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Zoia Pestovska

Candidate of Economics, Associate Professor,
Associate Professor of the Department of Management,
Higher Educational Institution “Alfred Nobel University”
ORCID: <https://orcid.org/0000-0001-9536-8008>

Пестовська Зоя Станіславівна

Вищий навчальний заклад «Університет імені Альфреда Нобеля»

**FOREIGN POLICY SUBJECTIVITY OF HUB CITIES:
TOOLS FOR SUSTAINABLE DEVELOPMENT
AND GREEN INVESTMENT IN EUROPE****ЗОВНІШНЬОПОЛІТИЧНА СУБ'ЄКТНІСТЬ МІСТ-ХАБІВ:
ІНСТРУМЕНТИ СТАЛОГО РОЗВИТКУ ТА ЗЕЛЕНОГО
ІНВЕСТУВАННЯ В ЄВРОПІ**

Summary. The transformation of European cities into independent subjects of international politics and economics under the implementation of the “European Green Deal” is studied. The phenomenon of city diplomacy (paradiplomacy) is conceptualized as a strategic tool for attracting green investments. Using the example of Polish hub cities (Gdansk, Wroclaw, Opole), models of forming their foreign policy subjectivity through the implementation of ESG standards, the development of innovation ecosystems and direct interaction with international financial institutions are analyzed. Particular attention is paid to the experience of the Opole Voivodeship in creating a “green industry belt” and using science and technology parks to promote the ecological brand of territories. It is determined that environmental sustainability is becoming a key political capital that allows cities to compete for capital independently of national governments. Practical recommendations for Ukrainian communities regarding green reconstruction, energy decentralization and revitalization of industrial zones according to European models are formulated.

Keywords: city diplomacy, green investments, hub city, sustainable development, paradiplomacy, ESG indicators, Opole, green reconstruction.

Анотація. Дослідження спрямоване на концептуалізацію моделей формування зовнішньополітичної суб'єктності сучасних європейських міст-хабів і визначення ролі міської дипломатії як стратегічного інструменту залучення зелених інвестицій у межах парадигми сталого розвитку. Здійснено міждисциплінарний аналіз процесів децентралізації, екологічної модернізації та міжнародного впливу муніципалітетів. Доведено, що традиційні міждержавні механізми втрачають ефективність, а міста перетворюються на самостійних гравців. Розглянуто феномен парадипломатії – здатності міст напряму взаємодіяти з міжнародними інституціями. Особливу увагу приділено досвіду польських міст. Проаналізовано специфіку морської дипломатії Гданська, орієнтованої на блакитну економіку і вітроенергетику; модель Smart City Вроцлава як центру цифровізації екології; стратегію Ополья як компактного хаба, що будує свою суб'єктність через інноваційно-промисловий розвиток. Доведено, що успіх міста у боротьбі за капітал залежить від відповідності стандартам ESG, де екологічна стратегія є гарантією безпеки для глобальних інвесторів. Але на цьому шляху трапляються політичні конфлікти, реальні приклади яких наведено. Надана класифікація моделей формування суб'єктності європейських міст (технологічна, інфраструктурна, інституційна), проведено порівняльний аналіз ESG-показників великих логістичних центрів (Гданськ) і регіональних інноваційних осередків (Ополе) у контексті їх впливу на інвестиційну привабливість. Розроблено конкретні рекомендації для українських територіальних громад у контексті повоєнної зеленої відбудови. Зроблено акцент на необхідності впровадження досвіду польських муніципальних енергетичних кооперативів для забезпечення енергонезалежності, використанні природних зелених рішень замість надмірної бетонізації міст, а також важливості ревіталізації покинутих промислових зон під інноваційні еко-парки за прикладом Опольського науково-технологічного парку. Дослідження підтверджує, що міська дипломатія стає самостійною потужною силою, здатною ефективніше за державні органи залучати ресурси для сталого розвитку. Суб'єктність міст-хабів у сфері екології визначена як найкоротший шлях до реальної інтеграції України в європейський економічний простір.

