Densifying Wrocław's City Centre with Housing, 2010–2021

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1 Introduction

The context for this study is the intensifying housing affordability crisis and—paradoxically—the simultaneous surge in investment activity on Poland's housing market. In recent years, locally high developer activity has led to intensive densification of Wrocław's inner city, accompanied by significant transformations of the city's urban fabric.

The point of departure for reflecting on densification is its usefulness as a tool to counter urban sprawl. In contemporary Polish academic discourse—and, following it, in municipal strategic documents—the prevailing view is that spatial planning should aim to build compact cities. This theory, however, is not reflected in local law. According to research, the Local Spatial Development Plans (miejscowe plany zagospodarowania przestrzennego) currently in force across Poland designate residential areas capable—by the most precise estimates—of accommodating housing for a further 59.6 million people Śleszyński et al. 2016, even though Poland's population is expected to decline. Moreover, in 2018 the Committee for Spatial Development of the Country of the Polish Academy of Sciences published the extensive report *Studies on Spatial Chaos* (*Studia nad chaosem przestrzennym*). In it, P. Śleszyński estimates the costs of spatial chaos at PLN 84.3 billion per year Śleszyński et al. 2018. Given the high costs of suburbanisation, directing settlement development inward—through

the densification of already urbanised areas—appears to be a precondition for sustainable development today. Yet there is a lack of any strategies, or even systematic reflection, on how to conduct densification responsibly.

The research topic is firmly grounded in the broad context of housing. It is commonly held that the greatest problem affecting Polish housing is the housing deficit Surówka 2018. In 2002 it amounted to 1.7 million dwellings in Poland, 1.1 million of which were lacking in urban areas Lis 2008. By 2015 the deficit had decreased to 900,000 dwellings Nowak 2021, and in 2019, according to the Ministry of Investment and Development, it stood at 641,000 Ministry of Investment and Development 2020. At the same time, according to Eurostat, 36.9% of Poles lived in overcrowded dwellings in 2020, and 7.9% in substandard dwellings Eurostat 2020. Paradoxically, alongside Poland's housing deficit there is also a surplus of dwellings, defined as the difference between the total number of dwellings and the number of households. In 2019 this surplus was 424,000 dwellings and in recent years it has grown faster than the reduction of the housing deficit—a trend which, according to the Ministry of Investment and Development, may indicate a rising number of vacant units resulting from the recent popularity of purchasing residential property as an investment Ministry of Investment and Development 2020. Although year after year new housing completions hit fresh records, the everyday Polish vocabulary has also absorbed the term "patodeweloperka", referring to profit-driven commercial housing projects that prioritise quick returns at the expense of architectural quality and residents' comfort, often by exploiting loopholes in building law and in locations lacking essential social and technical infrastructure.

Wrocław has particularly high densification potential in its inner-city zone due to spatial conditions shaped by geography and historical processes. This potential stems from the incompleteness and discontinuities of the urban fabric, which to this day has not been fully rebuilt after approximately 60% of the city was destroyed during World War II Dudek 2013. Despite extensive reconstruction efforts, numerous gaps in perimeter blocks remain, as well as undeveloped blocks and areas that before the war were filled with compact development but are now called "squares" despite not in fact functioning as public spaces. Another important factor is the disappearance of industrial functions from the inner city—uses that were historically tied to proximity to rail infrastructure and to Wrocław's particularly numerous river channels, which served as key transport corridors during the industrial era. These conditions make Wrocław a particularly valuable setting for investigating the phenomenon of urban densification (fig. 1).

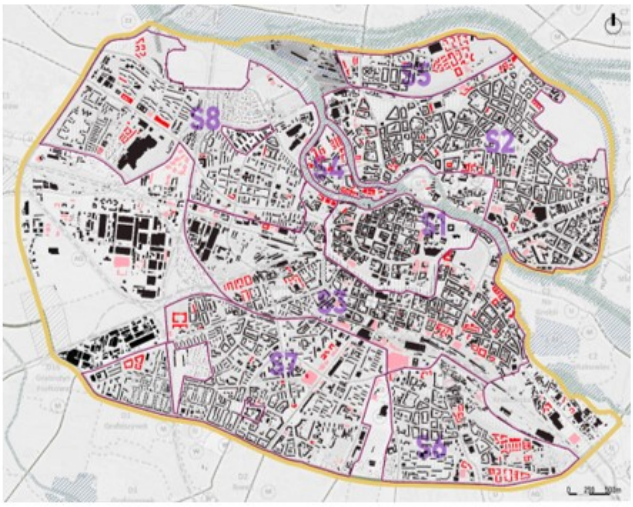

Fig. 1 Development delivered in Wrocław's inner city, 2010–2021: (i) residential (red), service/commercial (pink). Inner-city boundary (yellow line); research sector boundaries (purple lines).

