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THE CO-CREATION OF HIGH-RISE PLANNING REGULATIONS: CASE GDANSK

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Purpose: The local regulations for high-rise planning in Gdańsk were established through the "Smart High-Rise Development Study" in 2008 and provide guidelines for managing the design process for high-rise developments. It aimed to ensure social commitment to build a dense urban environment while maintaining livability. The Gdansk high-rise plan can be seen as a high-rise strategy, covering comprehensive urban analysis, with a particular focus on co-creation in the planning of high-rise buildings.
Aim: The research aims to improve the public involvement in setting city policies, drawing on the Gdansk experience with establishing specific regulations on high-rise planning.
Methodology: The background for this study included a literature review, explicitly focusing on Appert and Montes, Morato, and Glauser, who are most relevant because they address the challenges of regulating high-rise buildings. Key insights from articles about planning regulations and co-creation were applied to analyse the content of the High Rise Study in Gdansk and the co-creation process. This examined the institutional changes and the identification of risks with scheduling contingency planning beyond the city planning procedure.
Findings: In the research, a critical analysis was conducted on the opportunities and challenges of co-creating regulations, along with identifying limitations within the presented high-rise study. As a top-down approach was used in the Gdansk case, urban planners initiated stakeholder involvement. They limited the stakeholders' insights to the agreed-upon focus, and the results were incorporated into the document through the addition of a local planning procedure.
Social implications: The trade-offs involved in high-rise development in European cities can be addressed using a collaborative approach, such as in Gdansk. The findings emphasize how Gdansk stakeholders co-created this strategy, examining only a selected few key aspects of high-rise development. The main contribution of this case study shows how high-rise regulations can gain social support with input from the general public within a shared focus.
Originality/value: The research on the Gdansk case adds to existing literature on co-creating procedures for high-rise planning regulations and other city policies. They present new insight into the co-creation process tested as a key part of developing high-rise planning rules. The approach enhances our understanding of how to establish top-down rules for involving stakeholders in co-developing city policies on essential issues like high-rise regulations.
Keywords: co-creation in planning; high-rise strategy; community involvement in city policy.
Category of the paper: Research paper/case study.

1. Introduction

While Shakespeare's phrase "What is the city but the people?" is accurate, buildings are essential for urban life. Cities grow by building upward or outward, and when they resist construction, people miss out on urban experiences (Glaeser, 2011). Successful high-rise development requires careful, comprehensive planning, including architectural analyses and designing public spaces that integrate well within urban structures. Gdańsk, the capital of the Pomeranian Province and centre of the Gdańsk Metropolitan Area, is a significant business hub with a rich history. Unfortunately, in Gdansk, the existing high-rise developments from the 70ties stand in architectural opposition to Stare Miasto (the Old Town) and the nearby historic area of Główne Miasto (the Main City). This situation has raised awareness of the need for the co-creation of a specific high-rise planning procedure in Gdańsk. As a result, the additional local regulations for high-rise planning in Gdańsk, namely "Smart High-Rise Development Study"[1], formulated additional guidelines for the city planning procedure in case of high-rise development, which covered various topics related to comprehensive urban analysis, specifically, the public participation framework in the planning procedure of High-Rise Buildings. However, what was initially meant to be the co-creation process in defining new regulations was limited to social commitment for the additional procedure addressing identified scheduling contingency risks.

1.1. Thriving City Rules

Cities thrive on minimal physical space between people and businesses, fostering proximity, density, and connection that enable collaboration and enjoyment. Their success hinges on the demand for these interactions. Historically, cities have flourished with small firms and skilled individuals, as seen in their past as a hub of inventors. Economic vitality drives property prices upward, but limited new constructions make the cities less affordable. Paris's famous landmarks remain visible due to preservation efforts, transforming the city into one that is primarily accessible to the wealthy. Cities are defined by their people, not just their buildings. Athens

[1] *High-rise planning regulations* refer to the planning of High-rise buildings that must adhere to the legal standards outlined in the technical rules for high-rise constructions in Poland, as specified in the Regulation of the Minister of Infrastructure on the technical conditions to be met by buildings and their location (Journal of Laws 2022, item 1225). The national regulations cover various aspects, including fire safety, requirements for building entrances, window security, balustrade specifications, and specific technical solutions for roofs, balconies, and loggias on upper floors. There is also an obligation to maintain a biologically active area on the plot and to incorporate plant insulation. Technical solutions must ensure efficient management of information, energy, water, and waste, while also making sure that the building's height and location match the surrounding terrain. According to these regulations, high-rise buildings are defined as those exceeding 55 meters in height.
In addition to the national high-rise building regulations that must be met, the local regulations in Gdansk described in the *Smart high-rise development study* on high-rise planning apply to buildings with a minimum height of 40 meters and a facade width between 5 and 50 meters. The purpose of the Smart High Rise study is to identify suitable locations for these high-rise buildings within the urban landscape and to ensure their placement is publicly acceptable.

prospered through trade and intellectual exchange, leading influential figures like Socrates and Aristotle to emerge. The synergy of ideas in urban environments spurred innovation over time (Glaeser, 2011, p. 30).

Urban centers, regardless of their humble beginnings, can lead to remarkable outcomes. Artistic movements thrive in concentrated spaces, as illustrated by connections formed in cities (Glaeser, 2011, p. 254). Successful cities share a vital characteristic: they attract intelligent individuals and foster teamwork. Human capital is essential for a thriving city, and while skilled individuals often gain formal education, much knowledge is acquired afterward. In less affluent regions, human capital can come from entrepreneurial spirits with little formal education. Height restrictions in cities like Paris or New York may seem obscure, but they shaped the future. If a city's history becomes a constraint, it loses one of its greatest strengths: the ability to build upward. The best cities blend skills and *create opportunities for those who start with less to end with more* (Glaeser, 2011, p. 230). The proposed approach is to develop under the following three simple rules:

First, cities should streamline the permitting process by replacing it with a simple fee system. If tall buildings block light or views, cities should estimate those costs and charge builders accordingly. Disruptive activities also incur social costs, which should be levied against builders, similar to how drivers are taxed for congestion. The fees collected can then benefit those adversely affected, such as neighbors losing light because of new projects.

Second, historic preservation must be limited and clearly defined. While landmarking significant structures, such as the Flatiron Building, is reasonable, preserving numerous postwar buildings is excessive. In cities like New York, the landmarks commission could protect a fixed number, around five thousand buildings. Changes to this list should occur gradually, avoiding abrupt halts to construction in previously unprotected areas. In globally beloved cities like Paris, finding space for dense development close to the city center is essential.