Ключові слова: міська дипломатія, зелені інвестиції, місто-хаб, сталий розвиток, парадипломатія, ESG-показники, Ополе, зелена відбудова.

Problem statement. In the context of global instability and ineffectiveness of traditional interstate mechanisms, cities are turning into independent players on the world stage. City diplomacy has ceased to be just a cultural exchange and has transformed into a tool for economic survival. The European Green Deal requires colossal investments, the lion's share of which is directed specifically at the city level (transport, energy efficiency, waste). Centers such as Berlin, Copenhagen or Warsaw often have a higher credit rating and innovation potential than individual states, which allows them to dictate conditions to investors. Therefore, the theoretical justification of how environmental sustainability becomes political capital, allowing cities to step out of the shadow of national governments in foreign policy, is particularly relevant.

Analysis of recent research and publications. This work is at the interdisciplinary intersection of decentralization (economic governance and regional systems), environmental transformation and investment attractiveness (financial management) and international influence (political science). Therefore, the sources of information for this study come from various fields like the work of domestic and foreign scientists, materials from city and state authorities, and well-known analytical organizations. In particular, sources [2; 4; 15; 18] define a long-term vision of the development of specific cities, their priorities and goals; issues of climate neutrality, environmental standards, sustainable urban environment are reflected in the works of Ryabyk M., Gusakova O., Zozula A., Bushovska A. [7; 14; 16; 17; 19; 21]; resources of Hulicka A., Pinkas A., Storonianska I.Z., Benovska L. Ia. are directed to attracting business, developing technologies and supporting creativity [1; 3; 5; 8; 9; 13]; among the sources related to public activity and the transmission of European experience, there are the works of Szczepańczyk M., Antunes S., Cornago N., Rowe C., Minto R., Crikemans D., Egan M., Basista Ya., Smirnova M. [6; 7; 12; 10; 20]. Indeed, these sources cover separate areas, but the problem of the lack of a comprehensive mechanism that would allow these areas to work as a single system to answer the question of how the innovation sector can become a driver of the ecological transformation of cities, and not just economic growth, remains unresolved.

The purpose of the article. The purpose of the study is to conceptualize models of formation of foreign policy subjectivity of European hub cities and determine the role of city diplomacy as a strategic tool for attracting green investments within the sustainable development paradigm.

To achieve the goal, it is necessary to solve the following tasks:

- analyze the theoretical and methodological foundations of city diplomacy in the context of modern political science;

- determine the characteristics of a hub city;
- classify models of formation of subjectivity of European cities;
- develop practical recommendations for Ukrainian cities.

Summary of the main research material. Today, an investor is looking not just for a territory, but for a predictable political unit with a clear environmental strategy. Therefore, we consider the city not just as a decoration for state decisions, but as an independent player that directly competes for capital on the world stage. For Ukraine, this topic is of practical importance, because after the war our cities will be forced to fight for investors on their own, and the status of a “green hub” with transparent diplomacy is probably the best way to win this competition.

In classical political science, subjectivity has traditionally been assigned to nation-states. However, in the context of global sustainable development, the phenomenon of urban subjectivity is emerging. This is the ability of a city (as an institutional and social integrity) to independently shape an agenda that goes beyond purely communal issues.

The subjectivity of a hub city (such as Gdańsk or Wrocław) is determined not only by the population, but also by its investment face, image subjectivity. A city becomes a hub only when it clearly articulates its model (for example, “green”, “eco”, “smart”), which allows it to attract targeted investments under a specific brand, because each of these models requires specific investment solutions and technologies [1].

