, i.e. actions that contain a certain potential for innovation and produce positive and concrete results (Bednarek, 2007). Good practices should be applicable by actors with similar characteristics under similar conditions and should be replicable. Like sets of rules, good practices must demonstrate their usefulness and value in achieving their intended objectives. In other words, the use of good practice aims to improve the standards of activities carried out in a specific area, such as climate change adaptation. The most important features of the concept of good practice are: efficiency, planning, effectiveness, innovation, ethicality and universality (Karwinska, 2008). An example of good practice in climate change adaptation could be projects that make use of the network of natural linkages that positively influence both living conditions in the city and the functioning of the natural environment in the city, including green areas such as parks, squares, greens and municipal water resources such as rivers, streams, ditches, lakes or reservoirs (so-called green-blue infrastructure).

An analysis of the available literature on the subject has shown the need for a wider interconnection between, on the one hand, the objectives and instruments of strategic management and, on the other hand, the objectives and actions that constitute responses to climate challenges. In particular, in the context of the role of municipal climate change adaptation plans in this process. Thus, the research presented here fills a gap in the literature and provides a new approach to strategic management that takes into account the climate issues dimension. The aim of the paper is to answer the question of how the challenges and problems of climate change translate into the realm of institutional solutions. This will help guide an assessment of the current debate on the relationship between strategic governance at the local level and climate challenges. In particular, it will help contribute to the development of broader patterns of solutions that can be applied in country practice. In the article, the first chapter describes the process of transformation of individual urban systems towards resilient cities, taking into account the principles of sustainable development. The second chapter presents methods. In turn, Chapter 3 discusses and presents opportunities for the implementation of local climate change adaptation plans by local development managers. Chapter 4, on the other hand, presents conclusions and launches the discussion - pointing out and identifying the benefits of integrating environmental and nature conservation issues into strategic management at the local level. At the same time, problem areas for Poland's environmental policy in the context of climate challenges were identified.

2. Methods

The article uses the method of analysis and criticism of the literature, making an analytical-synthetic account of the state of knowledge to date on the topic presented. In terms of processing the collected data, inductive and deductive, descriptive and monographic reasoning methods were used. The aim of the applied method of analysing and critiquing the literature was to characterise the existing body of work and the directions of discussion, and to ensure that certain methodological rules were followed, related to ensuring the verifiability, reliability and cognitive value of the results. In addition, the paper uses a document analysis method.

The method consists of a quantitative and qualitative analysis of the content contained in these documents. Thanks to this method, concrete data on the effects of action related to the integration of environmental issues into the instruments of strategic management were obtained. The resulting data from secondary sources was used to assess strategic management needs that take climate change adaptation into account.

3. Research Results. Urban Climate Change Adaptation Plans – over-planned obligation or well thought-out tactic

Urban spatial governance plays a key role in climate change adaptation. Particularly important for urban adaptation is the spatial planning process, which should take into account as interdisciplinary a development approach as possible, including environmental and social (Carter et al., 2015). More and more people are living in cities and climate change, such as extreme temperatures, floods, storms and sea level rise, is a growing challenge. In the 2014-2020 financial perspective, Municipal Climate Change Adaptation Plans were developed systemically for 44 cities as part of a project co-financed by the Operational Programme Infrastructure and Environment 2014-2020 (Programme, 2014-2020) Among these 44 cities were 39 cities with populations over 100,000. The development of these plans for cities with populations over 100,000 was a prerequisite to receive funding for climate change adaptation measures and projects. Due to the growing awareness of the risks posed by climate change, cities with fewer than 100,000 inhabitants have also decided to develop municipal adaptation plans. A climate change adaptation plan is a strategic document and provides the basis for decisions by the municipal authorities that would take into account the risks arising from climate change. The plan identifies adaptation actions leading to mitigation of the negative consequences of climate change. In addition, a Climate Change Adaptation Plan is a specialised document and usually requires the involvement of subject matter experts. When deciding to develop a climate change adaptation plan document on your own, it is worthwhile to describe the geographical and key socio-economic conditions (e.g. population of senior citizens, phenomena indicative of degradation of the JST, investment interest) before carrying out a diagnosis of hazards, vulnerability, adaptation potential, susceptibility and risk. It is also worth analysing the available strategic and operational documents, including those concerning the environment and climate protection, including those relevant to the regional and national level, e.g. the city/municipality development strategy, environmental protection programmes and/or the sustainable development programme, local spatial development plans, the study of the conditions and directions for spatial development of the commune, plans for the supply of heat, electricity and gas fuels, water and sewage management programmes, including the management of rainwater, programmes of small-scale retention, low-emission management programmes, natural valorisation and ecophysiological studies. The above-mentioned documents often do not directly refer to adaptation measures, but nevertheless identify the problems of a given administrative unit that may relate to risks resulting from the effects of climate change and define courses of action/ or specific actions. Public participation is important in the process of developing climate change adaptation plans, so a description of the involvement and participation of local residents in the development of the plan is necessary. When describing, on the basis of an assessment of the JST's exposure to selected climatic

phenomena, the main risks arising from climate change, it is worthwhile to make observations of changes in climatic conditions and to forecast them. At the stage of vulnerability analysis, it is advisable to analyse the functional and spatial structure, spatial management, public health, water management, transport, energy, biodiversity, cultural heritage, tourism and recreation. The assessment of adaptation potential, which is carried out next, aims primarily to identify elements of the functioning of the territorial unit that can help adapt to climate change or that, on the contrary, should be developed, improved and strengthened by adaptation measures in order to build the city's resilience to climate change. Adaptation potential should be considered in the following categories:

1. financial capacity,
2. social capital and access to knowledge,
3. crisis management,
4. health and social welfare institutions,
5. systemicity of protection and shaping of urban ecosystems.

