


## Article

# The Evolution of Multifamily Housing: Post-Second World War Large Housing Estates versus Post-Socialist Multifamily Housing Types in Slovenia

Richard Sendi \* and Boštjan Kerbler 

Urban Planning Institute of the Republic of Slovenia, Trnovski Pristan 2, SI-1000 Ljubljana, Slovenia;  
bostjan.kerbler@uirs.si

\* Correspondence: richard.sendi@uirs.si

**Abstract:** The academic discourse on post-Second World War (post-WW2) multifamily housing complexes has mostly focused on their negative aspects, related, especially, to their high population densities, poor quality of construction and social problems, due to the dominance of low-income residents. In reaction to these and other negative characteristics, alternative multifamily housing types started to emerge, first in Western European countries in the 1970s, and later in Eastern European countries, following the adoption of the market economy system at the beginning of the 1990s. The transformation that has occurred in mass housing types has been particularly distinct in Eastern European countries. Motivated by the lack of focused analyses of the important characteristics of these transformations, this article adopts a rare approach to the mass housing debate by focusing on examining the merits of post-WW2 large housing estates as compared to those of the post-socialist era. With a focus on Slovenia as a case study, a comparative analysis is performed by conducting a detailed review of the literature and other relevant sources. The comparative analysis shows that post-socialist multifamily housing types have many advantages over the post-WW2 housing estates, a finding that leads us to deduce that the transformations in mass housing typologies that have occurred in Slovenia (and other Eastern European countries) may have serious implications on the future of large housing estates. It is thus suggested in the conclusion that suitable regeneration policies need to be urgently implemented in post-WW2 housing estates in order to create more attractive living environments and prevent the potential degradation of these neighborhoods, which would, in turn, result in spatial residential segregation with concentrations of low-income households in post-WW2 housing estates.

**Keywords:** large-scale housing estates; multifamily housing; post-socialist transformation; housing policy; Slovenia



**Citation:** Sendi, R.; Kerbler, B. The Evolution of Multifamily Housing: Post-Second World War Large Housing Estates versus Post-Socialist Multifamily Housing Types in Slovenia. *Sustainability* **2021**, *13*, 10363. <https://doi.org/10.3390/su131810363>

Academic Editors: Grazia Napoli and Maria Rosa Trovato

Received: 19 August 2021

Accepted: 15 September 2021

Published: 16 September 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

There is an abundance of literature on the topic of the multifamily housing complexes which were built as collective high density residential neighborhoods as a solution to the post-Second World War (post-WW2) housing needs of people all over Europe. Popularly referred to as large-scale housing estates, they have been often seen and described as deprived residential neighborhoods that house mostly low-income households [1–4], as areas of concentration of ethnic minorities [5–7] and, in many cases, also as neighborhoods with above average unemployment rates and social exclusion [8–12]. The incentives and reasons for their creation were diverse. Five important factors that together influenced their development, especially in the first two decades after WW2 [13,14], can be highlighted; namely, the need to resolve and alleviate the demand for housing which resulted from war damage; poor housing conditions and population growth; the greater role of the state in providing housing, especially in financing its construction; a modernist view of what was considered good residential architecture/residential environment and political support

for mass housing complexes, largely provided by the state and, occasionally, also by the private sector.

While post-WW2 large housing estates in Europe have some similar physical characteristics, there are several aspects that are especially characteristic of those of Central and East European countries (CEE). First and foremost, their development was grounded on a (Communist) political doctrine that sought to guarantee equality of all citizens in all spheres of life, including housing provision. Towards this aim, state authorities designed and implemented elaborate processes of access (waiting lists) which were intended to ensure that housing was allocated in an orderly and just manner. Secondly, post-WW2 large housing estates of CEE countries were, for decades, seen as modern, high-quality housing, suitable for providing accommodation for all sections of the population, i.e., low-, middle- and high-income groups. As such, these were socially inclusive residential neighborhoods which, initially, displayed no form of segregation due to class or income. Furthermore, CEE large housing estates played a different role on the housing market as compared to that played by their counterparts elsewhere. They dominated the entire rental housing market and the production of rental housing, and its allocation was fully controlled by the state [14].

The problems of post-WW2 multifamily housing neighborhoods, generally, were first highlighted by sociologists, who started to raise questions about the quality of life in large housing estates. Harsh criticism of such forms of housing solutions gradually forced the politicians and planners in western Europe to reconsider the suitability of mass housing provision in large housing estates. Later, this led to the beginning of the process of renewal and regeneration of large housing estates in Western European countries. Various scholars have, over the years, conducted detailed analyses of the problems of post-WW2 housing estates. While some [15] discuss demolition as a suitable solution in extreme cases, many have attempted to provide proposals of potential approaches and a variety of recommendations for improvement have emerged. For example, the study by Dimitrovska Andrews and Sendi [16] focused on the design and development of a methodology for the regeneration of large housing estates. They define the key stages which the renewal process should follow (situation analysis, determination of renewal goals, designing of renewal programs, implementation and evaluation of the impact of renewal activities). Power [17] (p. 161) proposes that approaches which treat large housing estates as “live communities rather than inanimate monoliths” are likely to be more successful in stabilizing conditions in marginal residential neighborhoods. Others [18–20] stress the importance of appropriate neighborhood governance and put emphasis on the efficient organization and management of regeneration programs. Similarly, Warchalska-Troll [21] highlights the efficiency and speed of implementation of rehabilitation programs as key factors for the success of the renewal actions. And while Trumbull [22] explores the viability of the collaborative planning model in the context of the regeneration of post-WW2 housing estates, there is a consensus among numerous authors [14,23–28] who foreground a participatory approach to solving the problems of post-WW2 large-scale housing estates. It is commonly agreed by them that programs for the regeneration of large housing estates can be successfully implemented only on the condition that the residents are mobilized and actively involved from the beginning and throughout the process of their development.

The typical negative aspects of large housing estates include physical and ecological problems as well as economic, housing standards, social issues, and other similar problems [29]. The physical and environmental problems relate to the monotonous appearance of residential buildings in large housing estates, intrusion into green zones, and the use of hazardous pollutants (e.g., asbestos) and low-cost, unsustainable building materials. Economic (financial) problems are associated with high maintenance costs resulting from the use of less sustainable building materials and the premature deterioration of building parts (e.g., facades, roof structures) after only a short time [30]. The housing standards problems relate primarily to the inadequate living space standards which create overcrowd-

ing. Social problems are usually associated with the high concentration of certain minority groups and economically disadvantaged households [25].

It is worth noting here that while the implementation of the various programs of the regeneration of large-scale housing estates started in the 1970s in Western European countries (where these account for just 3–7 percent of the total housing stock), the regeneration of post-WW2 mass housing complexes was embarked on much later in CEE countries, after the socialist political system was abandoned at the beginning of the 1990s. This type of housing generally represents 20–40 percent of total housing stock in CEE countries, where it has also been found to be of a comparatively poorer quality [25]. And yet according to Gorczyca et al. [19], some of the countries in the region are yet to implement any serious large housing estate refurbishment measures.