For an investor, a city becomes a subject when it has predictability, in particular, the presence of a strategy; institutional capacity, that is, the presence of departments that communicate in the language of international business; the presence of clear environmental standards that reduce risks for green funds [2]. The hub city gains the status of an entity thanks to its own energy strategy, which meets the goals of the European Green Deal, but the energy transition is not only an environmental issue, but also a tool for local sustainability [3]. Cities that implement integrated sectoral policies (transport, housing, heating) do become predictable partners for international donors.

Modern hub cities actually create their own diplomatic channels. That is, we will talk about the “paradiplomacy”. This seems important, since, bypassing the bureaucracy of the central government, city halls directly access the European Investment Bank or climate funds.

The Polish experience of self-government is the most relevant for Ukraine, we think. Next, we will talk about cities that the author has studied with her own eyes. For example, Gdansk uses maritime diplomacy with an orientation towards Scandinavian countries and the status of a gateway to the world to attract investments in offshore wind

energy, applies the blue economy model (a concept of sustainable development that combines economic activities – shipping, fishing, tourism, energy – with the restoration and preservation of marine and coastal ecosystems). Wrocław positions itself as a center of research and development, a concentration of the IT sector, which automatically attracts funds for smart infrastructure and digital monitoring of the environment (Smart City model). Opole is a special case, at least, it is the smallest voivodeship center in the whole country, outwardly somewhat similar to Samar near the Dnipro. It is a kind of “compact hub”, which is held in balance between industry and ecology. Opole actively uses cross-border diplomacy with the Czech Republic and Germany. The emphasis is on the fact that Opole is a city where the quality of life is the main commodity for investors [4]. In the Opole Voivodeship, there are smaller cities, such as Nysa or Brzeg, which form subjectivity through network cooperation and attract green investments (e.g. in thermal modernization and renewable energy sources), becoming part of the agglomeration chains of Opole.

The EU funding mechanisms for 2021–2027 can be used as a roadmap, shifting the focus to a “smart” and “green” Europe; they also point out the risks of uneven development that hub cities can mitigate through cross-border cooperation [5]. Analysis of financial flows shows that investments in green infrastructure (smart lighting, network modernization) have a long-term multiplier effect, and local governments act not just as recipients, but as active investors, which reduces risks for external capital [6]. Thus, green investments go where the city guarantees sustainable development. If Opole implements the Integrated Action Plan 2021–2030 on the circular economy, this will be a signal to EU funds that waste recycling funds will not be wasted [7, p. 8].

Next, we will focus on Opole as the center of the regional ecosystem, as well as on the specifics of attracting investments in the cities of Nysa, Brzeg and Wrocław. The main tool of the city's paradiplomacy is the Science and Technology Park (PNT, Park Naukowo-Technologiczny w Opolu), which directly cooperates with European institutions (for example, within the framework of Horizon Europe), positions the city as a center of low-carbon technologies [8]. Thanks to the Invest in Opole platform, the city acts

as an independent brand, offering investors (e.g., IFM Investors, IAC – International Automotive Components) not just land, but an ecosystem of sustainability [9, p. 6–11]. The city's official Facebook resources actively broadcast the mayor's participation in international climate summits and forums, which forms the city's image as a reliable partner for EU green funds [10]. The City Hall communicates not only with residents, but also with potential European partners, emphasizing the green certificates of new bus fleets and the energy efficiency of social housing.

Opole's subjectivity is enhanced by its role as a core of the agglomeration, because, for example, Nysa specializes in energy efficiency projects and the revitalization of historical spaces for environmental needs and uses cross-border grants (Poland-Czech Republic) to finance green projects, which is a form of local paradiplomacy, while Brzeg acts as a logistics hub between Wrocław and Opole; its investment attraction strategy focuses on the decarbonization of industrial zones. Thus, together, these cities form a green industrial belt, where Opole acts as a political representative of the region's interests in Brussels. This is an example of how a hub city uses paradiplomacy to gain direct access to EU funds and international investment banks, bypassing the bureaucratic barriers of capitals, and is confirmed by research that cities (in particular Polish ones) are increasingly ignoring national governments, building direct ties with EU institutions, and lobbying their own interests directly in Brussels [11].