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2 Methods

For the purposes of this study, we analysed housing developments completed between 2010 and 2021. Information on project indicators was collected from the national Spatial Information System and from the websites of developers, investors, and design offices. The analysis covered indicators such as: building footprint area, building height expressed as the number of above-ground storeys, and the number of dwellings in each project. In addition, for every development we calculated a housing efficiency index, defined as the ratio of the number of dwellings to the building footprint area.

The legal basis for each building were also verified: whether it was implemented under an applicable Local Spatial Development Plan or on the basis of an individual zoning decision (decision on development conditions).

The case studies were enriched with in situ observations: a site visit was carried out and photographic documentation was prepared for all analysed projects.

3 Results

The analysed examples of multi-family housing built in Wrocław's inner city point to several leading modes of land acquisition for residential development (Fig. 2, 3):

- development on sites that had lost their previous functions, mainly industrial and service uses;
- infill development completing gaps within existing perimeter blocks;
- use of existing land reserves;
- appropriation of green areas, most often recreational spaces belonging to existing estates;
- build-out of block interiors whose function had been undefined.

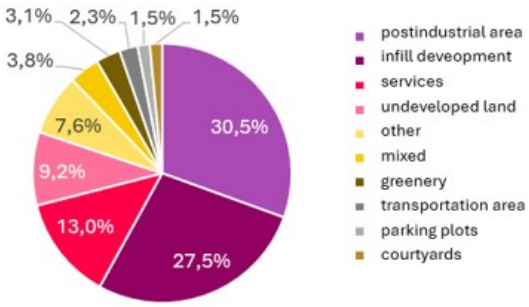

Fig. 2 Previous land use of sites where residential projects were delivered. Percentage share relative to the number of projects completed in Wrocław's inner city, 2010–2021.

Figure 2: Previous land use of sites where residential projects were delivered. Percentage share relative to the number of projects completed in Wrocław's inner city, 2010–2021.

Among the 131 housing projects analysed, 30.5% were built on post-industrial (brownfield) sites. A similar share was accounted for by infill projects (27.5%). In 13.0% of cases, mixed residential-service development replaced prior service uses, and only 9% of projects were located on unused land constituting a reserve for future development. Within the 7.6% of projects on sites classified as "other", former barracks predominated. In the "mixed" type (3.8%), a notable subgroup

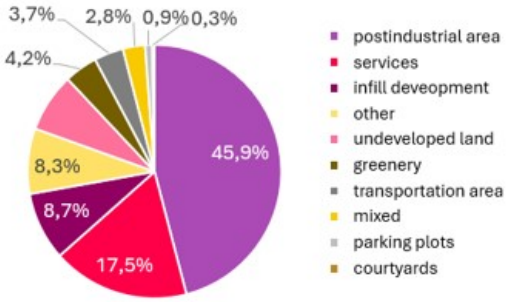

Fig. 3 Previous land use of sites where residential projects were delivered. Percentage share relative to the number of dwellings completed within projects in Wrocław's inner city, 2010–2021.

Figure 3: Previous land use of sites where residential projects were delivered. Percentage share relative to the number of dwellings completed within projects in Wrocław's inner city, 2010–2021.

comprised block interiors that had contained nineteenth-century industrial buildings (e.g., a former paper mill and automobile workshops).

A different perspective on land-acquisition patterns emerges when we examine the number of dwellings delivered on each site type. In this view, post-industrial sites clearly dominate, accounting for 45.9% of dwellings completed in 2010–2022. Second place is held by sites formerly occupied by service buildings (17.5%). Infill—despite its large share in the total number of projects—accounts for only 8.7% of completed dwellings.

The housing efficiency indicator applied in the analysis shows an upward trend over the study period (Fig. 4). This means that, on average, the number of dwellings achieved per square metre of building footprint increased over time. This may indicate a decline in average unit floor area and/or an increase in the average number of storeys in new buildings. Economically, it points to growing investor effectiveness in maximising the average yield per square metre of building footprint.

Over the study period there was a widespread tendency to reduce green and recreational areas within completed housing developments. The construction of multi-family residential buildings was not accompanied by public investments in recreational spaces. Courtyards and block interiors were pared down to a minimum in both area and function; within this functional minimum, developers typically provided playgrounds of minimal size and, optionally, private greenery for ground-floor units, while the remaining space was taken up by parking (Fig. 5).