As the bulk of the literature has mainly concentrated on the analysis of the situations and problems of post-WW2 estates, there is a lack of comparative analyses examining their merits or shortcomings as compared to the multifamily housing types that have been designed and developed after the transition to a market economy system. Szafrńska's [31] study is a rare example of such an analysis. This paper attempts to contribute to filling this knowledge gap in the current literature. Using Slovenia as a case study, it begins with a comprehensive review of the rise and development of post-WW2 housing estates. It is important to note here that Slovenia was, during that time, one of the constitutive republics of the then Federal Republic of Yugoslavia. This therefore means that the beginnings of post-WW2 large housing estates in Slovenia are rooted in the political and economic circumstances that prevailed in Yugoslavia at the time. The detailed review of the literature and other relevant historical documents thus focuses on the examination of the policies, strategies, guidelines, and standards for the design, construction, and development of mass housing residential neighborhoods which were adopted and implemented in the former Yugoslavia during the period of Communist rule. This review is intended to identify and highlight the political and socio-economic ideologies that provided the basis for the promotion and development of large mass housing complexes. The following section of the paper presents a review of the alternative types of multifamily housing that emerged to replace the “undesirable” post-WW2 housing estates, after Slovenia became independent, adopted a market economy system and started implementing its own legislation and policies. We use the terms “post-WW2 large housing estates” and “post-socialist multifamily housing” to make a clear distinction between the two mass housing types. The key characteristics of the post-WW2 large housing estates and post-socialist mass housing types are then comparatively analyzed in Section 3. This is where an attempt is made at identifying the strengths and/or weaknesses of one or the other. It is suggested in the conclusion that the transformations in mass housing typologies that have occurred in the post-socialist period may have a serious impact on the future existence of post-WW2 large housing estate complexes. We have proposed that comprehensive regeneration policies need to be urgently implemented in order to improve the quality of living in post-WW2 housing estates and prevent the potential occurrence of undesirable developments such the concentration of low-income households, which would in turn lead to the degradation of the neighborhoods and consequent emergence of segregated deprived residential enclaves.

## 2. Development of Post-WW2 Housing Estates in Yugoslavia

### 2.1. Political Ideology

As Slovenia constituted part of the former Federal Republic of Yugoslavia after the end of WW2 until it became independent in 1991, the development of post-WW2 housing estates in the country must be discussed within the context of the socio-political circumstances that prevailed in Yugoslavia during that period. All major policies, including those concerning housing, were formulated and adopted by the federal legislative bodies in Belgrade (then the capital city of the federation), to be applicable over the entire territory of Yugoslavia.

As has been noted by AlfIREVIĆ and Simonović AlfIREVIĆ [32], post-WW2 housing design and production in Yugoslavia was the product of the dire circumstances that emerged after

the end of the war. The political leadership urgently needed to introduce measures to deal with the large-scale destruction of buildings and key infrastructure as well as set up the foundations for the revival of the devastated national economy. The initial strategy adopted for the renewal of infrastructure focused primarily on the clearance of the remains of the ruins and renovation of buildings in urban areas. In parallel, there was also a determination to introduce measures for the elevation of the devastated economy, in which industrialization was seen as the key mechanism for achieving economic development [33]. The expansion of industrial activity logically led to the growth of demand for housing for the industrial workforce. The two necessities (industrial growth and housing provision) were considered to be key priority areas for the development of the post-WW2 Yugoslav Federation. As such, public housing provision was, throughout the period, strongly linked to the state's industrialization policy [34]. Since the political regime of the time laid down the establishment of an egalitarian society as its fundamental doctrine, the fulfilment of existential needs was seen as a right which the state had to realize and the right to housing was officially defined as a "basic legal institution, providing one of the most important means of life to the working class" [35] (p. 142). The state thus undertook the task of providing dwellings for the employees of the newly constructed industrial complexes as well as for people working in the service sectors of the emerging industrial regions [34]. Le Normand [36] has confirmed that housing was one of the few consumer goods that was distributed through the workplace. According to Dragutinović et al. [37], the state was the only provider of new dwellings during the first post-war decade. And in order to realize the egalitarian doctrine, dwellings in large housing estates were allocated to all employees, i.e., functionaries of the Communist Party, middle class public employees (including university professors and medical doctors) and industrial workers, regardless of social status. Nedučin et al. [38] (p. 1854) have suggested that "as a result, the socio-economic composition of large housing estates in the CEE cities presented a spectrum of various statuses and professions, making social heterogeneity their most distinguishing characteristic."

## 2.2. Planning, Design and Construction

Alfirević, and Simonović Alfirević [32] report that post-war housing design and construction in Yugoslavia was implemented under the guidelines defined in the so-called "directed housing construction" doctrine which had been adopted by the federal authorities in Belgrade. The two authors explain that the "directed housing construction" regulation pursued the imperative to design and construct minimum-sized apartments so as to achieve the maximum use of built-up space. The "directed housing construction" doctrine was officially regulated by the first post-war Five Year Plan (1947–1952), the adoption of which laid the ground for the commencement of construction of standardized small-sized dwellings [33].

The first step in the process of providing new housing was the development of new design concepts and technology that would enable the speedy construction and provision of large quantities of dwellings required to meet the growing demand for housing for the industrial and service sector workforce. This required the adoption and application of new, more efficient systems, to replace the basic, much slower building systems that consisted mostly of classic supporting structures of casted concrete, either skeleton, frame or through supporting walls, in combination with brick layering [39]. This led to the introduction of foreign mass housing construction technologies which had been successfully utilized in other countries. According to Jovanović et al. [39], the technologies that were mostly used were prefabricated and semi-prefabricated building systems, and these were applied in the construction of the great majority of housing projects in Yugoslavia between 1960 and 1985.

While Jovanović et al. [39] consider the architectural plans that were mostly chosen through professional competitions to have produced some "quite progressive and ground-breaking designs", Milašinović Marić [33] observes, on the contrary, that the majority of post-WW2 mass-housing residential blocks were physically and visually monotonous. These were very often structures built using typical architectural design plans which may,

today, be identified in different places over the territory of the former Yugoslav federation. Milašinović Marić [33] (p. 31) characteristically describes such housing construction as: “Depersonalization was favored, collectivity was praised, and a strong social note was emphasized.” Similar views are expressed by Klemenčič [40], who explains that, when large housing estates emerged, Yugoslavia’s social regulations dealt with housing from two aspects of housing construction development, i.e., external and internal. Externally they addressed the issues of location, the size of residential buildings, basic services, and housing estate infrastructure. From the internal point of view, the only consideration was that apartments should provide living space for workers and their households. This view is supported by Mikoš, who emphasizes the fundamental doctrine of the state which sought to provide housing for all citizens, without much consideration being given to the quality of the apartments and buildings [41].

It has been explained that the first housing estates were intended for the labor force and were, as such, modest in terms of size, furniture and appearance. However, it is important to note that the federal authorities also adopted, the principles of residential neighborhood design for the process of urban planning which were formulated in the Athens Charter of the CIAM (les Congrès internationaux d’architecture moderne) [42,43]. One of the important characteristics of the CIAM model of the design of large housing estates, promoted Le Corbusier’s modernistic principles of residential neighborhood design, which centered on the location of apartment blocks in expansive green areas. The neighborhoods would be designed and constructed as separate urban entities, self-sufficiently equipped with the basic infrastructure and the most important social and commercial services, such as a kindergarten, healthcare center, post office, bank, grocery shop, etc. [35]. The construction of large residential complexes in the middle of large green open spaces constituted one of the most valued characteristics of post-WW2 mass housing [44].

### *2.3. Development of Post-WW2 Large-Scale Housing Estates in Slovenia*

During the period of rapid industrialization and urbanization mentioned above, there was a growing need, also in Slovenia, for a speedy housing construction in urban areas, especially in regional and industrial centers. In accordance with the paradigm of modernity and functionalism [42], there was an imperative to design high-rise residential buildings and concentrate all new housing construction on the designated land, so as to achieve maximum space utilization and density. The high pressure created by increasing numbers of migrants (also including those from other Republics of the former Yugoslavia) coming to work in urban and industrial areas only further justified the need for the densification of new mass housing developments [40,45].

The dwelling size limitations described above, which were determined at the federal level had to be, and were, fully respected in Slovenia, as recommended. In a discussion on the normative definition of socialist-era housing standards, Blejc [45] mentions an extensive study by the Construction Centre of Slovenia and the IMS Housing Centre in Belgrade from 1973 titled “Temporary Standard of Directed Housing Construction,” which was conducted for the purpose of defining what a standard home is and how large it should be, based on the number of household members. The study proposed the introduction of a unified housing standard intended to cover all types of housing (including single-family housing). Based on this study, the then Slovenian Republic-Level Secretary for Urban Planning, Boris Mikoš, gave the following instructions for the concrete implementation of these recommendations in Slovenia [41] (p. 10): “For the next few years, we must give priority to the construction of apartments that are not overly large, and to those with fewer rooms. This principle should be accepted regardless of the current housing structure, which in itself, would not require a reduction in the number of apartments with four or more rooms. However, given the acute social needs, such a measure is necessary. In this sense, it is therefore required to check all planned buildings that are awaiting construction and, if necessary, to adapt them accordingly.”