Table 1 presents a comparative analysis of the subjectivity formation models of the studied Polish cities.

Modern models of hub city formation are as follows [13, p. 74]:

- a technological model that involves focusing on Smart City and R&D centers;
- an infrastructure model according to which the city acts as a logistics hub that minimizes the carbon footprint (green logistics);
- an institutional model that aims to create special economic zones with benefits for “clean” business.

A modern city in the European Union has transformed from a simple administrative center into an active player in the financial market. In the context of the implementation of the European Green Deal, the fight for capital is won not by promises,

Table 1 – Comparative analysis of subjectivity formation models

City	Hub type	Key tool of diplomacy	Green investment priority
Opole	Innovative-industrial	Science and Technology Park, URBACT	Circular economy, hydrogen transport
Wrocław	Intellectual-technological	Wrocław Agglomeration, ARAW	Smart City, digitalization of networks
Gdansk	Logistics-energy	Baltic Cooperation Networks	Offshore energy, ports
Nysa	Cross-border-ecological	INTERREG Programs	Revitalization, energy efficiency

Source: [12]

but by specific environmental indicators. For Polish cities – from the metropolis of Gdańsk to compact Opole – green finance has become a tool that allows not to wait for state subsidies, but to independently attract billions for modernization. Green bonds are a debt instrument, the funds from which are directed exclusively to environmental projects: renewable energy, energy efficiency, environmentally friendly transport or adaptation to climate change.

For Berlin and Vienna, issuing green bonds has already become routine. For example, Berlin issued a sustainable bond worth 750 million euros in 2023, which was oversubscribed by investors seven times. This shows the enormous demand for assets with a clear environmental profile. Copenhagen is using these funds to achieve its ambitious goal of becoming the first carbon-neutral capital [14].

For Opole, green investments have become part of the City Development Strategy until 2043 [15, p. 35–39]. The city is betting on:

- solar panels – actively investing in photovoltaics for schools and hospitals, which is a classic project for the issuance of green bonds;
- modernization of the water supply and sewage system;
- transparent reporting and a stable financial situation, which ensures a high credit rating.

ESG (Environmental, Social, Governance) is a set of standards by which investors assess risks. If a city does not have a strategy for reducing emissions (E), does not care about inclusion (S) and has corruption risks (G), global giants like BlackRock will simply not include its projects in their portfolio. The presence of large foreign investors in the Opole region (for example, in the field of polymers or logistics) is already a result of the city meeting global standards of sustainable development [16]. Using the example of Gdańsk and Opole, we will show how a large maritime hub and a regional center compete for green money under different scenarios (Table 2).

In our opinion, these transformational processes are closely related to the political science of sustainable development, which includes ecology, the distribution

of power, resources and responsibility. The focus is on the question of how political institutions and local elites transform global climate goals into concrete solutions at the street or district level.

The transformation of a city requires long-term political will, which often goes beyond a single electoral cycle. In Opole, we see an example of pragmatic eco-realism. The city authorities, led by President Arkadiusz Wiśniewski, are actively integrating the green agenda not only as an environmental need, but also as a tool for increasing the city's competitiveness. In Gdańsk, the political will is aimed at protection against flooding (adaptation to climate change), which is a matter of physical survival and business security.

The politology analysis reveals a key tension between capital (developers) and the community (eco-activists). On the path of transformation, political challenges arise in the form of conflicts of interest. Let's consider examples. The construction project of the "Trasa Średnicowa" in Opole is justified by the city hall with the need to relieve the city center from traffic jams, which should theoretically reduce the level of overall CO2 emissions. But the highway is supposed to pass through Pasięka Island and near park areas, which has caused strong resistance from public organizations and eco-activists during 2023–2025. This is how two concepts of sustainable development collided: technocratic (traffic efficiency) and ecocentric (preservation of the local ecosystem), so the Opole authorities are forced to maneuver in order not to lose the support of motorists (the majority of voters) and at the same time correspond to the image of a green city. In 2017, the annexation of surrounding villages under the "Większe Opole" ("Greater Opole") program gave the city huge land resources, but residents of the annexed territories feared the development of their green areas with industrial facilities [18].

