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Housing

Edited by Amjad Almusaed and Asaad Almssad

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Notice

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Meet the editors

Dr. Amjad Almusaed was born on January 15, 1967. He holds a PhD degree in Architecture (Environmental Design) from "Ion Mincu" University, Bucharest, Romania. He followed a postdoctoral research in 2004 on sustainable and bioclimatic houses from the School of Architecture in Aarhus, Denmark. Dr. Almusaed has more than 28 years of experience in sustainability in architecture and landscaping with innovative orientation. He has carried out a great deal of research and technical survey work, and has performed several studies in the areas mentioned above. He is an active member in many international architectural associations. He has published and edited many papers, articles, and books in different languages.

Asaad Almssad has more than 28 years of experience in the industry, as well as teaching and research at Umeå University, Karlstad University, and others. His research focuses on building structures, materials, sustainable building, and energy efficiency in building systems. His viewpoint of the building and its components is that the orientation of new researchers tends to move human actions under the building roof toward energy efficiency and healthy living spaces. He has authored and coauthored more than 30 research papers and many books. He is now employed as a docent at Karlstad University, Karlstad, Sweden.

Contents

Preface

The city does not mean buildings, roads, parks, fences, abandoned corners, water pipes, and cable networks, but especially interactions between citizens, contacts, social relationships, and direct and indirect communication. Consequently, all these criteria are actions that create the complexity of urban social life and give life to cities. The city is a complex system of social organization that involves social institutions and a typical configuration of social relationships. This makes the city's users, the social connections they develop in cities, the problems they face, and the urban space in general the subject of research of modern urban studies. The social life of any city is closely related to urban space configuration. The relationship between social life and urban space is the main subject of the study of housing disciplines. On housing theory, people interact and carry on social relations, enjoy , have or take possession of certain housing spaces, and develop feelings of affection for some or have memories of others. Housing phenomenon is a term characterized by polysemy, flexibility, and ambiguity; therefore, it is difficult to outline a vibrant definition of housing space, where it can be used and accepted in all sociohuman sciences. However, it is necessary to provide some essential coordinates. City planning in general and housing in particular have become a significant governmental function and are broadening into regional and national planning. The most straightforward sketch of housing in city life is represented by a form of bio-organism that includes a large cluster of people who do not know each other but who use resources together. The informal term regarding housing is useful in capturing natural populations other than those living in slum settlements or shanty towns. It can be defined more narrowly by UN-Habitat as "contiguous settlement" where the inhabitants are characterized as having inadequate housing and essential services, which are often not recognized or addressed by the public authorities as an integral or equal part of the city. Common categories or terms for informal housing include slums, slum settlements, shanty towns, squats, homelessness, and pavement dwellers. This book attempts to create an objective reading of the meaning and action of housing as a phenomenon and process of modern urban life. Our homes are the most intimate of spaces; the backdrops of our lives. The need and desire to create a shelter for family and self is as ancient as human civilization itself. For most of human history, we have created our homes with our hands out of the materials available to us where we live. We've altered our homes as our families have changed. We've designed them for ourselves and our lives. We've formed communities around them. Since the industrial revolution, our homes have become increasingly alienated from us, and we have estranged ourselves from them. Social order is among the most challenging act to explain, but the simple reading of the term is a form that is associated with the concepts of social life, how it is formed, how it is preserved, how it is challenged, and how it is broken—all these are questions about which thousands of investigations and studies have been written. But it is clear to understand that besides a person's requirement for food, social order for housing is an-

other critical requirement that calls for deep attention in the designing process. In this domain, the house is an ancient architectural program, which was discovered by human beings, with a vital function of protecting against the adverse effects of the surroundings. Therefore, we can see many symbols of houses throughout the world that appear as an icon of human creativity.

This book is intended as both an introduction to the discipline of housing for students of architecture and city planning, and a source of continuing interest for those experienced in urban planning and design. The book offers a variety of materials for housing and other arrangement professionals. Theoretical foundations, theories, methods, and case studies are essential parts of this book. The heart of the book is the case studies (Chapters 2–5) that present the state of housing in a different form. The book is divided into three parts and eight chapters:

Part I, "Introduction to Housing Affairs," discusses on housing policy matters architecture in an introductory chapter.

Part II, "Case Studies Upon Housing Policies," includes three chapters. This part represents a functional description of the book where the second chapter, "Housing Policy in the Slovak Republic," discusses the historical context of housing and housing policy in Slovakia, massive privatization of flats, and the housing stock in Slovakia at the beginning of the 1990s. The third chapter is titled "Children's Playgrounds in Slovak Mass Housing Estates—History and Current Trends." Here the authors try to present the unique concepts of children's playgrounds that have been applied in the Slovak mass housing estates of the second half of the 20th century, designed by architects and artists, and inspired by the best European experiences. The fourth chapter is titled "Evaluation Transparency in Housing Schemes Using the GIS-Based Framework: A Case Study of Lahore, Pakistan." This chapter aims to highlight the transparency in planning schemes along with general public awareness. To carry out this research, secondary data were collected for the advance system, its quality evaluated and stored by using Geographical Information System software, and assembled housing scheme information . The fifth chapter is titled "Urbanization and Meeting the Need for Affordable Housing in Nigeria." In this chapter, the author proves that many urban centers in the country have been experiencing rapid and continuous growth over the years as people tend to migrate from the rural areas to the urban centers to better their living conditions.