In addition to the recommendation that only apartments with fewer rooms be built, these instructions thus also required that corrections be made to projects already planned by drawing up new plans for apartments with fewer rooms. These recommendations effectively presented the basis for the planning and construction of large housing estates in Slovenia until the socialist period ended in 1991.

In Slovenia, during the first two post-war decades, a large number of housing estates were constructed in various parts of the country, particularly in the major urban areas and newly developed industrial centers. In the process, completely new parts of towns were formed partly due to natural factors (e.g., geographical location of mineral resources) but also in pursuit of the principle to ensure an even regional development [40].

The quality of housing produced during the post-WW2 period under the described conditions was described by Brezar [46] (p. 99) as follows: “Both [mass and single-family housing] are equally aggressive and equally presumptive in space so as to take advantage of proximity to communal infrastructure (e.g., roads) and urban centers. It is typical of both types not to follow any context. Individualism is exemplified in the detached family house, in the detached block or skyscraper, as much as in the detached neighborhood, lacking an edge, façade or ending. It ends “just like that”. None of them has a defined exterior, public or even urban space. In the case of neighborhoods, this is due to technocratic urbanism, dictated by crane rails, daylight standards, building technology, [planning] standards and traffic segregation./ . . . /Big size and extensive dispositions that pay no attention to human scale characterize the architecture of neighborhoods.”

These critical views are supported by a study on the state of post-WW2 large housing estates in Slovenia [16] which, among other conclusions, found that:

- there was no adequate organizational link between housing research work on the one hand, and planners, designers and architects on the other, at different levels in the planning process
- construction technology prevailed over urban and architectural design (i.e., strict restrictions on architectural design, excessive use of reinforced concrete structures),
- housing users were generally excluded from the planning process and their actual needs were neglected
- urban and architectural design standards were set primarily to achieve the most economical construction, at the expense of aesthetics and functionality (leading to inflexibility of housing, uniformity of housing estates, lack of identity, lack of sensitivity to the natural environment and traditional values),
- the role of the architect was, in most cases, subordinated to the achievement of the goals set by the political rulers.

With these major characteristics, the period of directed housing construction which marks the development and expansion of the large housing estate mass housing type came to an end when Slovenia gained independence and adopted new housing policies in 1991.

### 3. Post-Socialist Mass Housing in Slovenia

Upon becoming independent in 1991, Slovenia abandoned the socialist, planned economy political system and substituted it with a market economy system. The shift in the political system was, logically, accompanied by the introduction of new policies in all spheres of government, including housing. As was the case in many other former socialist countries [38], the shift to a market economy system was readily accepted by the citizens who, at the time, entertained high expectations of future prosperity. But the euphoria did not last long. In contrast to the previous regime, it was soon made clear by the government through the 1991 Housing Act, that the state was no longer responsible for providing housing for all. Having relieved the state of its previous obligation to provide housing for its citizens, the “enabling principle” was adopted as the basic mode for the implementation of measures aimed at achieving the country’s new housing policies. The adoption of the “enabling principle” meant that the state would, henceforth, introduce various mechanisms that would enable individuals to solve their housing problems on their own. Direct state

support would, henceforth, be available only to those groups of the population who were not capable, financially or otherwise, of solving their housing needs by themselves. The first post-socialist National Housing Programme (NHP), which was adopted by the government in 1995, thus defined the enabling principle as a “modern approach, adopted to replace the out-dated doctrine of housing provision” [47] (p. 5771). The document further clarifies that this approach was intended to achieve the de-bureaucratization of the housing sector and the replacement of previous administrative housing allocation processes, by measures necessary for the organization of a housing market and offering support to private initiatives. Among the major policy measures determined by the NHP, the most relevant to this discussion are:

- the establishment of partnerships between the public and private sectors,
- the provision of a legal and organizational framework for the coordinated operation of all actors in the housing field,
- encouraging and promoting the operation of the housing market and its positive effects on social and economic development.

Without delving into the details of the successes or failures of implementation of these measures, the most important thing to note here is that the abolition of the state’s previous role in providing mass housing and the introduction of a totally new housing policy effectively put an end to the construction of large housing estates. Instead, new typologies of collective housing construction began to emerge. The previous high-rise, high density apartment blocks built on greenfield land with ample open green areas (Figure 1) were soon to be replaced by new mass housing types characterized by lower-height apartment blocks with fewer housing units, i.e., with lower residential density.

The adoption of a market economy system also saw a departure of the CIAM models of housing construction which were replaced by new spatial planning doctrines which sought to put a halt to the previous greenfield housing construction practices and also sought to curb the outward expansion of urban areas in the form of suburbanization. The provision of mass housing complexes surrounded by greenery and fully equipped with basic social services was no longer a requirement. Instead, the new land use policy, as was elaborated in the Spatial Development Strategy of Slovenia [49], determined a preference for the concentration of housing construction and provision of communal and other services within existing centers: “Inside development in settlements shall be preferable to the expansion to new areas. Priority shall be given to a better exploitation and improved use of vacant and unsuitably exploited plots of land within settlements such as abandoned or inappropriately used sites, industrial complexes, etc.) [ . . . ]. Rationality of land use shall be achieved through the altered use of existing structures and building sites, the concentration of extensively used built areas, reconstruction, renovation, re-urbanisation, renewal, and rehabilitation of brownfields taking into consideration, in addition to the spatial objectives, also the opportunities for economic development and improved quality of living” [49] (p. 33). As a concrete example of the practical implementation of this new land use policy, the key urban planning document of Ljubljana (the capital city) provides: “In principle, housing construction within the existing settlement areas has priority over expansion into agricultural land or open space. Areas for new housing construction must be provided primarily in areas where the existing settlement can be concentrated, and through renovation or reconstruction within existing housing areas” [50] (p. 53). The document also determines as important goals the achievement of diversity of housing supply and housing types as well as a variety of living environments that correspond to the typologically differentiated structure of households.





(a)



(b)

**Figure 1.** (a) Example of a post-WW2 housing estate with an abundance of open green spaces Fužine Housing Estate—aerial view. Source: [48]; (b) Fužine Housing Estate—Typical example of post WW2 high-rise construction surrounded by open green spaces (photo: the authors).

The transition from socialist to market economy policies has resulted in several immediately noticeable changes in the nature and characteristics of post-socialist mass housing production. First, in contrast to the post-war era during which mass housing construction was the sole responsibility of the state (implemented through publicly owned construction companies) a new actor has appeared on the mass housing construction market. Private investors are actively involved in the production of multi-family housing, especially of the lower density category of mass housing neighborhoods. Second, the design of multi-family neighborhoods is comparatively much less complex since the key objective is to put up residential blocks in the space that is available for new construction while open green spaces and social services are no longer a mandatory constitutive part of neighborhood design. Third, the architectural design of the residential buildings has also considerably changed.



The post-Communist multifamily residential block is generally lower in height (usually between 3–5 floors) and new building designs (comparatively more pleasant to look at) have emerged (Figures 2 and 3). Fourth, with an average size of 75 m<sup>2</sup>, the post-socialist multifamily dwellings (especially those constructed by private investors) are comparatively larger than those of the post-WW2 housing estates whose average size is 55 m<sup>2</sup> [51]. In addition to the comparatively larger size of dwellings, the housing constructed by private investors is, generally, of higher quality also in terms of the building materials used.



**Figure 2.** Example of a post-socialist multifamily housing neighborhood—state funded, not-for-profit rental housing (photo: the authors).

In sum, there has been a diversification in building types and settlement patterns and also some improvement in housing standards may be noticed. There has also been a liberalization of the housing market and a diversification of housing choices. This, in the long run, may be expected to contribute to an increase in residential mobility, the level of which is currently quite low [52].



**Figure 3.** Typical example of a post-socialist multifamily housing neighborhood—private investor (photo: the authors).