If in Opole the conflict is localized around infrastructure, then in other cities it has different shades. In Gdańsk, the politics of sustainable development focuses on Water Management, since

Table 2 – Comparison of ESG indicators of Gdańsk and Opole

ESG Criteria	Gdansk	Opole
Environmental	Focus on offshore wind and water area protection, lots of electric transport	Focus on thermal modernization and energy efficiency of housing and communal services, development of green wedges in the city
Social	Large number of expats, focus on inclusive maritime infrastructure	High concentration of students per capita, close cooperation between business and universities
Governance	Corporate management style, large-scale international reports (PwC, PAIH – Polska Agencja Inwestycji i Handlu)	Direct communication between the city hall and residents (Facebook, local media), high speed of decision-making
Benefit	Global logistics investors and ports	Medium technology business, IT clusters and green production

Source: [17]

the city is constantly under the threat of flooding, making green revitalization part of the security strategy. Political will here is converted into the creation of retention ponds, which are also parks, combining the interests of developers (who need protection from water) and residents. Wrocław has become the center of the discussion about excessive concreting of squares. Political pressure from activists forced the city hall to reconsider the projects of revitalizing market squares in the direction of increasing the number of trees (revitalization of Plac Nowy Targ). In Nysa, they are betting on renewable energy (hydroelectric power plant on the Nysa-Kłodzka River), which will allow the city to position itself as energy independent. In Brzeg, the main conflict revolves around the preservation of historical heritage in the context of the need for energy-efficient modernization of old buildings.

The European Green Deal (EGD) is not just a declaration, but a system of directives that oblige cities to become climate neutral by 2050 [19]. The experience of Opole, Nysa, Brzeg shows that sustainable development is not only about solar panels, but also about changing the management model. Based on the experience of the cities of the Opole Voivodeship, it is possible to formulate recommendations for Ukrainian communities preparing for green reconstruction [20, p. 6–15]:

– Nysa is actively developing the idea of local energy independence. For Ukraine, this is critical from a security point of view, so it is worth creating municipal energy cooperatives, that is, instead of one large source of heat / electricity we can construct a network of small facilities (biogas, biomass CHP, solar farms on municipal roofs);

– Opole and Wrocław stepped on the rake of modernization through concrete, and public resistance in these cities taught the authorities to value natural solutions. Therefore, the reconstruction of central squares of Ukrainian cities should avoid continuous paving with tiles (as in the Dnipro). The priority is pocket parks, rain gardens and permeable surfaces for water [21, p. 16, 60];

– the conflict around the Trasa Średnicowa (“Route through the City”) in Opole has proven that building new roads is not always beneficial. Therefore, in some cases, instead of expanding highways, it

is more appropriate to invest in dedicated lanes for public transport and cycling infrastructure;

– in Brzeg, limited resources are compensated by an active dialogue with residents on priorities (participatory budget). Therefore, it is advisable to create digital platforms for environmental monitoring (air quality, water), because a citizen who sees data in real time becomes an ally of the city hall in implementing green reforms;

– The Opole Voivodeship is successfully revitalizing old factories for new eco-parks or innovation centers, so many of our cities (for example, Dnipro) can be recommended not to build up the outskirts, but to bring abandoned industrial zones inside the cities back to life, which, among other things, saves money on laying new communications.

Conclusions. The formation of the subjectivity of hub cities in Europe indicates that city diplomacy is more effective than state diplomacy in attracting targeted green investments. Opole, using the model of a compact but institutionally powerful subject, demonstrates how small regions can successfully compete in the global market with the help of a clear sustainable development strategy and active paradiplomacy.