Part III, "Housing Quality and Affordability," includes three chapters. Chapter 6 is titled "Housing Quality and Risk Factors Associated with Respiratory Health Conditions in Nigeria" and presents an overview of the condition and quality of housing in Nigeria and its implication on respiratory health. Addressing housing issues offers public health practitioners an opportunity to assess an important social determinant of health. Chapter 7 is entitled "Housing for Younger and Older Population." This chapter presents housing conditions of two age groups, i.e., the younger population, focusing on individuals aged from 18 to 35 years who still live with their parents, and older populations, represented by individuals aged 60 and above not living in institutional forms of accommodation (yet). In Chapter 8, which is titled "Understanding Adaptive Mainstream Users' Values in Housing Transformation Towards Sustainable Housing Development," the author tries to demonstrate the rising trend of the influence of western housing built forms and patterns in traditional cities with culturally inclined historical values. However, there is a corresponding resistivity in morphological outcomes as users transform their houses to reflect lifelong values.

Finally, we would like to thank all the authors who contributed to the quality, range, diversity, and richness of this publication with their chapters. At the same time, special thanks go to the kind Mr. Julian Virag, InTech's Publishing Process Manager, for his assistance and efficiency in the management process of this book and his cooperation at various phases of book publication.

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Section 1

Introduction to Housing Affairs

Chapter 1

Introductory Chapter: Housing Policy Matters

Amjad Almusaed and Asaad Almssad

Additional information is available at the end of the chapter

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1. Introduction

The family represents the first core of social life, which can be reflected by the architectural program throughout a house. The house was developed in time and place and was therefore socially and economically developed with the housing program. Current technology helps the housing program to get a different level of significant ways of manufacturing and designing structures. The house has followed a man through history. It is one of the man's oldest and most long-lived cultural objects. They have been protected against the environment, and there are rooms for business and social life, capital investment, and symbolism. Home and house are concepts that are closely linked, where shape, function, and technology are so intertwined and meaningful that they do not quickly change themselves. Each discussion of health and the environment must be seen in this broader context, not as isolated technical or medical issues. This complexity is not only a difficulty but also an asset. Housing is the umbrella term for different types of accommodation in which one has temporary or permanent shelter to live, sleep, work, or relax. All kinds of homes, company buildings, schools, museums, and offices are covered below [1]. Also, it concerns the provision of such forms of accommodation by, for example, municipal and national authorities. The concept of the housing provides a host of basic human needs, particularly shelter, personal property, safety, and privacy. Permanent housing ("residence") is also a prerequisite for full engagement of a person in society, so the state differently supports it. The housing industry deals with construction and architecture, urbanism, and housing sociology. In other arguments, the housing includes the entirety of institutions, activities, and arrangements for providing the population with housing. These include the housing stocks, the housing industry, state and municipal housing policies and households as consumers or consumers itself. It is one of the basic requirements of human communities, where every society has to create their arrangements to provide space and facilities for the lives of its members [2].

A general definition of housing refers to physical and spiritual aspects related to real geography, and then it is necessary to consider terms such as territory, land, location, place, built space, area, material elements, etc. But there is also a definition of urban space, based on social aspects of urban space, which refers to the meanings/meaning/meanings/joints that various housing spaces have in the social life, for different people and different interaction situations. This definition aims to understand housing as a "social construct" that is a thing that does not mean anything in itself, but it only has meaning to the extent that people use it, knows it, gives it a name, wants it, negotiates it, etc. Many of the famous examples of European housing elements reflect the way of life of a wealthy social house. The rise in industrial proletariat has increased the density of industrial cities in the first half of the nineteenth century, and with it, there has been an acute need for housing, and the workers' jobs were minimal, crammed on very small land, and were either overlapped or staggered along the streets forming urban corridors [3]. The first collective worker's home was built in 1513 by Fugger banker for workers as apartments having two rooms each, and by joining and overlapping others resulting in a long building comprising 53 apartments. The collective workers' home was resumed in the nineteenth century in the cities affected by malaria. There were also homes in suburbs and factories. Generally, courtyard apartments offer only the minimal shelter. With simplicity and meager effort made by architects to solve the plastic appearance, the exterior architecture they offered was easy to recognize. After the realization of the workhouse, the problem of conceiving mass dwellings as a social order was also raised. In this sense, some of the great architects of the nineteenth and early twentieth centuries included them in their creative preoccupations. Brothers August and Gustave Perret built, in 1902, the first report house in the world and reinforced concrete, in Paris. The apartments were overlapped, and the building has a shallow land. This time, however, the rooms did not even have minimal surfaces, but by the way the entire building was designed, a new way of urban dwelling has gained an unprecedented development especially after the Second World War. The one who brought substantial innovations to the housing sector was Le Corbusier. Although he proposed several buildings for collective housing, only in 1950, a housing unit was built in Marseilles that includes living spaces and equipment of first necessity: commerce, schools, etc. Walter Gropius and Bauhaus specialists from 1922 used conventional apartment designs to make massive dwelling buildings in the form of parallelepiped bulkheads, generally located in the suburbs of major cities such as Frankfurt, Berlin, etc. The tradition of autochthon dwelling offers many spatial solutions and ways of using the dwellings according to the local conditions. The partitioning of the rooms is subordinated to the natural heating source [3]. The rooms with living rooms had to be developed to SE, thus creating forms in the plan. The area of a space is considered by most of the most essentials. This is also reflected by the number of rooms, the activities that facilitate the correlation of the size of the dwelling with that of the family, being the expression between the total surface and that of a room. The height of the rooms was reduced, compared to 3.5 m height rooms in the nineteenth century. Some publications were sponsored by various international organizations such as UN, UNECE, UNHCR, UN-HABITAT, Council of Europe, to be defined. Nonetheless housing represents a complex of human phenomenon, but it is not limited to the simple possession of a dwelling (whether appropriate or not), it includes many other rights, such as the right to nondiscrimination (the homeless suffering severe discrimination and marginalization) and, consequently, the right to equal treatment, as

well as the right to self-determination and self-realization [4]. Those excluded from adequate housing have in fact the same basic housing requirements as any other individual: not only in the sense of shelter but also in the sense of access to basic utilities and services—water, hygienic conditions, etc.—security, security against forced eviction, neighborhood security—to ensure at least a minimum of security and dignity as the foundation, and prerequisites of normal social integration and participation. To opt for a narrow view of perceiving these needs only in terms of physical needs would lead to an underestimation of the symbolic importance of dwelling/living in the everyday life of individuals—life in the community and in society—and would lead to the undermining of the fundamental notion of human dignity, which embraces the whole human rights philosophy, whose role is precisely to ensure the necessary preconditions for its observance [5].