#### 4. Discussion

The construction of large residential complexes with the use of prefabricated building elements to solve the housing needs of the labor force is, undoubtedly, one of the most important characteristic features of post-WW2 development in Slovenia. Through the application of the principles of the CIAM movement in the designing of mass housing estates characterized by the strict functional segregation of residential areas and settling residents in high-rise housing blocks surrounded by expansive green spaces was seen as a symbol of modernity that would result in the improvement of citizens' housing conditions. Departing from a situation of ruin caused by the War and a critical shortage of adequate housing, the construction of mass housing complexes did indeed initially result in the improvement of living conditions. However, several weaknesses of post-WW2 large housing estates soon began to be observed.

First, as was noted by Kristiánová [44] the concept of large-scale socialist housing estates located in broad green open spaces also had failings and shortcomings. Already by the end of the 1950s, urban sociologists started to voice their criticisms of such housing solutions. Jacobs [53] for example, described them as settlements with a sterile atmosphere, rigid aesthetics and inflexible monofunctionality, repulsive to the residents and inappropriate for establishing a local community. Musterd [11] appears to somehow confirm this criticism with the argument that large housing estates offer only a modest effect on social opportunities within the neighborhood. Indeed, other studies [54] found that a large majority of people living in large housing estates in Slovenia would prefer to live in their own house if they had that opportunity. A study by Musterd and van Kempen [55] also revealed that a large share of residents of large housing estates actually aspire to leave these residential neighborhoods as soon as they can. These shortcomings of the post-WW2 housing estates have been further accentuated with the emergence of new types of post-socialist multifamily housing types, as the comparative analysis below demonstrates.

##### 4.1. Post-WW2 Large Housing Estates versus Post-Socialist Multifamily Housing Types

The comparative analysis of post-WW2 and post-socialist mass housing typologies focuses on the key aspects of each of the housing typologies that have been discussed above. These are: political ideology, neighborhood planning system, the architectural design of

residential buildings, construction methods, financing, resident composition, quality of housing and housing standards (as summarized in Table 1).

**Table 1.** Summary of the key characteristics of post-WW2 and post-socialist mass housing typologies.

	Post-WW2	Post-Socialist
Political ideology	<ul style="list-style-type: none"> <li>- housing for all—housing a right to be guaranteed by the state</li> <li>- housing provision a prerequisite for industrial development</li> <li>- egalitarianism</li> </ul>	<ul style="list-style-type: none"> <li>- enabling principle—housing problem to be solved by individuals on their own</li> <li>- state support provided only for those that cannot cater for themselves</li> <li>- free market, free choice</li> </ul>
Neighborhood planning	<ul style="list-style-type: none"> <li>- CIAM model—location of mass housing buildings in expansive green areas</li> <li>- greenfield land use</li> <li>- dispersed development at urban fringes</li> <li>- provision of basic social and commercial services within the neighborhood</li> </ul>	<ul style="list-style-type: none"> <li>- concentration/densification to achieve maximum use of available land in built-up areas</li> <li>- infill development</li> <li>- brownfield land use within existing urban fabric</li> <li>- greenery and social service provision no longer a requirement</li> </ul>
Quality of construction	<ul style="list-style-type: none"> <li>- state directed housing construction</li> <li>- monopolistic state-owned construction companies</li> <li>- industrialized construction techniques with prefabricated elements</li> <li>- cheaper/poor quality building materials</li> <li>- low energy efficiency of residential buildings</li> </ul>	<ul style="list-style-type: none"> <li>- free market production</li> <li>- competitive housing construction companies</li> <li>- in situ construction methods</li> <li>- diversity of housing types</li> <li>- better quality building materials</li> <li>- higher energy efficiency in compliance with prescribed building standards</li> </ul>
Quality of architectural design	<ul style="list-style-type: none"> <li>- monotonous architectural design</li> <li>- high-rise, high-density buildings</li> </ul>	<ul style="list-style-type: none"> <li>- more attractive architectural designs</li> <li>- more attractive building designs</li> <li>- low-rise, low-density buildings</li> </ul>
Housing standard	<ul style="list-style-type: none"> <li>- generally low</li> <li>- restricted dwelling sizes</li> <li>- minimum usable space</li> <li>- over crowdedness</li> </ul>	<ul style="list-style-type: none"> <li>- comparatively higher</li> <li>- larger dwellings</li> <li>- more floor space per person</li> </ul>

#### 4.1.1. Political Ideology

While it may be argued that political ideology laid the foundation for the development of post-WW2 large housing estates in Slovenia (as was the case in many other CEE countries), this aspect played a much less important role in the development of post-socialist multifamily housing types. The post-WW2 doctrine which defined housing as a right that the state was obliged to fulfil for all citizens was no longer upheld after the termination of the Communist political system. Upon the transition to a market economy system, the enabling principle was adopted, which reduced the role of the state to providing support only to those categories of the population that may not be able to cater for their own housing needs. Also, the objective to provide housing for workers as a prerequisite for industrial development in order to rebuild the national economy, following the destruction caused by the war, had been more or less achieved during the first two decades of the post-war period. Another consequence of the adoption of a market economy system was the abandonment of the political ideology that sought to establish an egalitarian society in which all existential needs would be equally fulfilled for all citizens. On the contrary, the post-socialist era introduced a free-market system that allowed market and economic competitiveness, enabled free choice and, consequently, the emergence of social diversity. To sum up, while the development of post-WW2 large housing estates was entirely based

on and guided by the political ideologies of the time, the development of post-socialist multifamily residential types has proceeded under a more liberal political system in which the state does not impose or dictate specific terms of the operation of the free market.

#### 4.1.2. Neighborhood Planning

Notwithstanding the various shortcomings of the post-WW2 large housing estates identified in this study, it may be argued that their initial CIAM based planning concept that created residential neighborhoods in the middle of expansive green areas still remains their most important and most positive characteristic. As rightly noted by Milašinović Marić [33], the uncomfortable and cramped living quarters would be compensated for by the generous public green areas in the neighborhood. However, in spite of the general consensus that the large expanses of open spaces present, arguably, the most valued characteristic of post-WW2 housing estates, these have been found, in some cases, to be a source of various problems for the residents. Surveys conducted in various post-WW2 housing estates in Slovenia [56–60] have established that public spaces within these neighborhoods are in many instances not properly maintained. There are housing estates in which the public open spaces continue to be neglected, projecting an unpleasant image to both the residents of those neighborhoods and other observers. In one of the surveys, the residents of a certain estate indicated that green spaces and children's playgrounds were the most disliked aspect of their residential environment [61].

In addition to the poor maintenance of public spaces, it was also found that the lack of parking spaces in post-WW2 housing estates is one of, if not the most serious and certainly most difficult problem to solve. The inadequacy of parking facilities is, of course, the direct result of the planning practices of the time which, while guaranteeing an abundance of open space and greenery, paid less attention to the provision of sufficient parking capacities. It is important to note, however, that the level of car ownership has significantly increased in the decades following the adoption of a market economy system. And while the parking problem can be very efficiently solved by the construction of underground parking garages, this is a highly costly investment that may never be realized in any of the post-WW2 housing estates.

On the other hand, the spatial planning of post-socialist multifamily neighborhoods is dictated by the land use regulations that seek to achieve maximum use of available land within built-up areas. The dispersed greenfield development of post-WW2 housing estates has been replaced by the post-socialist land use policies of concentration and densification of the built-up area. The majority of post-socialist multifamily residential neighborhoods are infill developments that have little or no green space at all. Worse still, some studies [44] have cautioned about the growing threat to open green spaces of post-WW2 housing estates. These spaces are increasingly seen as "vacant" pieces of land that could be exploited for the construction of new residential blocks in accordance with the post-socialist concentration/densification land use policies. Furthermore, while the post-WW2 housing estates were designed to include also the basic social and commercial services within the neighborhood, this is no longer a requirement during the multifamily neighborhood design process. The absence of public open spaces in the newly built post-socialist multifamily residential neighborhoods is, obviously, a major shortcoming of these new developments. Public spaces in large housing estates are areas that play a variety of roles through their various uses and which, due to their design aspects, may impact on the image and the quality of life in the estate. These areas provide an intermediary link between the dwelling and the outer world. In fact, they represent places of casual interaction between residents. As common facilities intended to provide practical advantages and a place for residents to become mutually acquainted, they are normally planned to create a sense of community for their users. Social contact may occur in entrance courts, community buildings, community spaces, playgrounds, and other places within the estate. Other such spaces may include benches and canopy trees for shade and other social activities. These areas provide residents with a place to relax and converse with



neighbors. In this way, public space can be seen as a “social space” [62]. Well-planned, well-organized and well-maintained social spaces play a vital role in the development of a good residential environment and may contribute greatly to the creation of a sense of neighborhood or community cohesion among the residents [63].