In the conditions of modern geopolitics, city diplomacy ceases to be an auxiliary tool and becomes an independent force capable of directly attracting resources for the green recovery of Ukraine, bypassing the bureaucratic labyrinths of centralized management. The subjectivity of hub cities in the field of sustainable development is the shortest path to the real integration of Ukraine into the European economic space, where environmental responsibility is the main condition for financial partnership.

Further research is planned to address the problem of simultaneously ensuring ecological transformation and increasing investment attractiveness within decentralized governance, justifying specific financial management tools for implementing strategies, and finding ways to adapt general environmental standards to the real capabilities of local budgets. This scientific search aims to develop a holistic model of urban development management that would harmonize the requirements of ecological neutrality with the needs of economic growth and investment attraction in decentralization.

References:

1. Hulicka A. (2023) Miasta zrównoważone. Green city, eco-city i smart city – koincydencja pojęć. Prace komisji krajobrazu kulturowego dissertations of cultural landscape commission, No. 49 (1) 2023, pp. 41–62. Available at: <https://bibliotekanauki.pl/articles/10627967.pdf>
2. Wrocław 2030 – Strategia Rozwoju. Available at: <https://www.wroclaw.pl/rozmawia/strategia-rozwoju-wroclaw-2030>
3. Pinkas A. (2023) The role of sectoral policies in the energy transition. Acta Universitatis Wratislaviensis No 4187. Available at: https://repozytorium.uni.wroc.pl/Content/141340/PDF/11_A_Pinkas_The_role_of_sectoral_policies_in_the_energy_transition.pdf
4. Strategia Rozwoju Opola do 2030 roku. Available at: <https://www.opole.pl/dla-mieszkanca/strategia-rozwoju-opola-do-2030-roku>