Ultimately, neighborhoods should have the authority to preserve their unique character. Residents in certain areas may wish to exclude bars, while others might want to support them. Instead of top-down regulations, neighborhoods should be allowed to establish limited building rules, requiring broad community approval. However, they should not entirely prevent construction to avoid becoming NIMBY enclaves (Glaeser, 2011).

1.2. High-Rise Planning Implications

Polish cities tend to favour lower-rise development compared to urban areas elsewhere, with most city centres featuring dense, 19th-century structures protected by cultural heritage laws. Cities like Kraków, Poznań, Wrocław, or Gdansk are experiencing urban sprawl and declining downtown populations. City planning is focused on increasing density, as it can enhance efficiency in infrastructure, transportation, and energy use, and revitalising large housing estates through initiatives that improve living conditions, including constructing new high-rise buildings in areas without historical significance. Gdansk serves nearly 1.4 million

residents and aspires to be a modern metropolis, with a seaside location that attracts investment and opportunities. The urban form identity is shaped by three key components: the Sea and Tricity Landscape Park (nature), the Ports (harbour and airport), and Gdansk - Sopot - Gdynia (cities along the transport route axis), ensuring its genius loci.

Gdańsk, with its coastal location and proximity to the capital, has experienced significant growth over the past two decades. The increase in population and job opportunities has led to a higher demand for efficient residential and commercial spaces. Gdańsk is poised to grow over the next few decades. However, achieving sustainable development within its existing boundaries to keep pace with regional competitors is challenging. Thus, high-rise buildings can serve as powerful symbols and contribute to a strong sense of identity for the landscape. Institutions are crucial in ensuring that high-rise development fosters social cohesion, utilizing participatory governance models to engage communities in planning (Cucca, Ranci, 2021).

High-rise developments can exacerbate or mitigate energy consumption, making institutional responses to climate adaptation crucial in guiding sustainable city growth. In urban planning, this translates into governmental capacity at multiple levels—local, regional, and national—to implement development strategies that accommodate growing urban populations. These institutional frameworks have significant implications; they directly influence the adoption of innovative urban policies, determining how cities can sustainably manage high-density living while enhancing citizen welfare (Kazepov et al., 2023). The literature highlights a complex interrelationship between institutional frameworks, planning, and execution of high-rise developments. Urbanization presents multifaceted challenges that require strategic governance, where policies must promote collaboration among various stakeholders to ensure that high-rise projects are equitable and sustainable. The negative perception of high-rise developments from the 1970s underscored the urgent need for introducing contingency planning for any high-rise development plans in Gdansk.

2. Method Examining Institutional Change in Gdansk

In response to the challenge of creating suitable new developments, policymakers in Gdansk have started to regard tall buildings as a potential solution to the need for expansion. The evolution of high-rises, like those in London, illustrates a shift in urban governance, followed in Gdansk. Developers' interests began aligning more closely with local authorities, facilitating many high-rise projects despite previous restrictions (Appert, Montès, 2015; Morato, 2022). This creates a paradox in which developers are empowered yet must navigate a regulatory landscape that can stifle the innovation necessary for contemporary high-rise development. Economic reliance on private developers adds another layer of complexity to high-rise planning.

Local governments are increasingly dependent on private capital due to austerity measures that impact public funding, resulting in a symbiotic relationship where urban planning is closely linked to market dynamics. This connection can prioritize developer interests over comprehensive urban needs, complicating the planning process and potentially undermining long-term urban sustainability (Karampour, 2020). Economic incentives often conflict with urgent environmental and social concerns, underscoring the necessity for integrated approaches that include diverse stakeholder perspectives. Considering the city planning procedure in Poland, the presented Gdansk case in project management outlines strategies to address potential delays or setbacks that may occur during the project timeline.

This foundation focused on the implications of high-rise planning in addressing challenges, with a special emphasis on executing high-rise development planning procedures that prioritize local communities and establish a public consultation process while obtaining any building permission. The above involves the proactive identification of risks and the development of alternative approaches to ensure that project goals are met. This may include allocating extra time (contingency time) to accommodate unforeseen issues or making adjustments, such as accelerating delivery or modifying the project scope. Specific criteria were established to determine which areas in Gdańsk are suitable for tall buildings and to identify measures that ensure the sustainability and livability of new high-rise developments.

The Gdansk initiative, in the form of a co-creation process, was undertaken in 2008 and led to the study titled "Smart High-Rise Development Study". Feedback from residents and stakeholders played a crucial role in shaping the final high-rise policy. Therefore, the procedures, criteria, and methods for specific areas are established in the High-rise Development Study. In locations suitable for tall buildings, specific guidelines for public participation are implemented for new high-rise developments, following the defined timeline. The high-rise policy differentiated the procedure in designated areas for developing well-designed (iconic) high-rise buildings, which should be located in strategic clusters and well-served by public transport in Gdansk and other regions that allow for high-rise developments under several conditions, with the primary focus on establishing rules and procedures for public participation and community involvement (see also table 1).

Table 1.
Key aspects of the scheduling contingency plan for High Rise Development in Gdansk

KEY ASPECT	Scheduling contingency for High rise planning	Gdansk - Beyond the city planning procedure
Risk Identification	Identify potential risks that could impact the project timeline, such as resource unavailability, supply chain issues, or unforeseen delays.	Recognised in the case of High Rise Development.
Contingency Time	Allocate additional time in the project timeline to absorb potential delays or uncertainties.	Structured the possible delays in the procedure.
Alternative Strategies	Develop alternative approaches to address schedule slippage.	Scheduling the contingency planning.

Cont. table 1.

Communication	Establish clear communication channels to inform stakeholders about potential delays and contingency measures being implemented.	Structuring the possible process into procedure.
Implementation	When a risk materializes, activate the pre-planned contingency measures to minimize the impact on the project timeline.	Pre-planned methodology.

Source: own study.

Nonetheless, a standard way to deal with any unexpected emergent events in any high-rise developments involves anticipating and preparing for various emergencies, such as fires, evacuations, and other disruptions, to minimize their impact on both residents and building operations. It includes developing emergency action plans, training building occupants, and ensuring adequate communication and evacuation procedures.