Furthermore, there is an important downside that needs to be noted in this regard. Since post-socialist land use policies seek to achieve optimal utilization of the available land with no requirement to provide in-between open green spaces, residential blocks in the post-socialist multi-family residential neighborhoods are often put up too close to one another so much that one gets an uncomfortable feeling that the residents of one block may have a clear view of what the residents of the adjacent block are having for lunch.

#### 4.1.3. Quality of Construction

The structural quality of residential buildings of post-WW2 housing estates is another aspect that compares negatively with post-socialist multifamily housing developments. There are several important aspects to note in this regard. Post-WW2 mass housing construction was entirely directed and solely funded by the state. As such, all mass housing building activity was carried out by state-owned construction companies which enjoyed a state-sponsored monopolistic status. In the absence of market competition in the construction industry, whatever was produced was acceptable for the labor force. The key objective was to provide housing, irrespective of quality of construction. As has already been explained, all construction was realized through the use of industrialized construction techniques with prefabricated elements and using cheaper, poorer quality building materials. In the case of post-socialist multifamily housing, on the other hand, the large majority of construction has been funded and produced by private investors operating under free market conditions, with the construction carried out by competitive house-building companies. As would be expected, market competition requires that products are of a good quality and this has, indeed, resulted in a significant improvement in the quality of construction of multifamily housing. In situ construction methods now dominate while the use of prefabricated panels in the construction of multifamily housing has almost entirely ceased.

It has been argued [38] that the low-cost construction methods and poor quality of materials used for producing prefabricated buildings later generated technical problems that, by the end of the 1980s, manifested themselves through partial physical deterioration and low energy efficiency. The work of van Kempen et al. [25] showed that a large proportion of post-WW2 mass housing exhibits signs of decay, especially in buildings where poor-quality building materials were used. Physical obsolescence is especially associated with structural defects and poor-quality building materials used for the mass construction of large residential buildings at the lowest possible cost. The use of poor-quality building materials also has serious defects related to high energy consumption due to a lack of proper heat insulation during construction. Poor energy performance of post-WW2 mass residential buildings contributes a considerable share of the running costs covered by residents [64]. Improving energy efficiency and the removal of harmful building materials, such as asbestos-cement roofing, were two of the key rehabilitation recommendations produced by the in-depth study on large housing estates in Slovenia [16]. Post-socialist mass housing construction, on the other hand, is known to utilize comparatively better-quality building materials and all new construction (for residential or other purposes) is required by law to meet prescribed energy saving and heat conservation standards [65].

#### 4.1.4. Quality of Architectural Design

With regard to the quality of design of residential buildings, previous studies have often identified flaws related to the residents' dissatisfaction with the uninteresting or monotonous appearance of buildings [66–68]. The monotonous appearance of post-WW2 high-rise, high-density residential buildings was the inevitable consequence of

state-dictated housing design regulations which also strongly impacted on the architectural design of the buildings.

Monotonous facades and unattractive, poorly or overly modestly designed entrances to multi-family residential blocks are also a common feature in Slovenia's large housing estates [59,60]. In connection with the unattractive image of post-WW2 mass residential buildings, various studies have come across another problem that has been commonly observed concerning the uncoordinated execution of renewal work by individual apartment owners, on the "their" façade section of the multi-family building. In an effort to improve the outward image of their dwelling, individual apartment owners have, in many estates, embarked on a non-uniform implementation of structural changes on the façade which normally include the erection of glass enclosures on the balconies (sometimes also with the aim to "expand" the living space), installing pergolas on the balconies, random, unplanned, haphazard installation of air-conditioning systems on the façade wall, painting window frames and balcony railings in various colors, etc. [59,69]. Such interventions have usually resulted in the creation of nonaesthetic facades that are unpleasant to look at.

In comparison, post-socialist multifamily residential buildings exhibit better architectural designs and are generally more pleasant to view. They are lower in height and horizontally less expansive, which also helps to avoid the creation of monotonous facades.

#### 4.1.5. Housing Standards

One of the major shortcomings of large housing estates is the inadequate size of the dwellings. The tendency to minimize the surface area of dwellings resulted in the production of apartments that were often overcrowded and, as such, offered poorer living conditions [70]. The consequences of the post-WW2 policies that required that only apartments with fewer rooms be built are today reflected in inadequate housing conditions, which in many ways mean lower quality of living for residents of housing estates, and in some cases even overcrowding. In Slovenia, the average usable floor space per person in large housing estate dwellings is 27 m<sup>2</sup>, compared to an average of 35 m<sup>2</sup> per person in more developed Western European countries [71]. As a result, homes do not fully provide the desired housing standards for households, either in terms of surface area or number of rooms. Sendi's [71] study also found that a significant number of Slovenians lived in homes that may be classified as overcrowded according to international standards [72,73]. In comparison, post-socialist multifamily housing construction, on the other hand, generally produces larger dwellings with more usable floor space per person and thus provides a higher dwelling standard. Overcrowded apartments and the high building density of residential buildings in post-WW2 large housing estates are, in particular, one of the most important causes of dissatisfaction among residents. According to Rowlands et al. [14] overcrowding is often the key reason for residents to think about relocation and even for eventual departures from large housing estates. Indeed, according to Fikfak and Zbašnik-Senegačnik [74], there is a growing number of people in Slovenia who are opting for life in low-rise, low-density multi-family apartment buildings which offer advantages similar to those of single-family houses in terms of available floor space area per person and a higher housing standard, while at the same time also providing the benefits of collective construction (security, organized parking, common communal infrastructure, etc.).

## 5. Conclusions

This literature review has shown that post-WW2 large housing estates were planned and developed on the basis of a political doctrine which sought to provide housing for all citizens. The most important goal was to ensure that people of working age had a job and an apartment, no matter the quality. Notwithstanding the merits of the CIAM models of planning of mass housing neighborhoods, a variety of problems soon emerged, and the critical views aired, by urban sociologists especially, prompted policy makers to devise and implement measures for their rehabilitation in an attempt to prevent them from becoming undesirable.

In terms of quality, the key difference established by the comparative analysis between the post-WW2 and post-Communist mass housing neighborhoods is that the latter are relatively smaller, both in terms of built-up space and density of construction. It is also common to find new multi-family housing types built as freestanding, detached buildings that are not part of a specifically planned and connected system of residential buildings. All this means that the term “large housing estate” as was previously used to describe post-WW2 collective housing neighborhoods has also undergone major transformation.

Another important difference between the two types relates to the quality of building materials. While post-WW2 construction is known to have utilized mostly cheaper (and in many cases also hazardous) materials, post-socialist multifamily housing is normally constructed with better building materials, taking into consideration also energy conservation objectives. Generally, the post-socialist housing neighborhoods thus offer a comparatively better housing standards.

The findings of this analysis lead to several questions that need to be seriously considered. First, what has been the impact of the new multi-family housing types that have emerged in the post-socialist period on those who continue to live in the post-WW2 large housing estates? In other words, do the residents of high-density, lower-standard post-WW2 housing estates consider themselves disadvantaged in comparison with the residents of the lower-density, higher-standard post-socialist multifamily residential neighborhoods? Second, have the post-socialist mass housing types triggered changes in the attitudes of residents of post-WW2 large housing estates with regard to their expectations and levels of satisfaction with their living environment? More concretely, have there been changes in the mindset regarding what people, generally, perceive as quality housing and quality living? These important questions cannot be responded to through a comparative analysis focused on the review of the development of the two housing typologies. There is, therefore, a need to conduct a thorough empirical study that will focus on investigating the impact of the evolution of multifamily mass housing on the attitudes and values of the residents of post-WW2 large housing estates.