The central control turns out to be a concern of municipalities. A municipality or group of municipalities can introduce an urban social life and housing ordinance and, among other things, a designated living space that cannot be taken into use or given for occupation if no housing permit (residence permit) has been granted before putting into use. Thus, the city becomes at the moment not just buildings, roads, parks, fences, abandoned corners, water pipes, cable networks, but it grew as an especial interaction among citizens, contacts, social relationships, direct, and indirect communication interaction. All these factors represent the life of a contemporary city, which is offered by the complexity of urban social life and gives the real growth in cities. Consequently, the city is a complex system of the multisocial group, involving in a series of social institutions and a typical configuration of social relationships [6]. Residences make the city alive, and then the social relationships develop the city functions to be the title of modern housing studies. They began to improve dually during the nineteenth century. The nineteenth-century cities experienced specific problems:

- increase in housing density,
- intensive rural-urban migration and immigration from poorer countries,
- infrastructure precarious (roads, potable water supply, sewerage networks, etc.),
- increasing tensions over inequalities socially visible.

At the same time, radical changes were taking place in critical areas such as the organization of work, an organization of capital flows, an organization of social classes, and an organization of families. The need to understand these changes and to solve their associated problems has stimulated the opening of new areas of thought, debate, action, and study. The challenge was accepted by thinkers and practitioners who, through their achievements, have become the founders of disciplines such as:

- Urban sociology (a subject that studies social activities and social interactions in urban areas)
- Social/cultural urban anthropology (a discipline that studies the diversity of city lifestyles)
- Human geography (a subject that explores the relationships between people and human communities with their territory), the city social life

- Environmental psychology (a discipline that studies the relationships between humans and human communities with the objects, spaces, buildings, natural elements, and phenomena that surround them)
- Ecology (a discipline that studies the relationship between all living organisms and their living environment) [7].

All these disciplines are interconnected and have a common purpose: to provide a better understanding of everything about housing concept and urban life. The innovative studies of housing phenomenon, sociology, anthropology, environmental psychology, and human geography build a close life of the city's inhabitants and uncover unpredictable aspects, and it provides unexpected explanations of things that seem banal. These studies can be centered on less visible social groups, survival strategies, cooperation and support activities of social networks, where existing housing mechanisms generate some social problems, etc. Therefore, housing phenomenon and urban studies are not only used to make an academic environment but also to provide the community with a relevant data and materials that help us in taking a fit urban decision and give the city an effective housing strategies and us multiorienteered with a better understand one another and improve our everyday life. Researchers in housing and social life in a city have carefully analyzed the impact of contemporary political and economic systems on people's lives in the urban environment. They focused on the problematic aspects and its effects on people living in the city and benefited us with the solutions. One of the main study subjects, which require an in-depth analysis, is the studies of anthropology. The investigation takes in daily evidence interactions between residence's everyday experiences in a city, negotiations between groups and different houses—in short, the microsocial reality, where anthropology investigation provides the community, a depth analyzes of various groups, communities, economic classes, neighborhoods, human clusters, social networks to facilitate communication, and understanding between them, besides housing phenomenon. The anthropological perspective also offers a critique (often constructive) of culture and the social world, where the anthropological perspective must be at the heart of any project of social, economic, and cultural development. Many cultural descriptions, social projects, or programs to improve life and humanity have failed in history, precisely because they lacked an anthropological perspective.

2. Housing task between "home requirement and house concept"

A house is an essential object of our life that represents a professional concern, which is a vast and varied subject of different specialists in planning, financing, design, sociological research, anthropology, anthropometry and hygiene, construction and technology, and administration and maintenance [8]. Our epoch, especially in the second half of it, is fundamentally characterized by a significant increase in the divisions upon collective dwellings and the transition from the individual houses of residential buildings to that of the ensembles, a tension of a sharp rise in the pace of city development. The evolution of the geometric tram is also reflected by a continuous construction regime, in planned or spontaneous growths, which the historians of the house did not give in the past due to importance. As a way of living, there are three main categories distinguished: popular districts, characterized by continuous construction areas, and either of the adjoining houses or the carpet or terraces dictated by the slope of the land dwelling. A rural

home can be reported by a yard, which is determined and equipped directly according to the nature of the work, where the senior house generally benefits from a garden that could favor receptions for social contacts. The residential area from a vast expanse of Sumerian and Egyptian metropoles includes a wide variety of houses without windows to the narrow, sometimes straw-edged streets of the Sumerian and Egyptian metropolis, which are the source of the large and luxurious dwellings of ancient and Hellenistic Greece and are then taken over in the classicism of the Roman world. The housing process tends to become the custom of a serial of industrial production that rapidly acquires for new developments in building techniques, especially in installations; thus, the concern for rigorous and "conforming" dimensions (Le Corbusier: "habitation de grandeur conformed") of the spaces and the dwellings as a whole [9]. The social conditions of the nineteenth and early twentieth centuries have, as is well known, determined the growth of the housing process by mass dwellings. Their morphology has evolved to the present, with the tendency for minimal spaces to be diversified by functionality and form.