Nevertheless, in Poland, the planning permission for high-rise buildings is strictly governed by legal regulations. Therefore, any additional requirements regarding the scope and content in the urban scale of the application, the decision, and the considerations involved cannot be addressed at the architectural project level. Therefore, the specific design solutions should be implemented according to the additional procedures set out in the "Smart High-Rise Buildings" to adequately address the challenges surrounding high-rise developments at the scale of Gdansk. One of many strategies to increase urban density and vibrancy is constructing high-rise buildings not alone but surrounded by public green spaces. The effective tall buildings policy for Gdańsk considers the impact of high-rise developments on people and places, not just how they affect the skyline, but also how changes in urban development affect them. In response to urban pressures, high-rise developments require a policy framework that considers not only architectural and financial feasibility but also the potential socio-economic inequities that may arise from them. This echoes Gent's analysis of housing strategies in neighborhood regeneration, which emphasizes the interplay between policy frameworks and market characteristics (Gent, 2010).

2.1. Comprehensive High-rise Planning

High-rise buildings in urban areas demand a multidimensional impact approach considering environmental, social, and safety factors. The literature indicates a need for comprehensive strategies to tackle the unique challenges of high-rise developments, emphasizing sustainability, safety, and community integration. High-rise buildings can significantly influence urban morphology and environmental sustainability. Baiz et al. argue that, despite their potential benefits regarding land efficiency, high-rise structures often generate negative social impacts, such as impersonal relationships among residents (Baiz et al., 2017). The environmental implications of high-rise buildings are substantial, particularly concerning wind dynamics and their interactions with urban fabric. Yu et al. discuss how high-rise structures can alter pedestrian-level wind environments, necessitating integrated planning to mitigate any adverse effects on urban life (Yu et al., 2024). Zhang et al. examine how wind

impacts and the outdoor environments surrounding high-rise buildings during extreme weather events can threaten structural integrity and occupant safety (Zhang et al., 2022). They highlight the necessity for dynamic contingency planning that considers various environmental factors, such as potential disasters, to enhance the safety of high-rise developments. These findings underscore the importance of considering ecological impacts and advocating for sustainable practices in high-rise development projects.

Research on the future resilience of urban infrastructure indicates that high-rise buildings may not adapt efficiently to climate-related hazards, such as heat waves and floods. Guerreiro et al. highlight the necessity for detailed climate risk assessments in urban areas, which should inform the adaptation measures required for high-rise buildings (Guerreiro et al., 2018). As urban environments face increasing climatic threats, integrating contingency plans that outline mitigation and adaptation strategies becomes critical.

The guidance states that tall buildings must exhibit the highest architectural quality, ensure user safety, maintain a positive relationship with their historical context, guarantee good accessibility, utilize renewable energy sources, and enjoy social acceptance. Project evaluation criteria should also include their relationship to cultural heritage, transport infrastructure, and environmental sustainability; consider appropriate locations and excellent design quality; include advanced technology; and enhance the attributes of the immediate area and the broader setting. Ultimately, the resulting high-rise buildings should provide more benefits than costs.

Environmental sustainability is vital, especially regarding climate change. Urban planners must evaluate the role of high-rise buildings in mitigating or exacerbating urban heat island effects and resource consumption. Incorporating low-carbon building initiatives is essential, emphasizing developments that aim to minimize carbon emissions and adhere to sustainable architectural practices (Madhusanka et al., 2022). As Glauser discussed, the relationship between high-rises and environmental sustainability is not merely about eco-friendly designs but ensuring these buildings contribute positively to urban ecosystems and community health (Glauser, 2022). Comprehensive environmental assessments should precede any high-rise project to establish strategies for mitigating potential adverse impacts on urban climates.

2.2. Demand for additional regulations

Local communities in various European cities express their views on high-rise buildings and their long-term economic impacts on neighbourhoods. Current legislative trends in Europe and Poland are shifting away from merely approving planning acts with the scope of public participation towards co-creating policies with the public. The proposed public participation framework and procedure can ensure access for the local community. Furthermore, the proposed high-rise buildings' planning must be integrated into their surroundings, and visibility must be evaluated accordingly, from City Landscape Control Points. The proposed procedure should actively promote engagement with local communities

throughout the high-rise building development process. (See also: Local and City Landscape Control Points for Impact Assessment)

The "Smart High-Rise Buildings" outlines the designated areas for high-rise structures. It specifies that the local spatial development plan is the key document determining whether the construction of such structures is permissible or prohibited. The document identifies areas suitable for high-rise buildings and establishes fundamental guidelines for their development. The Gdansk policy reflects a desire to develop a modern city while embracing change and taking risks, but respecting and protecting the city's historical values and skyline.

The significance of contextual characteristics emphasizes that successful high-rise strategies embrace local identities and civic engagement from the outset (Amhoff, 2019). Scheduling in contingency planning mechanisms must, therefore, consider the individual narratives of urban locales, allowing for tailored approaches that respect historical contexts and current city dynamics. The general decision was based on studying the two main approaches identified in high-rise zoning within European Cities.

In Paris (as in Rome, Venice, Vienna, Prague, and St. Petersburg), the policy regarding tall buildings is very restrictive to protect the historical value of the city skyline and prevent it from being distorted. A complete ban on high-rise development is imposed on the historic downtown, whilst clusters of high-rise buildings are situated in peripheral areas. The exceptions are such icons as the Notre Dame and the Eiffel Tower, where the tower is acceptable in the city skyline. Paris has relocated modern offices and exceptionally tall buildings to peripheral areas like La Défense to protect its historic skyline. Only iconic structures like Notre Dame and the Eiffel Tower are allowed in the central skyline. However, these heritage-focused policies come at an economic cost. While Paris may excel in the "city as museum" aspect, it does not compete effectively in international financial, insurance, trading, banking, and legal markets.

In contrast, London is characterised by its constant evolution. The city embraces change, takes risks, and is open to mixing different functions, materials, styles, dimensions, and heights. It does not adhere to any singular historical style, whether Georgian, Victorian, or Edwardian. New buildings are expected to contribute to this ongoing tradition of variety and cosmopolitan change, ultimately creating heritage for the future. This philosophy is outlined in London's interim strategic planning guidance. The "Guidance on Tall Buildings", first issued in March 2003, outlines how the CABE (Commission for Architecture and the Built Environment) and English Heritage strongly advocate defining basic requirements for high-rise buildings within local planning documents and establishing evaluation criteria for urban design in the UK. Local authorities were encouraged to use this guidance to evaluate such projects and develop local policies.