As it accounts for 36% of the total housing stock in Slovenia [51], it is crucial to recognize that post-WW2 housing estates constitute a very important segment of housing provision and will continue to play an important role as one of Slovenia’s major housing typologies (single family housing accounts for 61%, mixed use 3%). In order for them to be able to continue to successfully perform that role, they need to be granted priority consideration as a key public housing policy issue. To this effect, measures need to be taken to ensure their elevation to such quality as may be able to minimize, as much as possible, the comparative advantages of the post-socialist mass housing developments. Failure to achieve what Šimáček et al. [75] have called the “humanization” of large housing estates may result in an increase in the departure of the higher-income earners from these areas to more preferable residential locations. Such a course of events may eventually lead to the concentration of low-income residents in the post-WW2 large housing estates, followed at a later stage by all the all too well-known negative attributes of such socio-economic residential segregation. As Trumbull [22] (p. 15) rightly observed, the rapid adaptation of post-socialist cities to the external economic forces of the global market has led to “an internal shift in values and a significant rise in urban residents’ expectations of what are desirable, and acceptable, residential living conditions. Indeed, improvements in housing conditions are almost unanimously viewed as one of the fundamental steps for improving an urban resident’s standard of living.” The underlying thesis here is that the transition from a planned to a market economy system may have led to changes in values and attitudes, which may be also reflected in residents’ housing preferences. The observed gradual departure of higher-income households from post-WW2 is a clear indication that some of the residents aspire to live in better quality housing and enjoy a better housing standard.

Although this study has focused primarily on the evolution of multifamily housing in Slovenia, it is useful to acknowledge that similar developments have occurred in the

recent decades also in other post-socialist countries. One of the commonly discussed issues in the literature in this regard is the desire of the residents of post-WW2 housing estates to improve the exterior image of their housing. In the case of Romania, for example, Marin et al. [76] describe individual interventions (piecemeal thermal insulation of the façades, changing windows and doors, closing off balconies with glass additions) which are very similar to those that have been undertaken in Slovenia, with the intention to improve sections of the facade belonging to a particular apartment. The contribution by Bouzarovski et al. [77] demonstrably highlights the problem of inadequate dwelling floor-space in post-WW2 housing estates. Their comparative study on Skopje (Macedonia) and Tbilisi (Georgia), which examined the growing phenomenon of apartment building extensions, established that these interventions on the facades of multi-family buildings were being made for the purpose of enlarging dwelling space in order to improve the living conditions of the occupants. Hirt and Petrovič [78] discuss the differentiation in the quality of multi-family housing and forms of neighborhood planning that emerged in Belgrade (Serbia) after the shift to a market economy. They describe a notable increase in the occurrence of what they call “gated housing” multifamily developments, as opposed to the previous open-access mass housing neighborhood types. Residential differentiation is also the subject of Spevec and Klempić Bogadi’s [79] contribution which addresses the new tendencies in residential segregation in Croatian cities. The study by Kristiánová [44] focuses on the vulnerability of open public spaces in post-WW2 housing estates in Slovakia, which are increasingly seen by potential investors as sites available for the realization of the densification policies that are being promoted by the new urban land-use policies. The densification of the existing urban fabric has also been observed to be intensive in Slovakia by Šuška and Stasiková [80]. In the discussion on the future of large housing estates in Budapest (Hungary), Benkő [81] poses some important questions about the values of large, prefabricated housing estates; what they previously were, what they could be, what elements of the existing built environment are likely to disappear and what needs to be adapted in the transition process? The tone of these questions regarding the values of the past, present and future of post-WW2 housing estates is quite similar to that of the questions we have raised above in the case of Slovenia.

While this is not an attempt to deduce any possible convergence between CEE countries, recognizing that similar developments or activities are taking place in various countries with a historically similar political heritage may be useful in the development of knowledge and search for efficient solutions to similar problems. Such an awareness may provide a twofold benefit: (a) learning from foreign experiences to avoid or deter the further development of trends that may be detrimental to the well-being of the residents of large housing estates, and (b) adopting and adapting good practice approaches and solutions that have been found to be efficient in dealing with specific problems in other countries in the region.

Meanwhile, the key recommendation of this study is that policy makers need to urgently adopt and implement suitable policies that will make post-WW2 housing estates more attractive to live in and thus prevent the potential future occurrence of negative and undesirable developments. The first and most important requirement in this regard is that the government prepares and adopts a National Strategy for the Rehabilitation of large-scale housing estates which will present the basis for the formulation of appropriate policies. The strategy should, above all, clearly define the principle objectives of rehabilitation and also specify the bodies/institutions, both state and private, which would carry the responsibility for the implementations of specific policy objectives. The improvement of living standards, preservation of the positive characteristics of post-WW2 housing estates (especially the open green areas) and the improvement of the energy efficiency of residential buildings are the most important goals that such a rehabilitation strategy should seek to achieve.

**Author Contributions:** Conceptualization: R.S.; writing—original draft preparation, R.S. and B.K.; funding acquisition, R.S. and B.K. Both authors have read and agreed to the published version of the manuscript.



**Funding:** The research was financially supported by ARRS (Javna Agencija za Raziskovalno Dejavnost RS), grant number J5-2569.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