3. Human settlements and house evolution process

The human communities in the city take the form of their neighborhoods. The neighborhood is a fundamental element of urban life, because cities grow by addition, not by houses, but by human communities. To understand how these communities are aggregated, we need to understand their relationship with the territory, the critical role of living in a common space, and the ties that are established with it. People act within specific frameworks created on the basis of their lifestyle choices and resources; in this context, they choose the type of housing community to which they belong, appropriate to them: in the urban or rural area, at the house or in the block, and in the center or on the outskirts of the locality. Human settlement perceives itself as a new type of business that reflects a future-oriented component, and a system based on the construction sector, and as something new can be further promoted through its actions. There are three modes with three relationships that can help to understand the connection between the future and the past (history) [10]:

I. Requirement state (B). Here, society has formulated a social command, after an in-depth analysis of the possibility and requires a specific active form.

II. Constructive form (K). A real architectural element, compared with the current stage of technology and esthetic understanding.

III. Application process (A). Here, you will find the architecture element in.

Therefore, one can follow the relationship between people (individual/group) and the architectural element or surrounding objects. The cooperation between the three settlement phenomena can follow three processes:

- F1—between B and K, the activity of design and execution.
- F2—between K and A, the activity of division, use, and marketing.
- F3—between A and B, transfers the processes from S1 (current situation) to S2 (future position).

The city transformations in the recent decades caused by the industrialization and urbanization phenomena have affected the dwelling and the structure of the residential human communities in the sense that they have experienced consolidation processes determined by everyday life in public housing assemblies, processes of population dislocation following urban reconstruction policies, or phenomena such as gentrification. There are many studies on the role of cultural changes in the process of renewal, and there are also no references to classroom membership within the context of discussions about lifestyle, consumption patterns, cultural options, and so on. From this perspective, the middle class gentrification population invests in properties of cultural and historical value (e.g., the preference for a particular architectural style of the building), thus affirming their distance from the inferior social strata and constructing its identity based on consumption as an investment form as a means of personal expression and as a symbol of social status. Changes in the economy have led to new ethics of consumer behavior. It can be viewed spatially, as properties in gentrifying areas are considered to be a commodity for those interested in living in beautiful areas, considering the cultural-historical value and the positioning in the relative neighborhood of what the economy of urban services means. In conclusion, speaking of the influence of culture through the process of renovation, we refer, in particular, not only to the implications of the level of education of the population renewal, but also to the influence of factors such as media consumption, advertising, etc., which outline the system of esthetic preferences of individuals.

3.1. House edifice and functions

The house not only fills the requirements, but it is also a pleasure. From the child's stacking of bricks to learning how to master the heavens and space to self-expression, construction is something that concerns us all deeply. The architecture is everywhere; no one avoids it. Even the nonself-employed person still has to live and, as a matter of option, choose a home with care and empathy characterized by his own experiences from previous homes. The same applies to users and clients of other types of buildings. It is easy to lose the perspective in the construction industry's everyday life, both on the lust and on the needs, in search of timetables and cost reductions and the necessity of routines. The breach of the methods and the need to think long-term are nevertheless integrated into the requirement for environmental adjustment. We must keep alive the desire to build. But it can be the essential prerequisite for a rapid breakthrough for new thinking. The requirement for conversion to an environmentally sound construction can adequately utilize, be a challenge to think about what we are about and return to the architecture's starting points: building and living. The building is indeed a short stage in the life of the house or somewhat several recurring short stages. But there is the prerequisite for long and hopeful life. The house, as we treat it in this chapter, is stupid and flowing of energy, air, and water. These are permanent structures, a kind of constants when correctly designed provide space for the different variables of the dwelling. Flexibility and generality are the most durable qualities of the house. If they exist, there are also the conditions for all the attributes and memories that a long life can give. Through proven and straightforward types of houses, many variations can be made.

It is necessary to define housing course as a viable system of functional (structured) complexes and coordinates. UN had classified settlement and identified 10 general functions that each edifice must have:

1. recreation and lectures,
2. prepare meals,
3. dining,
4. relaxation and sleep,
5. study and play,
6. toilet,
7. hygienic necessities,
8. cleaning,
9. driving and storage,
10. exterior conditions.

Other features are family or individual grades (information, social conditions, etc.)

The house functions can be divided into two major zones:

- Night area (isolation, personal life, relaxation, intimacy) adapted to the functions (4, 6, 7, 8, 10)
- Daily area (animation, collective consciousness, activity) adapted to the functions (1, 2, 3, 4, 9, 10).

The human settlement takes the form of their neighborhoods. The neighborhood is a fundamental element of urban life, because it grows by addition, and not by house application in practice, and wherever the human communities reflect that system correctly. To understand how comprehensive these communities are, it is necessary to understand their relationship with the territory, the critical role of people in a common space, and the ties that are established with it. Residence from the city reacts within a specific framework. However, they are made by their lifestyle choices and the resources that they have. In this context, they have the possibility to choose, which kind of housing community that they belong to, or whether it is appropriate to them, is that organized in the form of the urban or rural zone, is that confirmed in the way of individual or collective arrangement, and is that located in the center or on the outskirts of the locality. The transformations on the human settlement in the recent decades caused by the industrialization and urbanization phenomena have affected the dwelling and the structure of the residential human communities in the sense that they have experienced consolidation processes determined by everyday life in urban housing assemblies, processes of population dislocation following urban deconstruction policies, or phenomena such as

gentrification. Gentrification means turning an aging metropolitan area into a more financially populated, socially populated neighborhood by renovating buildings, the consequences being, on the one hand, to increase the value of those properties (land and buildings in the area) and the relocation of poor old residents.