Smart High-Rise Development Study focuses on a comprehensive attempt to maximize the benefits of high-rise buildings while minimizing their negative impacts according to:

- Position the building at a suitable distance from existing urban areas, using roads, railway tracks, or green spaces as buffers.
- Ensure access to the main public areas with a clear entrance.
- Serve as a landmark and vantage point for the surrounding area.
- Provide beautiful and accessible public spaces, including a viewing area or dining space on the top floor.
- Include semi-public spaces for recreation and social interaction among residents to foster a sense of community.
- Utilize durable, high-quality materials for long-lasting aesthetic appeal.
- Prioritize underground parking, limit above-ground options, and integrate green spaces.
- Incorporate retail functions into any above-ground parking to enhance street appeal.
- Use renewable technologies for energy and water recovery.
- Manage the building for flexible use, diverse functions, security, and user privacy.
- Complete site development and system installations concurrent with user occupancy.

However, a fundamental aspect in high-rise structures involves ensuring emergency preparedness, particularly concerning fire incidents, which includes establishing effective communication and training protocols to facilitate timely evacuation during a fire emergency. Fire safety is a paramount concern in high-rise buildings, requiring extensive contingency planning due to the challenges of evacuation and rescue in emergencies.

3. Result: Upgraded planning: Smart High-Rise Development Study”

According to the Building Height Regulations outlined in Article 8 of the Ordinance of the Minister of Infrastructure (Dz.U.2022.1225 t.j. z dnia 14.08.2024), a high-rise building is defined as one that exceeds 25 meters but is no taller than 55 meters. Buildings taller than 55 meters are classified as "Tall". However in Gdansk, based on the impact on the cityscape from neighboring streets and courtyards, a high-rise building is defined specifically as a building of a minimum height of 40 meters and an elevation length between 5 and 50 meters, excluding structures such as aerials, masts, electricity pylons, and industrial buildings. As the potential visibility of high-rise buildings is significantly impactful when viewed from nearby streets or distant locations, various architectural designs of such high-rise buildings should be additionally assessed based on visibility analyses from designated vantage points, as well as Local and City Landscape Control Points. Vantage points were established at street level, 12 and 20 meters from the development. These distances were chosen to represent the

typical street width in downtown Gdańsk. The narrower streets are access roads of lesser importance or situated within areas of historic development. In contrast, the broader streets that divide the downtown quarter, such as Grunwaldzka Alley, have an average width of approximately 55 meters at the center of Wrzeszcz.

The document of "Smart High-Rise Development Study" visually identifies areas within a city's planning framework, indicating which locations are: designated[2], recommended[3], appropriate[4] (including restricted), inappropriate[5], or excluded[6] from high-rise development.

The "Smart High-Rise Development Study" aims to develop a remedy procedure for addressing scheduling contingencies in instances where potential conflicts arise around sensitive locations for high-rise developments (See also: table 2).

[2] *Designated areas* selected to develop key landmarks to emphasis or enrich the city's composition, particularly in exceptional locations along the main arteries leading to the city centre (City Gates) but also for Developing Prestige Zones within the Central part of the city along the main communication axis:

[3] *Recommended areas* selected to the exceptional importance of the locations due to the concentration of metropolitan services mostly in the Central part of the city along the main communication axis.
- It complements the values of the integration hub of metropolitan significance.
- It holds special importance in the urban landscape, for example, with the creation of water features.
- It focuses on the revitalisation of the area and its neighbourhoods.
- It closes the compositional axis of the main avenues.

[4] *Areas appropriate (including Restricted Areas)* for High Rise development are located according to their potential i.e. in Central part of the city along the main communication axis, around the transfer and integration hubs, in the Mixed-use districts of the Lower Terrace and Post-shipyard areas. The indicated areas specific for Gdansk context are also Letnica Młyniska industrial district (near the stadium) and Port and logistics distribution centre near the Sucharskiego route.

[5] *Areas inappropriate* designated for natural values protected by any regulations or due to exposure zones
a) Conservation protection zones due to exposure zones of historic complexes.
b) Areas with natural values protected by the Environmental Protection Law, including: Protected landscape areas; NATURA 2000 areas; Tricity Landscape Park buffer zones; Seaside belt (buffer zone); Natural and landscape complexes/Protected corridors in scenic views studies in city scale.
c) Areas with developed urban structures: Compact, low-rise developments; Post-war housing estates and Peripheral areas in relation to the city centre.

[6] *Excluded areas* are those where prohibitions exist due to applicable regulations, such as strict protection of existing uses. Exclusions may arise from cultural, environmental and technical reasons, including:
a) Cultural Reasons: Cemeteries and parks; Manor and palace complexes; Areas listed in the register of monuments, including the vicinity of historic monuments.
b) Environmental Protection Reasons: Forests; Nature reserves; Tricity Landscape Park; Ecological sites; Water bodies.
c) Infrastructure/Technical areas, such as: Airports with height limit zones; Groundwater intakes and protection zones; Waste disposal sites; Agricultural land.

Table 2.
Overall and synthetic presentation of the procedures for the Study of High Rise Development

Designated Places In the northern part of Śródmieście, a problematic area has been identified near Stare Miasto (the Old Town), adjacent to the historic development of Główne Miasto (the Main City), where existing high-rise buildings are located (such as Zieleniak, Prorem, and the Heweliusz Hotel). The construction of these buildings within the buffer zone of Śródmieście and the potential for their reconstruction or expansion has sparked significant controversy and differing opinions between the Heritage Officer for the province and local architects. The area designated for high-rise development is broadly defined as the central part of the city, known as Dolny Taras. However, not every location within this area suits high-rise buildings due to existing regulations or other legitimate concerns.	**Recommended Areas** The recommended areas for high-rise development are specific public spaces of significant importance. These areas are designated as locations where high-rise buildings are encouraged, in prestigious locations, according to either a notable concentration of metropolitan Services or considerable significance in the urban landscape. The local spatial development plans impose no height limits on these recommended areas. Additionally, the procedures and requirements for locating high-rise buildings have been simplified. Most of the recommended areas for high-rise development are located along Grunwaldzka Alley. Within the linear-nodal structure, specific locations have been identified as critical for enhancing functionality and visual appeal at the end of the Hallera axis in the Seaside Belt, due to their significant relevance in the landscape context.	**Appropriate Areas (including Restricted Areas)** Gdańsk aims to complement its urban fabric in the predominantly developed, primarily residential Lower Terrace. Therefore, the document delimits the specific area, which allows for locating high-rise buildings in the Lower Terrace and a few locations in the Upper Terrace to highlight the city's "gateways". From a landscape perspective, the Lower Terrace is preferable for high-rises, as it allows the city skyline to remain framed by the moraine height, preventing buildings from exceeding the height of the hills.
Inappropriate Areas The areas located on the outskirts of the central metropolitan zone have been deemed unsuitable for high-rise buildings and are therefore subject to restrictions. The Upper Terrace is identified as a key area for urban development in terms of housing, services, and transportation, with low-density development and high-quality living standards. The existing and proposed development in these areas and their importance to the urban landscape should highlight the natural and environmental qualities of the Area. This focus necessitates limitations on the size of new buildings, effectively ruling out high-rise construction.	**Excluded Areas** Certain areas, which together occupy 42% of Gdańsk, prohibit high-rise developments. These exclusions are based on established regulations that restrict the construction of high-rise buildings, aiming to protect Gdańsk's cultural heritage and natural environment from high-rise development. There are 12 areas in Gdańsk where high-rise development is forbidden, ensuring strict protection of existing land use and development. The areas excluded from high-rise development due to cultural values (cemeteries, manor park complexes, historic monuments and sites), environmental protection reasons (ecological, nature reserves, water bodies, woods).	**Restricted areas** Areas that protect historic monuments require consent and adherence to the procedures. In other appropriate places, development can proceed based on the local plans, provided that all necessary processes are completed. Therefore, each high-rise proposal will be analyzed individually for its architectural impact and contribution to the cityscape. The aim is to create clusters of high-rise buildings that enhance the city’s dynamics and highlight significant locations such as gateways and district centers. Concentrating high-rise buildings in the Grunwaldzka Alley along the main transport axis is advisable to improve the urban environment for economic and transportation reasons.