5. Storonianska I. Z., Benovska L. Ia. (2023) Nova rehionalna polityka YeS: osoblyvosti realizatsii v konteksti suchasnykh vyklykiv ta ryzykiv. Terytorialnyi rozvytok ta rehionalna ekonomika. [New EU regional policy: implementation features in the context of modern challenges and risks. Territorial development and regional economy]. Available at: [https://ird.gov.ua/sep/sep20231\(159\)/sep20231\(159\)_003_StoronyanskaIZ,BenovskaLYa.pdf](https://ird.gov.ua/sep/sep20231(159)/sep20231(159)_003_StoronyanskaIZ,BenovskaLYa.pdf) (in Ukrainian)
6. Szczepańczyk M. (2023) Investments of local self-government units in the light of the assumptions of sustainable urban development. Working papers Humanitas University Management, 2023 (3), p. 125–141. Available at: <https://zeszytyhumanitas.pl/api/files/view/2375470.pdf>
7. Integrated Action Plan 2021–2030. Available at: <https://www.smieciopolis.opole.pl/wp-content/uploads/2022/08/IAP-Opole-en-final.pdf>
8. Park Naukowo-Technologiczny w Opolu. Available at: <https://pnt.opole.pl/index.php/pl/#news>
9. Invest in Opole (2025). Available at: <https://investinopole.pl/wp-content/uploads/2025/12/20251217-Invest-in-Opole-EN.pdf>
10. Arkadiusz Wiśniewski, Prezydent Opola. Available at: <https://www.facebook.com/PrezydentOpola>
11. Antunes S., Cornago N., Rowe C., Minto R., Crikemans D., Egan M. (2021) Cooperation and conflict in regional paradiplomacy towards the European Union. EU Paradiplomacy. Available at: <https://paradiplomacy.ideasforeurope.eu/>
12. Eurostat: Urban Audit. Available at: https://ec.europa.eu/regional_policy/policy/themes/urban-development/audit_en
13. Posibnyk dlia lidera kreatyvnogo khabu. British Council. [Creative Hub Leader's Guide]. Available at: https://www.britishcouncil.org.ua/sites/default/files/creative_hub_toolkit_ukr.pdf (in Ukrainian)
14. State of Berlin impact report sustainability bond 2023 (2024) Senate Department of Finance. Available at: <https://www.berlin.de/sen/finanzen/vermoegen/nachhaltigkeitsanleihe/2024-02-14-state-of-berlin-impact-report-sustainability-bond-2023.pdf?ts=1707923690>
15. Strategia Rozwoju Opola do 2043 r. (2025) Urząd Miasta Opola. Available at: https://bip.um.opole.pl/uploaded_files/serwis_files/attachments/ogloszenia/727/4a1197b1e69f8c3a.pdf
16. The Republic of Poland Green Bond Framework (2025) Sustainable Corporate Solutions project team. Available at: <https://www.gov.pl/attachment/add8879b-e00d-4e86-807e-8650c59087dc>
17. What are the Greenest Cities in Poland? (2026). Available at: <https://findingpoland.com/greenest-cities-poland/>
18. W sejmie o powiększeniu Opola: wrogie przejęcie, czy konieczność rozwoju i sprawiedliwość społeczna (2019). Available at: <https://wartowiedziec.pl/rozwój-i-fundusze/50893-w-sejmie-o-powiększeniu-opola-wrogie-przejęcie-czy-koniecznosc-rozwoju-i-sprawiedliwosc-spoeczna>
19. The European Green Deal. Striving to be the first climate-neutral continent (2019) European Commission. Available at: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
20. Basysta Ya., Smirnova M. (2024) Stala vidbudova mist Ukrainy. Nalezni praktyky mist Yevropy. [Sustainable reconstruction of Ukrainian cities. Good practices of European cities]. Eurocities. Available at: <https://enefcities.org.ua/upload/files/Publications/Urban%20Mobility/Ukrainerebuilding.pdf> (in Ukrainian)
21. Riabyka M., Husakova O., Zozulia A., Bushovska A. ta in. (2021) Katalog pryrodoorientovanykh rishen [Catalog of nature-oriented solutions]. Lviv, UKM, 116 p. Available at: <https://ucn.org.ua/wp-content/uploads/2021/12/Catalog-POR-2021.pdf> (in Ukrainian)

Список використаних джерел:

1. Hulicka A. (2023) Miasta zrównoważone. Green city, eco-city i smart city – koincydencja pojęć. Prace komisji krajobrazu kulturowego dissertations of cultural landscape commission, No. 49 (1) 2023, p. 41–62. URL: <https://bibliotekanauki.pl/articles/10627967.pdf> (дата звернення: 18.02.2026).
2. Wrocław 2030–Strategia Rozwoju. URL: <https://www.wroclaw.pl/rozmawia/strategia-rozwoju-wroclaw-2030> (дата звернення: 28.01.2026).
3. Pinkas A. (2023) The role of sectoral policies in the energy transition. Acta Universitatis Wratislaviensis No 4187. URL: https://repozytorium.uni.wroc.pl/Content/141340/PDF/11_A_Pinkas_The_role_of_sectoral_policies_in_the_energy_transition.pdf (дата звернення: 18.02.2026).
4. Strategia Rozwoju Opola do 2030 roku. URL: <https://www.opole.pl/dla-mieszkanca/strategia-rozwoju-opola-do-2030-roku> (дата звернення: 30.01.2026).
5. Сторонянська І.З., Беновська Л.Я. Нова регіональна політика ЄС: особливості реалізації в контексті сучасних викликів та ризиків. Територіальний розвиток та регіональна економіка. 2023. URL: [https://ird.gov.ua/sep/sep20231\(159\)/sep20231\(159\)_003_StoronyanskaIZ,BenovskaLYa.pdf](https://ird.gov.ua/sep/sep20231(159)/sep20231(159)_003_StoronyanskaIZ,BenovskaLYa.pdf) (дата звернення: 18.02.2026).
6. Szczepańczyk M. (2023) Investments of local self-government units in the light of the assumptions of sustainable urban development. Working papers Humanitas University Management, 2023. No. (3), p. 125–141. URL: <https://zeszytyhumanitas.pl/api/files/view/2375470.pdf> (дата звернення: 19.02.2026).
7. Integrated Action Plan 2021–2030. URL: <https://www.smieciopolis.opole.pl/wp-content/uploads/2022/08/IAP-Opole-en-final.pdf> (дата звернення: 30.01.2026).
8. Park Naukowo-Technologiczny w Opolu. URL: <https://pnt.opole.pl/index.php/pl/#news> (дата звернення: 02.02.2026).
9. Invest in Opole. 2025. URL: <https://investinopole.pl/wp-content/uploads/2025/12/20251217-Invest-in-Opole-EN.pdf> (дата звернення: 04.02.2026).
10. Arkadiusz Wiśniewski, Opole. URL: <https://www.facebook.com/PrezydentOpola> (дата звернення: 05.02.2026).