- Kleinman, M.; Matznetter, W.; Stephens, M. (Eds.) *European Integration and Housing Policy*, 1st ed.; Routledge: London, UK, 1998; ISBN 0415170265.
- Diacon, D. *Deterioration of the Public Sector Housing Stock*, 1st ed.; Avebury: Aldershot, UK, 1991.
- Kintrea, K. Policies and Programmes for Disadvantaged Neighbourhoods: Recent English Experience. *Hous. Stud.* **2007**, *22*, 261–282. [\[CrossRef\]](#)
- Kährik, A.; Tammaru, T. Soviet prefabricated panel housing estates: Areas of continued social mix or decline? The case of Tallinn. *Hous. Stud.* **2010**, *25*, 201–219. [\[CrossRef\]](#)
- Emms, P. *Social Housing: A European Dilemma*, 1st ed.; School for Advanced Urban Studies: Bristol, UK, 1990.
- Hess, D.B.; Tammaru, T.; van Ham, M. (Eds.) *Housing Estates in Europe: Poverty, Ethnic Segregation and Policy Challenges*, 1st ed.; Springer Nature: Cham, Switzerland, 2018.
- Wassenberg, F. Large social housing estates: From stigma to demolition? *J. Hous. Built Environ.* **2004**, *19*, 223–232. [\[CrossRef\]](#)
- Pearl, M. *Social Housing Management: A Critical Appraisal of Housing Practice*, 1st ed.; Palgrave Macmillan: London, UK, 1997.
- Shaw, I.; Lambert, S.; Clapham, D. (Eds.) *Social Care and Housing: Research Highlights in Social Work*, 1st ed.; Jessica Kingsley Publishers: London, UK, 1998.
- Anderson, I.; Sim, D. *Social Exclusion and Housing: Context and Challenges*, 1st ed.; The Chartered Institute of Housing: Coventry, UK, 2000.
- Musterd, S. Residents views on social mix: Social mix, social networks and stigmatisation in post-war housing estates in Europe. *Urban Stud.* **2008**, *45*, 897–915. [\[CrossRef\]](#)
- Kandjani, E.M.; Hofbauer, C.K.; Meuwissen, J.M.C. Influence of the regeneration of large housing estates on sustainable urban living conditions—Benefits or threats? *Athens J. Soc. Sci.* **2015**, *2*, 199–212. [\[CrossRef\]](#)
- Turkington, R.; Van Kempen, R.; Wassenberg, F. *High-Rise Housing in Europe: Current Trends and Future Prospects*, 1st ed.; Delft University Press: Delft, The Netherlands, 2004.
- Rowlands, R.; Musterd, S.; Kempen, V.R. (Eds.) *Mass Housing in Europe: Multiple Faces of Development, Change and Response*, 1st ed.; Palgrave Macmillan: Basingstoke, UK, 2009.
- Wassenberg, F. Demolition in the Bijlmermeer: Lessons from transforming a large housing estate. *Build. Res. Inf.* **2011**, *39*, 363–379. [\[CrossRef\]](#)
- Andrews, K.D.; Sendi, R. Large housing estates in Slovenia: A framework for renewal. *Eur. J. Hous. Policy* **2001**, *1*, 233–255. [\[CrossRef\]](#)
- Power, A. High-rise estates in Europe: Is rescue possible? *J. Eur. Soc. Policy* **1999**, *9*, 139–163. [\[CrossRef\]](#)
- Andersen, H.S. Can deprived housing areas be revitalised? Efforts against segregation and neighbourhood decay in Denmark and Europe. *Urban Stud.* **2002**, *39*, 767–790. [\[CrossRef\]](#)
- Gorczyca, K.; Kocaj, A.; Fieden, L. Large housing estates in Poland—A missing link in urban regeneration? *Eur. Plan. Stud.* **2020**, *28*, 2020–2039. [\[CrossRef\]](#)
- Somerville, P.; Van Kempen, R.; Van Beekhoven, E. The decline and rise of neighbourhoods: The importance of neighbourhood governance. *Eur. J. Hous. Policy* **2009**, *9*, 24–44. [\[CrossRef\]](#)
- Warchalska-Troll, A. Progress of rehabilitation of large housing estates in Katowice (Poland). *Hung. Geogr. Bull.* **2013**, *62*, 102–112.
- Trumbull, N.S. Restructuring socialist housing estates and its impact on residents' perceptions: "Renovatsiia" of khrushchevki in St. Petersburg, Russia. *GeoJournal* **2014**, *79*, 495–511. [\[CrossRef\]](#)
- Prak, N.L.; Priemus, H. A model for the analysis of the decline of postwar housing. *Int. J. Urban Reg. Res.* **1986**, *10*, 1–7. [\[CrossRef\]](#)
- Schwedler, H.-U. (Ed.) *Environmental Improvements in Prefabricated Housing Estates*, 1st ed.; European Academy of the Urban Environment: Berlin, Germany, 1996.
- Van Kempen, R.; Dekker, K.; Hall, S.; Tosics, I. *Restructuring Large Housing Estates in Europe: Restructuring and Resistance Inside the Welfare Industry*, 1st ed.; The Policy Press: Bristol, UK, 2005.
- Gruis, V.; Tsenkova, S.; Nieboer, N. *Management of Privatised Housing: International Policies & Practice*, 1st ed.; Wiley-Blackwell Publishing: Chichester, UK, 2009.
- Ilmurzynska, K. Participation and spatial transformation in large housing estates in Poland: Case study of Ursynów Północny. *Urban Dev. Issues* **2018**, *60*, 55–65. [\[CrossRef\]](#)
- Benkő, M.; Ball, R.; Hory, G. Participatory place-making in the renewal of post-Communist large prefabricated housing estate. *J. Place Manag. Dev.* **2018**, *11*, 223–241. [\[CrossRef\]](#)

29. Clark, W.A.V.; Dielman, F.M. *Households and Housing: Choices and Outcomes in the Housing Market*, 1st ed.; The State University of New Jersey, Center for Urban Policy Research—Rutgers: New Brunswick, NJ, USA, 1996.
30. Priemus, H.; Metselaar, G. Urban renewal policy in a European perspective. *Neth. J. Hous. Built Environ.* **1993**, *8*, 447–470. [\[CrossRef\]](#)
31. Szafrńska, E. Transformations of large housing estates in Central and Eastern Europe after the collapse of communism. *Geogr. Pol.* **2015**, *88*, 621–648. [\[CrossRef\]](#)
32. Alfirević, Đ.; Simonović Alfirević, S. The “socialist apartment” in Yugoslavia: Paradigm or tendency? *Spatium* **2018**, *40*, 8–17. [\[CrossRef\]](#)
33. Milašinović Marić, D. Housing development in the 1950s in Serbia: Typical examples of residential blocs built in Belgrade. *Spatium* **2012**, *28*, 30–36. [\[CrossRef\]](#)
34. Musil, J. Housing policy and the sociospatial structure of cities in a socialist country: The example of Prague. *Int. J. Urban Reg. Res.* **1987**, *11*, 27–36. [\[CrossRef\]](#)
35. Krstić, I. The housing policy in Yugoslavia. In *We Have Built Cities for You: On the Contradictions of Yugoslav Socialism*, 1st ed.; Knežević, V., Miletić, M., Eds.; Center CZKD: Belgrade, Serbia, 2018; pp. 137–153.
36. Le Normand, B. The house that socialism built: Reform, consumption, and inequity in postwar Yugoslavia. In *Communism Unwrapped: Consumption in Cold War Eastern Europe*, 1st ed.; Bren, P., Neuburger, M., Eds.; Oxford University Press: Oxford, UK, 2012; pp. 351–373.
37. Dragutinović, A.; Pottgiesser, U.; De Vos, E.; Melenhorst, M. Modernism in Belgrade: Classification of Modernist Housing Buildings 1919–1980. In Proceedings of the IOP Conference Series: Materials Science and Engineering, Prague, Czech Republic, 12–16 June 2017; Volume 245. [\[CrossRef\]](#)
38. Nedučin, D.; Škorić, M.; Krklješ, M. Post-socialist development and rehabilitation of large housing estates in Central and Eastern Europe: A review. *Teh. Vjesn.* **2019**, *26*, 1853–1860. [\[CrossRef\]](#)
39. Jovanović, J.; Grbić, J.; Petrović, D. Prefabricated construction in former Yugoslavia: Visual and aesthetic features and technology of prefabrication. In *45+: Post-War Modern Architecture in Europe*, 1st ed.; Herold, A., Stefanovska, B., Eds.; Institut für Stadt- und Regionalplanung: Berlin, Germany, 2012; pp. 176–187.
40. Klemenčič, T. *Stanovanjsko Gospodarstvo*, 1st ed.; Gospodarski vestnik: Ljubljana, Slovenia, 1985.
41. Mikoš, B. Referat. In *Aktualni Problemi Graditve Stanovanj: Zbrano Gradivo Posvetovanja v Kranju 12. Junija 1973: Posvetovanje o Aktualnih Problemih Graditve*; Zveza Gradbenih Inženirjev in Tehnikov Slovenije: Ljubljana, Slovenia, 1973.
42. Monclús, J.; Medina, C.D. Modernist housing estates in European cities of Western and Eastern Blocs. *Plan. Perspect.* **2016**, *31*, 533–562. [\[CrossRef\]](#)
43. Horgan, D. A Humane Brutalism: Yugoslavia’s Ambitions of Housing for All. Available online: <https://www.strath.ac.uk/engineering/architecture/aboutthedepartment/ourblog/ahumanebrutalismyugoslaviasambitionofhousingforall/> (accessed on 17 August 2021).
44. Kristiánová, K. Post-socialist transformations of green open spaces in large scale socialist housing estates in Slovakia. *Procedia Eng.* **2016**, *161*, 1863–1867. [\[CrossRef\]](#)
45. Blejč, M. *Metodologija Ugotavljanja Dolgoročnih Stanovanjskih Potreb v Občinah z Dolgoročno Projekcijo Stanovanjskih Potreb v SRS za Obdobje 1986–2000*, 1st ed.; Urban Planning Institute of the Socialist Republic of Slovenia: Ljubljana, Slovenia, 1984.
46. Brezar, V. Stanovanjska gradnja v Sloveniji včeraj in danes. *Urbani Izziv* **1995**, *28/29*, 98–108. [\[CrossRef\]](#)
47. Ministry of the Environment and Physical Planning. *Draft National Housing Programme*, 1st ed.; Government Printers: Ljubljana, Slovenia, 1995.
48. Mobilni GIS Portal. Available online: <https://gis.iobcina.si/> (accessed on 8 September 2021).
49. Ministry of the Environment, Spatial Planning and Energy. *Spatial Development Strategy of Slovenia*, 1st ed.; Government Printers: Ljubljana, Slovenia, 2004.
50. Ljubljana Municipality. *Municipal Spatial Plan of Ljubljana*, 1st ed.; Ljubljana Municipality: Ljubljana, Slovenia, 2010.
51. Statistical Office of the Republic of Slovenia. *Ljudje, Družine, Stanovanje. Register Census 2011*, 1st ed.; Statistical Office of the Republic of Slovenia: Ljubljana, Slovenia, 2012.
52. Sendi, R. Homeownership in Slovenia: Searching for an alternative theory on its excessive growth. *Urbani Izziv* **2017**, *28*, 135–146. [\[CrossRef\]](#)
53. Jacobs, J. *The Death and Life of Great American Cities*, 1st ed.; Random House: New York, NY, USA, 1961.
54. Kos, D. *Predstavitev Rezultatov Javnomnenjskih Raziskav o Rezidencialnih Aspiracijah*, 1st ed.; Urban Planning Institute of the Socialist Republic of Slovenia: Ljubljana, Slovenia, 1984.
55. Musterd, S.; van Kempen, R. *Large-Scale Housing Estates in European Cities: Opinions and Prospects of Inhabitants*, 1st ed.; Utrecht University, Faculty of Geosciences, Urban and Regional Research Centre Utrecht: Utrecht, The Netherlands, 2005.
56. Sendi, R. Condominium housing in Slovenia: Problems of management, improvement and renewal. In *Housing in Constant Evolution: Proceedings*, 1st ed.; Seljak, I., Ed.; Faculty of Architecture: Ljubljana, Slovenia, 2001; pp. 1–15.
57. Sendi, R.; Andrews, K.D.; Šuklje Erjavec, I.; Cotič, B.; Tominc, B.; Višnar, K.; Bizjak, I.; Wollrab, M.; Kos, D.; Trček, F.; et al. *Prenova Stanovanjskih Sosesk v Ljubljani*, 1st ed.; Urban Plannin Institute of the Republic of Slovenia: Ljubljana, Slovenia, 2004.