3.2. Healthy housing environment

Beautiful architecture is ultimately a prerequisite for health and well-being, which is not only about physiological needs but also about the experience and the feeling of a house. Just by theory, we are different from what is physiological experience and emotion. A healthy house must, therefore, also be a beautiful whole. A house that does not take into account human physiological needs cannot be a sturdy house just through coloring and new furniture. A home that only meets the physiological needs can never be a pleasant overall experience.

Resource demand in the form of energy conservation was the first environmental issue in the building that attracted much attention. Partly as a result of unilateral energy conservation, the "sick houses" and a new insight that health issues must be included in the program work. In recent years, the cycle has also reached the construction industry. The goal must be to have all three aspects involved and make them interact. We initiate the chapter by discussing health, resources, and circuits as the necessary conditions for healthy and environmentally adapted houses, and then proceed with the structure and infrastructure of the house: the different parts of the body and the technical systems. Thus presented, the problem may appear at first sight to be difficult, if not impossible, of the solution. What,' some may be disposed to ask, can be done to make the country more attractive and the city healthier, and make people live in a comfortable environment. Air quality, for example, is often measured with carbon dioxide content. Such single parameters have shortcomings in reflecting human experiences. The fact that they have become a commonplace as a quality criterion is linked to the need to be able to verify the results of technical solutions, that the measurements are relatively easy to perform, and that accurate numbers give confidence. An unfortunate example of this is the unilateral attention that some environmental and health protection administrations attach to the Occupational Safety and Health Agency's target value of 1000 ppm carbon dioxide in workplaces. The effect of the retroactively demanding requirement may be that millions of kronor are invested in renovations of ventilation systems in schools and other public spaces that worsen the indoor climate. A better criterion of a healthy house that does not threaten health is to investigate how many of the people stay in the house who think the indoor environment is reasonable or acceptable. In a good house, the sensation of comfort must be high, where, it should be no abnormally high frequencies of mucous membranes and skin problems associated with the building [11]. There are many adverse effects of unhealthy housing environment, for example, the classic allergens that come from many resources such as, industrial pollutions, smoking, and humid buildings are considered to be the most critical "develops" of allergic symptoms. Allergic reactions can also be triggered by chemical emissions and odors from building materials and furnishings, as well as high levels of particulate matter in the indoor air due to inadequate cleaning and soiled or poorly functioning ventilation systems. The risk of getting allergy is more significant in the contaminated states and larger in homes with high humidity than with low humidity. It is now also considered likely that the sick

dwellings make part of the explanation where allergies increase. The effect of a bad selection in building materials can be a source of cancer, which is related directly or indirectly to building materials, which represent an area where the knowledge is insufficient. Several substances included in building materials are classified as carcinogenic, p. a. formaldehyde. The World Health Organization (WHO), a list of more than 10 carcinogens are found, mainly in paints, varnishes, and floor materials [The ELIB survey estimates that between 250,000 and 500,000 people live in radon-radish housing homes over 400 Bq/m^3 and are therefore at increased risk of lung cancer, especially in combination with cigarette smoking [12]. Research also shows a connection, albeit weakly, between different diseases and exposure of electromagnetic fields. The study is currently underway to clarify the relationship between the indoor environment and allergy and other hypersensitivities. The results of the surveys, thus, far made are:

- Troubles are more common in the younger house; the most difficulty is experienced in houses built after 1975.
- Complaints on "dry air" and discomfort with nasal membranes are more common in residential buildings with a mechanical ventilation system than in houses with self-suction only.
- There is a clear connection between the lack of ventilation, high humidity, the occurrence of domestic dust mites, and asthma.

There are a lot of factors that must take in evidence for creating a healthy housing area. Moisture due to rain, snow, soil moisture, building moisture, condensation, pipelines, and humidity from humans and businesses affects the health. Technical solutions and quality assurance can significantly reduce it. Building and soil moisture can probably be avoided with the right measures. Moisture safety is influenced by choice of roof rails, placement of dumb pipes, a solution of details around bay windows, etc. The 60's and 70's flat roofs are responsible for a large part of the mold problems in schools and day care centers [13]. But moisture will always be found in buildings, partly because the houses are out and therefore exposed to rain and snow, somewhat because we continuously add moisture to the house. Materials and technical solutions must, therefore, be chosen that allow for natural moisture migration. Fresh air and the right temperature are essential to health. The need to ventilate a building is due to heat from solar radiation, the number of people staying in the house, the humidity and heat sources in the business, emissions from building materials, the volume of the room, the heat storage capacity, and the seasonality. Ventilation in homes is primarily intended to remove moisture from people, showers, laundry, and dishes. In schools and other houses where many people are staying in the same room, the ventilation requirement is mainly about keeping the temperature at a reasonable level. The temperature too high, above 35°, is often considered as lousy air. With rising room temperature, humidity decreases during the winter and the release of impurities from building materials increases [14]. The need for ventilation can be influenced by the orientation of the building, window shading, sun shielding, volume, mood and material selection, and the extent to which furnishings and equipment collect dust and dirt. If the house's climate control system includes these factors and the airflow varies according to activity and season, there is the need to build ventilation systems that have fewer

critical components than today's "advanced" mechanical systems that have often been found to cause more problems than they solve. Also, we can accept greater temperature fluctuations between day and night or summer and winter; the systems can be further simplified. Through balconies, terraces, and beautiful outdoor places and gardens for work and relaxation, and by designing the transition zone from the outside to make it easy to get out, the architect can make it more attractive to stay out for more hours a day. It also facilitates the weathering of clothes, textiles, and furniture. Healthy housing is created by direct natural lighting where sunlight means a lot for health and for well-being. Studies show the adverse health effects of windowless rooms. The architectural task is to achieve good daylight without the temperature rushing in, thus creating a need for cooling, reducing the requiring sizeable mechanical ventilation plants where they would not be needed.