Source: own study based on Gdansk Development Agency, "Smart High-Rise Development Study”.

The resulting "Smart High-Rise Development Study" identified potential courses and timelines of action for high-rise development while drawing from national regulations, planning studies, and insights gathered from local interviews. The other cities' experiences, supported by comprehensive planning, provided valuable background information on factors relevant to Gdańsk, which helped identify action lines and risks in the overall urban strategic framework. The consensus reached was limited to locations that received positive feedback from stakeholders and residents, and other areas where high-rise developments are inappropriate but still possible (see also: table 3).

Table 3.
Overall and synthesis of the additional procedure in case of High Rise Development

Area of High Rise	Appropriateness	Method	Special Procedure within the local plan making stage of the Development	Additional recommended elements at the plan making stage of the development	Special requirements related to high rise Development to be considered in local plan and at the plan making stage of the development
Excluded	No	-	-	-	Special requirements accordance with Heritage Office
Inappropriate	no	-	-	-	
Appropriate	Yes/or no	Local plan	Plan draft (1) Presentation of the plan (2) Visualization from control points (3) Environmental impact points (4) Positive opinion of the Commission (5) Laying on for public viewing (6)	Presentation of the concept of the building (1) Visualization from control points (2) Environmental impact assessment (3)	Height limit to 55 m „Flat Foot" on the first floors, Recreational green Area (in residential high rise buildings)
Recommended	Yes	Local plan	Laying out for public viewing (6)	Presentation of the concept of the building	Setting the maximum height of high rise building. Accessible public space Limited parking spaces
		Development Brief Procedure			
Designated places	Yes	Local plan	Laying out for public viewing (6)	Presentation of the concept of the building	Setting the maximum height of high rise building ,
		Development Brief Procedure			

Source: own study based on Gdansk Development Agency, "Smart High-Rise Development Study".

This high-rise policy excluded discussions about Gdańsk's central location, which designates areas for developing well-designed (iconic) high-rise buildings that should be strategically clustered and well-served by public transport. It also identified locations unsuitable for raising high-rise investments. In "appropriate" areas (including restricted areas), the local plan will dictate whether high-rise development is acceptable or banned at any location within its scope. According to the local plan, high-rise buildings are only permitted in these areas.

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Since 2008, the "Smart High-Rise Development Study" policy has designated specific areas in the city for well-designed tall buildings, which should be strategically clustered and accessible by public transport. Some areas have been marked as conditional sites for high-rise developments, while others have been deemed inappropriate for such projects. Areas particularly suited for well-designed tall buildings have been identified, especially around the central location in Gdansk.

3.1. Procedures in the "Smart High-Rise Development Study"

A more lenient procedure is proposed for "recommended" areas and designated places. Here, a high-rise building can be situated according to the local plan. A development brief procedure (a building conditions decision) may be used if no local plan is available. For designated places, the local plan is crucial for specifying the minimum height of a high-rise building, which landscape and aesthetic considerations may influence.

In the recommended areas outlined in the local plan, it is also possible to establish a maximum height for high-rise buildings that considers landscape and aesthetic factors. However, there are no explicit limits on such buildings' height.

The additional procedure builds on the local plan for the recommended area or designated place, which may include additional elements related to the project and public participation. Therefore, the local plan for high-rise development in designated areas prioritizes public participation beyond basic legal requirements and includes the following obligations:

1. Presenting the draft in an accessible graphic format that details the high-rise buildings' locations and specifications.
2. Making the draft available on the website for public comments and local input.
3. Preparing visualizations of high-rise buildings from designated landscape control points.
4. Assessing the potential impact of high-rise buildings on the sustainable environment.
5. Gaining approval from the City's Commission for Architecture and the Built Environment regarding the cityscapes.

6. Providing public access to visualizations, plan drafts, and statutory forecasts. The plan draft outlines the initial phase of planning, addressing critical issues related to functional and spatial structure. While area charts and environmental forecasts will follow, the draft should be easy to understand and encourage public discussion, especially regarding high-rise proposals. Previously presented to the City's Commission for Architecture and the Built Environment, the drafts for high-rise projects will also be posted online, inviting written and online feedback.
7. Community members will select local landscape control points for visualization. Visualizations will integrate the proposed high-rise into panoramas from specified control points, supplemented by panoramic photos. A simplified cuboid representation will be used at this stage, where the investor and architectural designs are not yet available. As plans progress, more detailed visualizations can be developed.
8. The City Development Board will assess the visualizations for approved high-rise projects, serving as an advisory board for the president of Gdańsk.
9. A positive assessment is necessary to advance the planning process and facilitate the development of high-rise buildings in Gdańsk. Assessing the impact on the sustainable environment is an essential aspect of the planning process related to the local plan. However, additional studies, including visualizations and evaluations of the impact on sustainability, will be part of the statutory process for publicly presenting the draft plan. This allows participants to understand better the draft, its justification, and its potential effects, which enables them to make more informed decisions regarding comments and arguments.

The appropriateness of high-rise development is defined in the regions marked as recommended or designated. The local plan may, in justified cases, specify maximum or minimum heights for high-rise buildings based on landscape and aesthetic considerations. When high-rise buildings are proposed through the development brief procedure, the legal regulations determine the application's scope, the decision's contents, and the considerations for granting or refusing the decision.