58. Sendi, R. The refurbishment of multistorey housing: Social, legal and financial conditions—The case of Slovenia. In *Immobilienforschung in Mittel-Ost- und Südost-Europa: Tagungsband (Real Estate Research in Central Eastern and South Eastern Europe: Proceedings)*, 1st ed.; Forschungsgesellschaft für Wohnen, Bauen und Planen: Vienna, Austria, 2004; pp. 111–117.
59. Sendi, R.; Černič Mali, B.; Goličnik, B.; Tominc, B.; Mujkič, S. *Prenova Stanovanjskih Sosesk Planina: Končno Poročilo*, 1st ed.; Urban Planning Institute of the Republic of Slovenia: Ljubljana, Slovenia, 2009.
60. Černič Mali, B.; Sendi, R.; Filipovič Hrast, M.; Boskič, R.; Goršič, N.; Zaviršek Hudnik, D. *Large Housing Estates in Slovenia: Overview of Developments and Problems in Ljubljana and Koper: Restate Report 2g*, 1st ed.; Utrecht University, Faculty of Geosciences: Utrecht, The Netherlands, 2003.
61. Černič Mali, B.; Sendi, R.; Filipovič Hrast, M.; Boškič, R.; Goršič, N. *Large Housing Estates in Ljubljana and Koper, Slovenia: Opinions of Residents on Recent Developments, Restate Report, 4g*, 1st ed.; Utrecht University, Faculty of Geosciences: Utrecht, The Netherlands, 2005.
62. Madanipour, A. Marginal public spaces in European cities. *J. Urban Des.* **2004**, *9*, 267–286. [[CrossRef](#)]
63. De Chiara, J.; Paneiro, J.; Zelnik, M. *Time-Saver Standards for Housing and Residential Development*, 1st ed.; McGraw Hill: New York, NY, USA, 1995.
64. Högborg, H.; Lind, H.; Grange, K. Incentives for Improving Energy Efficiency When Renovating Large-Scale Housing Estates: A Case Study of the Swedish Million Homes Programme. *Sustainability* **2009**, *1*, 1349–1365. [[CrossRef](#)]
65. Ministry of the Environment, Spatial Planning and Energy. *Building Construction Act*, 1st ed.; Government Printers: Ljubljana, Slovenia, 2002.
66. Knorr-Siedow, T.; Droste, C.; Alsen, S. *Large Housing Estates in Germany: Overview of Developments and Problems in Berlin*, 1st ed.; Utrecht University, Faculty of Geosciences, Urban and Regional Research Centre: Utrecht, The Netherlands, 2003.
67. Baba, Y.; Austin, D.M. Neighborhood environmental satisfaction, victimization, and social participation as determinants of perceived neighborhood safety. *Environ. Behav.* **1989**, *21*, 763–780. [[CrossRef](#)]
68. Benkő, M. Evaluating factors in the image of housing estates. *Period. Polytech. Archit.* **2014**, *43*, 33–36. [[CrossRef](#)]
69. Sendi, R.; Kos, D. Rehabilitacija stanovanjske soseske: Primer Savsko naselje: Povzetek. In *Proceedings of the Stanovanja in Urbanizacija—Trendi in Perspektive: Mednarodna Konferenca*, Ljubljana, Slovenia, 8–9 November 2004.
70. Dobrivojevič, I. Stambene prilike u Jugoslovenskim gradovima 1945–1955. *Istorija 20. veka* **2012**, *2*, 115–130. [[CrossRef](#)]
71. Sendi, R. The low housing standard in Slovenia: Low purchasing power as an eternal excuse. *Urbani Izziv* **2013**, *24*, 107–124. [[CrossRef](#)]
72. Organisation for Economic Development. *The OECD Social Indicators: A Statistical Compendium*, 1st ed.; OECD: Paris, France, 1980.
73. Eurostat. *Housing Statistics*, 1st ed.; European Commission: Brussels, Belgium, 2011.
74. Fikfak, A.; Zbašnik-Senegačnik, M. Transformations in organised multi-apartment housing—Concepts, technology, financing. *Urbani Izziv* **2002**, *13*, 113–121. [[CrossRef](#)]
75. Šimáček, P.; Szczyrba, Z.; Andráško, I.; Kunc, J. Twenty-five years of humanising post-socialist housing estates: From quantitative needs to qualitative requirements. *Geogr. Pol.* **2015**, *88*, 649–668. [[CrossRef](#)]
76. Marin, V.; Berescu, C.; Macri, Z. An uncertain future: Prospects for Bucharest's large housing Estates. *J. Hous. Built Environ.* **2021**, *1–19*. [[CrossRef](#)]
77. Bouzarovski, S.; Salukvadze, J.; Gentile, M. A Socially resilient urban transition? The contested landscapes of apartment building extensions in two post-communist cities. *Urban Stud.* **2011**, *48*, 2689–2714. [[CrossRef](#)]
78. Hirt, S.; Petrovič, M. The Belgrade wall: The proliferation of gated housing in the Serbian capital after socialism. *Int. J. Urban Reg. Res.* **2011**, *35*, 753–777. [[CrossRef](#)]
79. Spevec, D.; Klempić Bogadi, S. Croatian cities under transformation: New tendencies in housing and segregation. *Tijdschrift Voor Econ. Soc. Geogr.* **2009**, *100*, 454–468. [[CrossRef](#)]
80. Šuška, P.; Strasiková, L. Transformation of the built environment in Petržalka pre-fabricated housing estate. *Hung. Geogr. Bull.* **2013**, *62*, 83–89.
81. Benkő, M. Budapest's large prefab housing estates: Urban values of yesterday, today and tomorrow. *Hung. Stud.* **2015**, *29*, 21–36. [[CrossRef](#)]