Building materials and installations must also be chosen for health reasons. Although there is no scientifically related relationship between ill health and the delivery of volatile organic matter from building materials in the low doses that occur outside the industrial environment, there is every reason to choose documents that issue a minimum of emissions [15]. Several case studies show that self-emission of building materials caused health problems such as eye irritation from paints or building boards. A significant problem is the pollution caused by chemical reactions when exposed to moisture or high alkalinity. In the Chemicals Inspectorate's list of pollutants, all substances are classified according to allergy-producing substances, substance causing mucous membrane inflammation, etc. This list can be compared with the product information that the material suppliers are required to provide for hazardous health substances included in the product. Through architectural solutions, the need for emitting materials such as glue, filler, and joint pulp can be significantly reduced, sometimes eliminated. Low-frequency noise and vibration caused by ventilation systems can be overcome partly by choosing a quiet ventilation system, such as self-sufficiency, partly by a well-chosen assembly of the unit, careful damping, soundproofing of the fan room, making ducts, fans and pads prefabricated, and adequate noise suppressor installed [16].

4. Housing upon physical factor consideration

4.1. Macro-climate and healthy housing arrangements

The relationships of good housing arrangement are apparent. Throughout history, house construction has often illustrated not only on how to solve a problem, but also on how to acquire another. Protection against climate impact in the form of winter's biting cold, ice-storms, and a penetrating rainfall has been a prerequisite for survival at all levels. The risks of moving into a new housing structure indicate that moisture problems in homes are known for a long time [17, 3]. The turn of the century's speculative housing with moisture, lice, congestion, lack of daylight, and fresh air created the foundation for the massive renovation of our housing stock carried out in the twentieth century. Healthy housing for all became one of the most important driving forces in modern architecture. Resource demand in the form of energy conservation was the first environmental issue in the building that attracted much attention.

Partly, as a result of unilateral energy conservation, the "sick houses" and a new insight into the health issues must be included in the program work.

4.2. Renovation concept on old metropolitan areas

The starting point for any housing or urban renewal plan is of course that the city is not automatically maintained and updated in consistent with new social needs. Therefore, the first comprehensive identification of the content of the urban renewal concept could be that it should include all activities aimed at such maintenance and updating—modernization of the city. The modernization of big cities has primarily been achieved by adding new parts that have divided the existing obsolete parts into a different role so that either consciousness was not of the utmost importance that they were outdated or the new position and role enabled economic transformation and updating. The idea was not particularly interested in the existing city but instead created a modern city outside, which in a brief time moved the city center's functions, i.e., where the demand for the model was most excellent, to the new urban area [18]. The loopholes that have the existing city were thereby reduced to a partial problem, an isolated barrel tide problem, which was not an obstacle to the city's participation in a general industrial sustained social development. It is essential to have an urban renewal through growth because it focuses on the particular issue today and must take place without application of the dynamic and the disassembly factors, where, the rise has historically created. If the city subject is restricted and the definition of urban renewal is conservative so the focus will be on activities aimed at transforming maintain, update, modernize—the already existing parts of the city, then become one of the first significant examples of urban renewal Paris's modernization under Napoleon HI and Haussmann.

5. The interactions among residences, housing, and settlement

The intention of this process can be done through outgoing work to listen to the residence groups from the settlement and how the area can be representing, where a citizen initiating process should take place. They have to feel invited to have an opinion on this and partly so that they can see that they have a real influence on how an urban development debate develops. The experience of this process is gathered in a recommendation for how a future process toward a citizen-inducing urban development process can look out for settlement and surrounding areas. Also, the process will come out in some directions of some specific projects that will be supported and which individuals are willing to proceed with the plans. In recent years, public debate about urban housing development and citizen participation seems to have aroused increasing doubts as to whether the past efforts will be sufficiently responsive to the challenges increasingly faced by major cities. The criticism is often that the existing efforts are reactive in the sense that it typically focuses on solving acute problems, whereby the area's resources are often ignored, and the long-term development perspective disappears. It is clear that the traditional requirements/problem-based approach to urban development usually has some unintended adverse side effects, whereby the efforts often

create clients rather than active citizen—and thus an increased dependence on external assistance in the district. It became clear that the social development aid based on foreign support is a central part of this negative spiral. This is because the local institutions and organizations, thereby, pacify and lose functionality, whereby the district gradually loses its power as well as attracting resource-rich citizens. Therefore, it is essential in urban development to let the community revitalize itself from the inside, by local institutions and organizations actively applying their existing resources and anchoring in the area about creating a quality of life and increasing the attractiveness of the city. In this context, it is crucial that this happens in an autonomous process, as the institutions of the region are responsible—and thus the ownership to create. Based on the experimental results, it becomes a necessity to develop the process of individual housing requirements by using sustainability beyond the consultancy assistance. To succeed, it is, therefore, essential that in the development process, an optic is used with a radically different focus than the problem-oriented approach [19]. The resource based on the urban development (asset-based community development) is one of the most well-informed bids on a developmental approach that takes into account the above issues as well as potentials. The method is based on comparative studies of urban development methods, and their success rates thus find itself on the following basis for urban development. Communities and districts can themselves create an event by identifying and utilizing existing (but often unknown) resources in new ways. This requires the district actors explicitly focus on finding—and using—the area's resources. [19] The beyond experiences point to the future's citizen inducing processes. With this in mind, the following is presented as a possible approach that can be used as a reference framework for citizen initiating operations in the research area target.