There is no legal basis for imposing additional requirements on the applicant, and the decision-making body cannot justify its opinions based on criteria outside the law. However, the investor may engage in additional procedures or requirements if they benefit the overall aims. The extra elements of the planning process mentioned above may lead to an expanded application or, in cases of negative assessment or significant social conflict, to a withdrawal of the application (see also: Table 4).

Table 4.
The delimitation areas and the rules of their delimitation for the location of high-rise development

Location	Area [ha](% Gdansk area)	Delimitation Area/ Rules of delimitation	Location of high-Rise Development	Planning permission under
Excluded	11.150 (around 42%)	Excluded Location of High Rise Under regulations	Excluded (with exemptions)	—
Inappropriate	12.200 (around 46%)	Excluded Location of High Rise Under Landscape Reasons	Prohibited	—
Appropriate (including restricted)	3.200 (around 12%)	Possible Location of High Rise not excluded not indicated areas	Allowed	local Area plan
Recommended	186 (around 0,7%)	Appointed Location for High Rise in prestige fragments and indicated areas	Recommended	local Area plan
Designated places	-	Peculiar locations of High Rise according to City Composition	Mandatory	local Area plan

Source: Gdansk Development Agency, "Smart High-Rise Development Study".

The issues addressed in the "Smart High-Rise Development Study" are extensive and cover various aspects of urban life. They lack legal regulations and involve decisions that impact the city for decades. The discussed findings, including urban analyses, are documented in the associated "Smart High-Rise Development Study".

The High-Rise Policy reiterates that the local spatial development plan is the crucial document that dictates the possibility or prohibition of high-rise construction. Additionally, anyone can upload "Smart High-Rise Development Study", an annex to the resolution of the Gdańsk City Council No. XXVIII/764/08 dated September 25, 2008.

Benefits are clear, as the scheduling helps in preventing project delays and ensures adherence to deadlines (reduced risk of deadlines). It has improved project management through a well-defined plan, which allows for a proactive and quicker response to unexpected issues. Crucially, it impacts enhanced stakeholder relationships, as clear communication and proactive mitigation efforts help maintain stakeholder trust and confidence. Last but not least, by preventing cost delays and rework, the co-created additional procedures can contribute to overall project cost savings in the case of high-rise Development.

3.2. Local and City Landscape Control Points for Impact Assessment

Landscape control points are designated sites suitable for high-rise development, which should be naturally located, open, accessible to the public, and integrated with urban spaces. When choosing landscape control points, consider the significant large-scale cultural landscape elements described in the Local Development Policy. Essential features include scenic viewpoints and trails that provide a comprehensive city view.

The four main criteria for selecting Control Points are assessing the recommended and appropriate location from the relevant place (context). The goal is to obtain the fullest possible view over areas deemed suitable for high-rise development (broad scope). Popularity of the viewpoint can be measured by the high number of visitors arriving at the location with a view on areas identified for high-rise development (reception frequency). Due to access limitations, existing high-rise buildings were excluded from consideration as control points. The observation point's tourist appeal was crucial while selecting, as well as easy accessibility, scenic views, available facilities, and additional functions (Promotion).

The Main City Landscape Control Points were divided into the strategic (five) and the Intra-City Points category (four). Local Landscape control points, including street axes, flyovers, natural terrain elevations, and scenic openings, also serve as control points within areas identified for high-rise development.

The characteristic locations of the local landscape control points are supposed to be selected by local inhabitants during a public participation process organized by the investor. A maximum of three points will be chosen each time. For each high-rise building located in the designated areas, the investor must conduct a landscape study covering all specified control points: strategic and intra-city points, and a maximum of three local points determined through a social participation process. This totals ten control points.

Public oversight will necessitate that the investor include the planned high-rise building in view from all control points featured in the Study of High-Rise Development. These visuals must be presented during the Commission for Architecture and the Built Environment sessions or any other group appointed in the participation process.

4. Discussion: Co-creating or consulting the High Rise Planning amendments?

Contrary to Rousseau's belief that "Cities are the abyss of the human species", cities facilitate collaboration and allow humanity to flourish. Urban density enhances knowledge exchange, enabling individuals to learn from one another. As seen with renowned artists and thinkers throughout history, cities foster connections that strengthen our ability to observe, listen, and learn. In Gdansk, facilitating collaboration and allowing residents' participation in building upwards were crucial. While local communities may be apprehensive about constructing a high-rise building nearby, this does not necessarily mean they would oppose such projects in more distant locations.

In Bristol, a social consultation program related to high-rise buildings was conducted under the "Height Matters?" umbrella and carried out in two stages. The first stage focused on gathering comments. A comprehensive and interactive website dedicated to the issue of high-

rise buildings was created and hosted on the Council's official site. All were invited to download copies of the draft Supplementary Planning Document, participate in online discussion groups, and consider the arguments for and against tall buildings. Two seminars on high-rise buildings were held at the Architecture Centre, specifically targeting professionals in the local built environment.

4.1. Social communication, including public consultation

Social communication is essential for exchanging information and interacting within the community. Effective communication requires public authorities to view local communities as equal partners. This interaction should be two-way; public authorities provide information while citizens have channels to express their opinions. When allowed to share their views, citizens can feel like co-managers of local affairs, which increases their willingness to engage in public initiatives.

Consequently, the undertaken framework involved residents and stakeholders in consulting the "Smart High-Rise Development Study" document. Their feedback was instrumental in shaping the final high-rise policy in Gdańsk, which established the following:

1. The definition of critical height for tall buildings in Gdańsk.
2. Specific criteria for determining areas in Gdańsk appropriate (and inappropriate) for tall buildings.
3. Local control points are used to assess the designs of high-rise buildings.
4. Measures to assess and ensure the sustainability and livability of new high-rise developments.
5. The procedure for ensuring public participation in high-rise planning.

In Gdańsk, Public Consultations for the "Smart High-Rise Development Study" focused primarily on raising awareness about creating the draft document related to high-rise buildings and collecting community feedback. The following methods to gather public opinions and encourage creative discussion on this controversial topic include:

- An online survey on high-rise buildings.
- A student competition for high-rise concept ideas.
- Workshops for non-governmental organizations.
- A brainstorming session with the City Development Board.

Despite their potential impact on the surrounding area, residential high-rise buildings can help foster a sense of community among their residents. Therefore, small local communities can be developed, particularly when residents share common traits such as ethnic backgrounds, similar socio-economic statuses, emotional investments in the environment, satisfaction with their living conditions, and a high level of psychological well-being. High-rise buildings may facilitate the creation of these communities by bringing together individuals with similar characteristics.