11. Antunes S., Cornago N., Rowe C., Minto R., Criekemans D., Egan M. (2021) Cooperation and conflict in regional paradiplomacy towards the European Union. EU Paradiplomacy. URL: <https://paradiplomacy.ideasforeurope.eu/> (дата звернення: 19.02.2026).
12. Eurostat: Urban Audit. URL: https://ec.europa.eu/regional_policy/policy/themes/urban-development/audit_en (дата звернення: 06.02.2026).
13. Посібник для лідера креативного хабу. British Council. https://www.britishcouncil.org.ua/sites/default/files/creative_hub_toolkit_ukr.pdf (дата звернення: 06.02.26)
14. State of Berlin impact report sustainability bond 2023 (2024) Senate Department of Finance. URL: <https://www.berlin.de/sen/finanzen/vermoegen/nachhaltigkeitsanleihe/2024-02-14-state-of-berlin-impact-report-sustainability-bond-2023.pdf?ts=1707923690> (дата звернення: 06.02.2026).
15. Strategia Rozwoju Opola do 2043 r. (2025) Urząd Miasta Opola. URL: https://bip.um.opole.pl/uploaded_files/serwis_files/attachments/ogloszenia/727/4a1197b1e69f8c3a.pdf (дата звернення: 06.02.2026).
16. The Republic of Poland Green Bond Framework (2025) Sustainable Corporate Solutions project team. URL: <https://www.gov.pl/attachment/add8879b-e00d-4e86-807e-8650c59087dc> (дата звернення: 07.02.2026).
17. What are the Greenest Cities in Poland? 2026. URL: <https://findingpoland.com/greenest-cities-poland/> (дата звернення: 07.02.2026).
18. W sejmie o powiększeniu Opola: wrogie przejęcie, czy konieczność rozwoju i sprawiedliwość społeczna. 2019. URL: <https://wartowiedziec.pl/rozwoj-i-fundusze/50893-w-sejmie-o-powiekszeniu-opola-wrogie-przejecie-czy-koniecznosc-rozwoju-i-sprawiedliwosc-spoeczna> (дата звернення: 07.02.2026).
19. The European Green Deal. Striving to be the first climate-neutral continent. 2019. European Commission. URL: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en (дата звернення: 07.02.2026).
20. Басиста Я., Смірнова М. Стала відбудова міст України. Належні практики міст Європи. Eurocities. 2024. URL: <https://enefcities.org.ua/upload/files/Publications/Urban%20Mobility/Ukrainerebuilding.pdf> (дата звернення: 12.02.2026).
21. Каталог природоорієнтованих рішень / авт. кол.: М. Рябика, О. Гусакова, А. Зозуля, А. Бушовська та ін. Львів: УКМ, 2021. 116 с. URL: <https://ucn.org.ua/wp-content/uploads/2021/12/Catalog-POR-2021.pdf> (дата звернення: 14.02.2026).

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