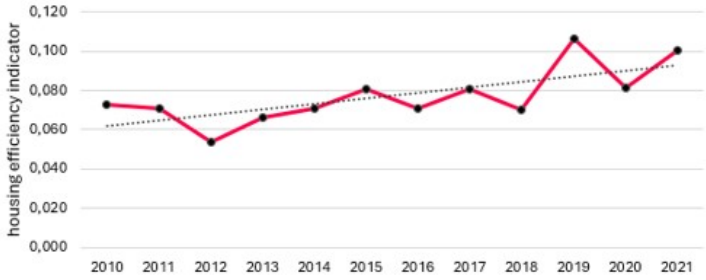

Fig. 4 Average housing-efficiency index of projects delivered each year in Wrocław's inner city. The dashed line shows the trend line averaged for the period 2010–2021.

Figure 4: Average housing-efficiency index of projects delivered each year in Wrocław's inner city. The dashed line shows the trend line averaged for the period 2010–2021.

Block interiors were also frequently built out in such a way that recreational areas were placed on top of parking decks accessible from ground level, which precludes the growth of tall vegetation (trees).

The height of new inner-city development is comparable to that of prefabricated panel-housing estates. Its composition, however, references perimeter-block (quarter) typologies (Fig. 6). This combination fosters higher land-use density, yet it can be assumed to negatively affect residential comfort in such environments.

4 Discussion and Conclusion

The study does not corroborate the thesis that the densification of Wrocław's inner city is a spontaneous and uncontrolled process. In fact, the vast majority of the projects analysed were implemented on sites covered by Local Spatial Development Plans, and thus embedded in the framework of local spatial policy. Nevertheless, in many cases the resulting development tends to deepen spatial chaos and offers low-quality environments around buildings from the resident–user's perspective. Many of the projects examined align with what is widely criticised in public debate as "patodeweloperka"—profit-driven development at the expense of architectural and urban quality. This state of affairs raises, on the one hand, the question of the extent to which the Polish planning system even enables the creation of local law that guarantees high spatial quality, and, on the other, whether the local regulations in force in the study area fully deploy the available tools.

Fig. 5 Block interiors and courtyards of residential developments occupied by parking areas; author's photographs (2022).

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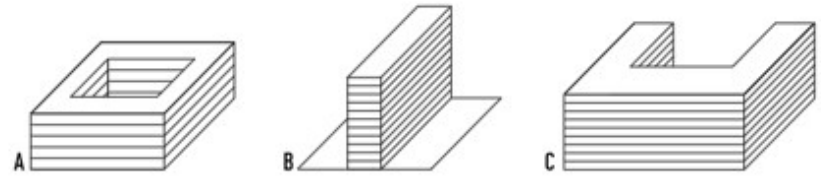

Il. 6 Conceptual diagram. a — traditional perimeter-block urban fabric; b — housing-estate layout with freestanding stairwell-access blocks; c — contemporary open-block development with a substantial number of above-ground storeys.

Figure 6: Conceptual diagram. a — traditional perimeter-block urban fabric; b — housing-estate layout with freestanding stairwell-access blocks; c — contemporary open-block development with a substantial number of above-ground storeys.

An important factor shaping residential complexes delivered under market-economy conditions is undoubtedly the state of the housing market. Although the economic aspects of the housing market were beyond the scope of this research, it is plausible that documented market trends—treating dwellings as investment assets—have left their mark both on the scale of inner-city residential densification and on the design of buildings and their surroundings. Dwellings, particularly those in the centres of large cities, are increasingly viewed as stores of value rather than places to live. These trends have likely lowered expectations regarding the quality of accompanying spaces (e.g., recreational areas) while increasing pressure to maximise saleable residential floor area, parking provision, and private ground-floor gardens—elements perceived to boost return on investment. At the estate-design level, this results in an extreme reduction of common, semi-private, and semi-public spaces.

At the same time, high demand for investment units encourages architectural-level densification through the design of very small dwellings ("micro-apartments"), which may fail to meet statutory minimum floor-area standards. There is a clear need for local government not only to provide conditions conducive to investment—which Wrocław's authorities did very effectively during the study period—but also to ensure good living conditions in the emerging estates. Potential pathways to improving the residential environment include the expansion of social/affordable housing, raising the quality of adopted Local Spatial Development Plans, and greater municipal involvement in delivering public spaces accompanying residential developments.

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