Key elements contributing to a sense of community include cooperation, care, and concern for shared resources. Therefore, when designing new high-rise buildings, it is advisable to incorporate small communal spaces where residents can meet and engage in informal interactions. An in-depth exploration of the issues related to the perception of high-rise buildings and environmental psychology can be found elsewhere.

4.2. Differences between Public Consultation and Co-creation process

Local plans in Gdansk that allow for high-rise development must first identify the values and limitations of the specific location for such buildings concerning the functional and spatial structure of the urban unit, the existing neighboring developments, and access to public transport. A key reason for placing high-rise buildings is their location; if only essential service buildings of considerable metropolitan significance existed nearby, and efficient transport systems were accessible. Locating high-rise buildings, particularly those with service functions, in the Grunwaldzka Alley and areas designated as suitable will enhance the importance of this spatial structure, activate the city, and contribute to its attractiveness, potentially sparking qualitative changes.

Designated Placesare specific locations identified for the development of notable high-rise buildings. Most of these designated areas, as outlined in the "Smart High-Rise Development Study", are located along Grunwaldzka Alley. They enhance the unique character of specific sites and contribute to the urban structure by incorporating new elements identifiable with the city. These designated places are also strategically selected near major transportation routes leading to the downtown area.

Public consultation and co-creation are both forms of involving stakeholders, but they differ in their level of engagement and influence. Public consultation primarily involves gathering feedback on a pre-defined proposal, while co-creation actively involves stakeholders in defining problems, developing solutions, and making decisions (Open Government Declaration, 2021). The detailed breakdown of issues addressing the co-creation standards is presented in table 5.

Table 5
The detailed breakdown High high-rise study process addressing the standards of cocreation and public consultation (Open government, 2021)

	Public Consultation (PC)	**Co-creation (CC)**	**Framework of the standard (OPD, 2021)**	**High rise study**
Focus:	Gathering feedback on a pre-defined idea, policy, or project	Collaborative development of solutions, often involving diverse stakeholders in the problem definition, solution design, and decision-making processes.	**Transparency: Information regarding** processes, activities, decisions and outcomes should be easily accessible by any interested stakeholder. Proactively publish and disseminate information in the most relevant format and through the most appropriate means throughout the action plan cycle and provide regular progress updates on commitment development and implementation.	CC
Stakeholder Role:	Stakeholders provide input, but the ultimate decision-making power typically rests with the initiating party	Active, collaborative ad co-owners of the process and outcomes.	Inclusive participation: Allow for a diversity of voices to participate in the meaningful process. The process involves identifying priorities and proposing solutions. Conduct outreach to minority or traditionally underrepresented groups and ensure access to information regarding the opportunities for participation and input.	CC
Level of Engagement	More passive, focused on information gathering	More Active participatory and empowering.	Innovation and ambition: Strive to go beyond the minimum requirements outlined here and innovate on ways to develop, co-create and implement ever more ambitious and transformative open government reforms via highly transparent, participatory and collaborative processes. Minimum requirements should be seen as the starting point, not the goal.	CC
Outcome focus:	Consultation aims to refine existing ideas, Public comment on proposed regulations, and surveys on citizen satisfaction with them	Co-creation aims to refine ideas and generate new approaches—joint workshops with stakeholders working together to design a new solution collaboratively developed.	Accountability: Provide clear information about the results of consultation processes and the outcomes of commitment implementation. They should explain, for example, why certain stakeholder priorities were not included as well as the reasons for any changes or delays during commitment implementation.	CC

Source: own study based on Open Government Declaration materials.

The High Rise Study was co-created in 2008, representing an advanced and collaborative approach that went beyond public consultation. It fostered greater commitment among stakeholders and residents and had the potential to lead to more innovative and effective outcomes.

However, the complete application of Participation and Co-Creation Standards published in 2021 took place in 2022. The co-creation process (as an action plan) was guided by four overarching principles derived from the Open Government Declaration:

- Inclusivity in Co-creation: Co-creation ensured that everyone has a voice and a stake in the process. Building psychological safety and leveling the playing field were essential for fostering innovation.
- Decision-Making Power: While the initiating party retains decision-making power in traditional consultations, this time, stakeholders played a more significant role in shaping decisions during co-creation.
- Level of Engagement: The co-creation process emphasized active collaboration and shared ownership (OPD, 2021).

In 2022, the Steering Committee, composed of key decision-makers, facilitated stakeholder engagement in the design process. A series of open meetings and workshops utilized the "World Café" and "Three Horizons" concepts to gather stakeholder preferences and assess urban challenges over time.

The process was organized according to the Open Government standards, specifically providing spaces and mechanisms for ongoing dialogue throughout the action plan cycle.

- Promote shared responsibility for the development and implementation of action plans between the government and civil society.
- Encourage ambition and innovation.
- Ensure that there is a clear understanding of the minimum requirements and facilitate assessments for greater accountability and learning.

Reaching a consensus on spatial solutions in the Gdansk central location has taken over a decade since the initiation of the high-rise study. It has highlighted the need for formal cooperation between public administration entities, social partners, and the local community to address a growing awareness of the economic value of space, particularly in densely built areas with established technical and transport infrastructure (such as roads and public transport), and social infrastructure (including health services, schools, and kindergartens). The socio-economic and spatial conditions make the Lower Terrace a prime location for high-rise buildings. With its historic architecture, the 19th-century Wrzeszcz, the post-Cistercian Oliwa, and the areas along the Seaside attract investors due to their distinct character or *genius loci*, and a sea view adds exceptional value, given that Gdańsk is a seaside metropolis.

5. Summary

The "Smart High-Rise Development Study" in Gdańsk focused on a scheduling contingency while it was co-created. This concept of detailing the additional procedure involved allocating extra time in the project planning to accommodate unexpected delays or issues that may arise during the development process. In Gdańsk, it is especially crucial to include this additional time, as high-rise developers must engage with the public participatory process and comply with the city's specific requirements. Proper high-rise planning procedure is vital; failing to do so could jeopardize planning deadlines and lead to dissatisfaction among stakeholders and community members. A contingency approach requires strategies that balance economic interests with community preservation efforts. Asseraf et al. highlighted the marketing and organizational aspects of contingency planning, emphasizing the importance of effectively communicating potential benefits to stakeholders and securing community support for new development projects (Tamošaitienė et al., 2013). This underscores the need for strategic outreach and engagement efforts as part of broader contingency measures, aiming to minimize community pushback while promoting acceptance of high-rise developments.