6. Investigation model by application of "Appreciative inquiry method"

It is not expedient in the experience of the interviews conducted as well as the research on citizen's involvement to provide recommendations for specific individual projects. Discussions are the most critical component of the study, where a crucial point in the talks is that the actual content of the process must be defined by the involved residences snoring than external consultants if the process is to be sustainable in the area. It is necessary to comprehend that foreign players move focus from the subject of the process to support the process itself. The aim of the procedure is that the parties involved acquiring competencies that generally raise the capacity of the area to develop independently. The objective of this type of development process is thus to create a framework in which local actors establish independent shopping competences through work on topics that they consider to be important. Ideally, such a goal aims at creating a self-reinforcing effect, through which actors through local actions develop improvements in the local area and simultaneously strengthen their shopping skills. This increases the importance of the actors in the local area, which further enhances the actor's power. For achieving the primary objective of the research, it will be essential to create a framework that ensures that stakeholders in the area as well as

outside the area form part of the resource-based interaction with each other. It means that the parties' focus is directed toward strengthening the other parties' shopping opportunities in the area, which can be done by supporting the individual player being able to bring his resources into play. Alongside that process, it will furthermore be crucial that the different players connect their resources with each other. This will allow for synergies and new business opportunities. With this aim, it will be necessary, as illustrated below, to coordinate efforts between the following actors:

1. **The city municipality**: it would be essential that the professionals with contact to the area build competence to consultative support resource-based development processes in the area. This means in concrete terms that interacting with the area's stakeholders will be able to work targeted with the promoting processes that increase their shopping competence.
2. **Governmental organizations**: public organizations will, through an outward focus on the area as well as through interorganizational efforts, be able to apply their knowledge and anchoring in the area to become active partners in creating a quality of life and increasing the attractiveness of the city.
3. **Voluntary associations and networks**: it is vital to create a common platform for many associations and networks active in the area. This platform can support associations and networks in coordinating their efforts and creating synergies between individual forces. In parallel, such a body could make associations and networks visible about the critical cooperation with the municipality and the public organizations in the area. The voluntary associations and systems aim to establish a common platform for many associations and operations in the area. This platform gives associations and networks a visible common position, allowing them to be continuously involved in the area's development. Furthermore, this platform supports associations and networks in coordinating their efforts as well as creating synergies between their respective resources. The platform is established as an umbrella organization for the associations and systems in the area.
4. **Fiery souls (human with individual ideas and competences)**: in the research area, there exist a large number of private individuals deeply committed to creating diverse developmental processes. These people represent an essential resource in the area. It will be a force for potential development processes to actively involve the firefighters, who often have an extensive network and unique local knowledge. This focuses on the potential of creating a joint forum for the fire souls. This would facilitate their involvement and enable them to contribute to strengthening their competencies and process management skills actively. For enthusiasts, it includes a large number of private individuals who are deeply committed to creating diverse developmental processes. These people represent an essential resource in the area. It will be a force for potential development processes to actively involve the human with unique ideas, who often have an extensive network as well as unique local knowledge [20]. The vision is to create a joint forum for the fire souls, which will facilitate their involvement. Furthermore, this will enable their competencies and process management and development processes to be strengthened (**Figure 1**).

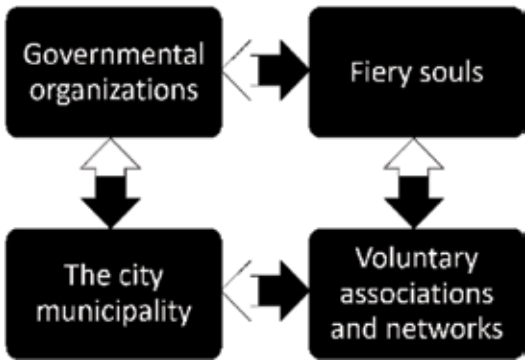

Figure 1. The interaction between environmental actors.

Targeted efforts aimed at improving these four players' position in the area can, therefore, be recommended. This can be realized through the following projects aimed at linking the players' resources with each other as well as strengthening their competence to implement citizen-initiating processes [21]. Central to this is that the actors themselves define the actual content of these processes.

7. Conclusion

Housing phenomenon, public spaces, infrastructure, public services and institutions, housing assemblies, environmental elements, jobs, etc., are the main subjects of the housing topic. At first glance, the cities are chaotic and dizzying; however, attentively, it is noticed that urban life has a specific rhythm that most people know and follow. People adhere to specific written and unwritten rules, succeeding more or less in sharing their resources and living together. The vast majority of urban residents comply with traffic rules that respect people with special needs, meet queues, pay for public services, and follow a school or work program. Moreover, they do not interact with everyone on the street, do not put on armor and do not enter the homes of others, etc. All of this is due to the social order of urban life. From the new orientation of housing and social life, it becomes clear that housing sets rules concerning the distribution of living space and the composition of the existing space stock. A vast majority of built structures are (and have been at all periods) dwellings: detached houses, row houses, apartment blocks of various heights, etc. Today, new generations of scholars have begun to look at the history of these "ordinary" dwellings of the modern period. Stimulated by the pioneering work of Gwendolyn Wright, Alan Gowans, Anthony King, Dell Upton, and other writers of the 1980s, two new histories of builders' houses, apartment dwellings, working-class housing, mass housing of all types, and the housing of marginal populations and slaves now diverge from Pevsner's restrictive formula. It is time we begin thinking differently about housing, regarding what our shelters are and should be made of, and of how we create and inhabit them. Housing is not meant to be a one-size-fits-all or bigger-is-better proposition. Today, all over America and the world, individuals and groups are creating homes that do

not fit the mold. Homeowners in Alabama, Idaho, and Colorado are building small, artful homes using salvaged materials, never taking out construction loans. In Texas and North Carolina, people are working together to reclaim building supplies and whole houses before they go to the landfill, using them to create new homes and neighborhoods for hardworking families. In Reno, a pair of designers, sick of seeing their inner-city crumble, is revitalizing old buildings and blighted areas.