The diagnosis concludes with a climate risk assessment. The completed diagnosis is the basis for setting the objectives of the adaptation plan, which will be implemented through specific adaptation actions. A success factor in the future implementation of the plan is the identification of the actors managing the city and assigning them an appropriate role. The implementation of the Adaptation Plan requires the participation of the inhabitants of the territorial selfgovernment unit as well as social organisations, in particular environmental groups at risk of exclusion. Entrepreneurs are also stakeholders in the MPA, especially those operating in the sector of specialisation of the territorial unit. An important element of the plan is the financial framework and sources of funding for adaptation measures and an ongoing monitoring schedule.

At almost every step in the development of the plan, there is a need to use up-to-date information and data, which can be a considerable challenge for small JSTs. Recommended documents are reports from governmental or scientific institutions. Reports prepared as part of bilateral and international projects on the topic by both the authority and other municipal entities can also be a good source of data. Global climate change scenarios have been developed by the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change, 2022). General information on projected climate change for Poland is presented in the document "Strategic adaptation plan for sectors and areas vulnerable to climate change until 2020 with an outlook until 2030" (Plan, 2013). Developed for the needs of the KLIMADA project at the Interdisciplinary Centre for Mathematical and Computational Modelling at the University of Warsaw, the climate change scenarios adapted for the conditions of Poland for the 2030 perspective are descriptions of likely future climate conditions. By drawing up an adaptation plan, the city can easily take a number of measures that will improve the comfort and functioning of its inhabitants. A climate change adaptation plan is also a new look for the municipalities, allowing them to revise their spatial documents, stop or green projects that

burden the environment, raise awareness of the risks of climate change, environmental education, their personal attitudes and commitment to adaptation.

In the area of climate change adaptation, the key is strategic management, which is a well-thought-out process with defined plans in an agreed timeframe, subject to constant monitoring and control. Such a concept is based on the development of endogenous potential and allows the formulation of long-term goals over a long time horizon. This allows the organisation's competitive advantage to be properly defined and positioned in its environment (Hausner, 2008). Developing adaptation plans and urban strategies requires a holistic approach to the issue and acting at different scales. It is also important to understand that blue infrastructure is a set of interconnected vessels and as such needs to be managed within a catchment area (Mazur, 2022).

Strategic management should be understood as a comprehensive and forward-looking approach to setting and achieving the development goals of a territorial self-government unit (Noworól, 2016). Such an approach makes it possible to maximise the rate of development of a given city and, consequently, the quality of life of its inhabitants. The definition of strategic management implies its primacy over the other elements of management, which include: operational management, preparation of medium-term and ongoing plans, and in the case of financial management: preparation of annual budget plans and long-term financial forecasts. The above-mentioned elements should be subordinate to the city's strategy and form a coherent system for its implementation.

Strategic management sets the priorities, objectives and agenda of a city (or more broadly of an organisation) in the long term. Management strategy is also defined, 'as a set of adapted ways of achieving its objectives according to the situation of that organisation and its environment' (Dobrowolski, 2017). According to the latest concepts, strategic management - is a prospectively planned, well-thought-out, effectively organised and efficiently implemented and continuously controlled process of formulating and implementing the organisation's development strategy. The main reason why local government units, and large cities in particular, need to apply a strategic approach is the increasingly competitive market in which cities compete for: external investors, financial resources or new residents. The results of this rivalry translate into tangible benefits for local communities (Ziolkowski, 2015). Strategic management manifests itself in the long-term definition of objectives and the use of tools that allow for the evaluation of the effects of action and the correction of the adopted methods of action. The main feature of modern systems is the efficient use of information and a strategic approach (Kozuch, 2008). Key strategic documents on urban development such as the National Urban Policy 2023 (Urban Policy, 2015) or the Strategy for Responsible Development (Strategy, 2017) are implemented in key strategic documents on the development of individual cities (Legutko-Kobus, 2017).

4. Conclusion and Discussion

Urban climate challenges are becoming more urgent in the face of climate change. Cities are particularly vulnerable to the impacts of these changes due to their population density, intensity of industrial activity and concentration of infrastructure. Addressing these challenges requires cooperation between local, regional and national governments and the involvement of local communities. It is necessary to take adaptation measures, invest in more sustainable infrastructure and promote climate awareness among residents to counter the effects of climate change in cities. Urban planning is a key tool in creating a more resilient and sustainable urban space that can deal more effectively with the challenges posed by climate change. Long-term strategies and investments in climate change adaptation as part of urban planning are essential to protect residents and urban infrastructure from the negative consequences of extreme weather. Urban climate change adaptation plans, on the other hand, are a tool in building urban resilience to the impacts of climate change. By integrating actions across sectors and collaboration between different actors, cities can better prepare for climate challenges.

In the literature cited in the article, one can find theses that the need to respond to climate challenges requires a kind of redefinition of strategic management instruments. In the literature, one can find a lot of assessments covering (both more universally and with regard to the case study of a specific country) guidelines related to spatial planning instruments. The next stage of the analysis is therefore to identify key trends in this subject area. Already at this stage, however, it has to be stated that the literature by far the most widely advocated framing of climate challenges within the framework of strategic management. Based on the analysis of the literature on the subject, it is possible to identify key lines of discussion regarding the relationship between climate challenges and strategic management objectives. The literature review carried out for the purposes of this article confirms opinions on the validity of the need to analyse the issues identified. In general, from different perspectives the role of strategic spatial planning is very often emphasised. This is associated with a broader expectation to broaden the analyses in spatial planning and to translate the results and conclusions of the indicated analyses more effectively into the regulatory sphere (which is a very difficult challenge).

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