Planned high-rise developments often provoke protests from residents, typically stemming from NIMBY (Not In My Back Yard) attitudes, where residents have negative feelings toward developments in their immediate area, despite overall support for similar projects elsewhere. Thus, incorporating scheduling contingency into high-rise planning through the "Smart High-Rise Development Study" helps to structure the public involvement process. On the other hand, although scheduling contingency planning could revive the meaning of planning as a rational and deterministic (thus fair) approach, the presented attempts limit public involvement to only a scope that can be controlled, and therefore, the one that all stakeholders in the high-rise development process can accept.

The local development plan, commonly known as the local plan, is a crucial document determining whether high-rise buildings can be located in the specified areas (locations are designated, recommended, appropriate (including restricted), inappropriate, or excluded from high-rise development). In areas classified as "excluded" and "inappropriate", the plan will prohibit high-rise development, except for specific instances involving high-rise buildings in excluded areas that are recorded as historic monuments and have received consent from the Heritage Officer.

The standard comprehensive planning procedure effectively addresses the complex environmental, aesthetic, and height-related concerns associated with high-rise buildings. However, it tends to overlook potential social conflicts that may arise during the planning process. To mitigate this issue, the presented approach involves implementing specific procedures that allocate sufficient time to address anticipated conflicts. This proactive strategy aims to prevent delays and the escalation of more serious conflicts by addressing them directly.

The "Smart High-Rise Development Study" within city planning requires a multifaceted approach considering economic viability, social equity, environmental sustainability, and aesthetic coherence. This framework focuses on scheduling and managing conflicts, promoting a holistic approach that integrates economic viability with community welfare and environmental sustainability. It emphasises stakeholder engagement planning and interdisciplinary collaboration, bridging the gap between urban growth and community values, ultimately facilitating a more harmonious coexistence of high-rise structures within the urban environment.

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References

1. Guidance on Tall Buildings CABE 2007, https://www.designcouncil.org.uk/fileadmin/uploads/dc/Documents/guidance-on-tall-buildings_0.pdf, 10.05.2025.
2. Welege et al. (2023). Stakeholder collaboration to mitigate constraints to delivering low-carbon buildings: insights from high-rise high-density cities. *Engineering Construction & Architectural Management,* doi:10.1108/ecam-02-2022-0166
3. Height Matters? Bristol (2005), https://www.yumpu.com/en/document/view/16498915/tall-buildings-spd1-bristol-city-council, 10.05.2025.
4. Amhoff, T. (2020). The agency of the paper plan: the building plans of late nineteenth-century and early twentieth-century Berlin. *Journal of Urban History, 46.2,* 270-288.
5. Appert, Montès (2015). Skyscrapers and the redrawing of the London skyline: a case of territorialisation through landscape control. *Articulo – Revue De Sciences Humaines*, doi:10.4000/articulo.2784
6. Asseraf et al. (2019). Assessing the drivers and impact of international marketing agility. *International Marketing Review*, doi:10.1108/imr-12-2017-0267
7. Baiz, Hoşkara (2021). Developing a measurement scale for sustainable high-rise building in city of Erbil. *Journal of Asian Architecture and Building Engineering*, doi:10.1080/13467581.2021.1900855

8. Cucca, Ranci (2021). Urban Policy in Times of Crisis: The Policy Capacity of European Cities and the Role of Multi-Level Governance. *Urban Affairs Review,* doi:10.1177/10780874211041710
9. Gdansk Development Agency. *The Smart High-Rise Development Study*, https://www.brg.gda.pl/wizje-opracowania-i-polityki-miejskie/krajobraz/61-studium-lokalizacji-obiektow-wysokosciowych-slow, 10.05.2025.
10. Gent (2010). Housing Context and Social Transformation Strategies in Neighbourhood Regeneration in Western European Cities. *International Journal Of Housing Policy,* doi:10.1080/14616710903565712
11. Glaeser, E. (2011). *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. United Kingdom: Penguin Publishing Group.
12. Glauser (2022). High-Rises and Urban Specificity: Politics of Vertical Construction in Paris, London, and Vienna. *Urban Planning*, doi:10.17645/up.v7i4.5691
13. Guerreiro, S.B. et al. (2018). Future heat-waves, droughts and floods in 571 European cities. *Environmental Research Letters, 13.3,* 034009.
14. Karampour, A. (2020). *Assessing Entrepreneurial Capabilities Among Family Business Owners*.
15. Kazepov etal. (2023). The 'European City' at the Crossroads: Four Analytical Elements for Understanding Convergence and Differentiation. *Tijdschrift Voor Economische En Sociale Geografie,* doi:10.1111/tesg.12605
16. Madhusanka, H.W.N., Wei Pan, Mohan, M. (2022). Constraints to low-carbon building: Perspectives from high-rise high-density cities. *Energy and Buildings, 275,* 112497.
17. Morato (2022). Opportunities and Challenges of Municipal Planning in Shaping Vertical Neighbourhoods in Greater London. *Urban Planning,* doi:10.17645/up.v7i4.5757
18. Nguyen et al. (2020). Nguyen, Linh P.M. et al. (2024). Social impacts of living in high-rise apartment buildings: The effects of buildings and neighborhoods. *Journal of Urban Affairs*, 1-22.
19. Open Government Declaration (2021), https://www.opengovpartnership.org/wp-content/uploads/2021/12/OGP-Participation-and-Co-Creation-Standards_24November2021.pdf, 18.08.2025.
20. Regulations outlined in Article 8 of the Ordinance of the Minister of Infrastructure (Dz.U.2022.1225 t.j. z dnia 14.08.2024), https://sip.lex.pl/akty-prawne/dzu-dziennik-ustaw/warunki-techniczne-jakim-powinny-odpowiadac-budynki-i-ich-16964625/par-8, 10.05.2025.
21. Resolution of the Gdańsk City Council No. XXVIII/764/08 dated September 25, 2008, https://www.brg.gda.pl/attachments/article/61/slow-dokument.pdf, 10.05.2025.
22. Tamošaitienė et al. (2013). Complex model for the assessment of the location of high-rise buildings in the city urban structure. *International Journal of Strategic Property Management,* doi:10.3846/1648715x.2013.781968

23. Yu et al. (2024). Impact of urban construction on pedestrian level wind environment in complex building group. *Indoor and Built Environment,* doi:10.1177/1420326x231225617
24. Zhang, Hang, et al. (2022). *Resnest: Split-attention networks*. Proceedings of the IEEE/CVF conference on computer vision and pattern recognition.