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Section 2

Cases Studies Upon Housing Policies

Chapter 2

Housing Policy in the Slovak Republic

Daniela Spirkova

Additional information is available at the end of the chapter

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Abstract

Housing is an important source of employment. Consistency between housing and employment in several developed economies has become an essential part of state public policy and local governments. Low labour mobility in Slovakia is also related to the structure of use of the housing stock, which is significantly dominated by owner-occupied housing. The mobility of housing is closely linked to the desired and undesired labour mobility. The demand-determining factor on the side of the housing market is the demographic development of the population from which the need for housing is objectively derived. The real demand for housing is mainly dependent on the social-economic status of potential applicants for housing and their current and expected financial situation. The chapter discusses the historical context of housing and housing policy in Slovakia, "a massive privatisation of flats" and the housing stock in Slovakia at the beginning of 1990s, the problems and the causal relationship between the housing market, labour mobility and housing finance in Slovakia.

Keywords: housing policy, labour mobility, rental housing, economic tools, Slovakia

1. Introduction

Housing policy is one of the most important areas of social policy. It is a mirror of social deficiencies and changes. Housing is bound to a specific location in space. In this context, when considering whether to invest, households are influenced by several factors: the availability of jobs, the income of households, interest rate of housing credits, the labour market status and the amount of indebtedness.

The Slovak Republic is one of the Central European countries whose economies were centrally planned until 1989. The main characteristic of transition countries is the transition state of their economies—transitive stage—from a centrally controlled system to market economy.

Until 1989, housing policy in the Slovak Republic was centralised. Moreover, the state provided housing for all citizens. The state provided building construction centrally, variedly subsidised all forms of housing (mainly subsidising the price of services related to housing, as prices of energies and water), ran housing stock, especially state and cooperative flats, and centralised the administrative system of the redistribution of flats. Therefore, political changes in the Slovak Republic after 1989 required several fundamental changes in the field of institutional arrangement of the public administration, as well as legislative changes. Similarly, as in other fields of economics, also in the sphere of housing, transformation from the rationing system of housing to the system based on the respected market economy was initiated.

In 1993 the independent Slovak Republic was established, and therefore other inevitable changes occurred in the field of housing and housing policy. One of the important decisions was the division of tasks in the frame of housing policy to three levels (central, regional and local). The state stayed a valuable player, who, however, stopped being involved in housing construction but took over the task of a creator of frame documents, via which the state tried to define basic principles and rules, in which the housing policy of Slovakia further moved. A significant impact of the development of housing in the years 1992–2006 was done by a process of massive and inappropriate privatisation of the housing stock, which caused a subsequent decrease in rental flats in Slovakia. Overall, between the years 1992 and 2006 according to OECD in Slovakia, approximately 340ths of council flats and 270ths of cooperative flats were privatised.

Decentralisation was another distinct impact, the part of which was also the transfer of competence in the field of housing, territorial planning and local development to the lower management level in the years 2000–2003. It resulted from the assumption that towns and villages will manage to reflect the needs on the local level better. A key player stayed a citizen, who should do his best to provide housing for himself and his family. Quickly this imagination was shown as illusory especially from the view of possibilities and the ability of citizens and especially of specific groups to provide housing exclusively with their own contribution.

According to first conceptions, the role of the state in the field of housing should have been limited just to the creation of conditions for origination of the real estate market. In regard to vigorous withdrawal of the state from financial participation in new housing construction at the beginning of the 1990s (the period of transformation process), the creation of conditions for the implementation of standard tools in the financial market was necessary to help households gain financial sources for the construction or purchase of a house/flat. It is mainly the implementation of the benefit for housing, building society accounts (1992) and mortgages (1999).

2. Basic types of housing policy

Housing policy of the EU countries has a lot in common. A closer view on the housing market and housing policy shows each country having its form, which has been developing for long decades under the influence of local economic, political and geographical conditions, demographic development, process of urbanisation and predominantly under the influence of local traditions and approaches.

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The difference between housing policies of particular countries is in many cases specific with the overall distinct acting of a state in the housing market. Such a predominantly "geographic border" dividing different housing systems goes between the north and south of Europe. The Northern EU member states (Denmark, Germany) are characterised by a long tradition of complex, actively intervening housing policy. On the other hand, there are the southern states (Portugal, Greece), whose housing policy from the view of the degree of state intervention into housing is more likely less developed.

A significant criterion, from which other "borders" develop, is the range of state intervention in the housing market, i.e., the complexity of housing policy. In this spirit we can define two basic types of housing policies:

The first of them is labelled as additional and is characterised by an intense relying on the market mechanism, while the state effort is oriented mainly on personalised help for low income and other endangered group of inhabitants; the example of such a country following this type of housing policy is mainly Great Britain.

The second is labelled as complex and is characterised by quite extensive state interventions in the housing market, which is oriented, more or less, to all layers of the society. Housing policy of this type prevails in the EU member states; mainly the approach of Germany, France, Netherlands and northern states represents it [1].

In a more detailed way, the type of social policy in the broadest sense of the word, i.e., the type of welfare state differentiates the European housing policy [2].

Nowadays, the already classical typology of regimens of the welfare state allows us to derive four basic theoretical types of the European housing policy, the carriers of which, in the practice, are the EU countries [3].

The first type of housing policy is derived from the social-democratic welfare state, which does not understand a human being just as a workforce and is based on the utilization of the citizen principle at providing social services. From the view of housing policy, it is a regimen, which supports the same access of all citizens to housing. The state actively intervenes in the housing market and supports mainly rental and cooperative housing. From the economic view, it is the ineffective model and in the long term not sustainable. Representatives of this approach are mainly the northern states.

The second type of housing policy is derived from so-called corporatist or work and performance-related model of a social state, whose social policy derives mainly from the work activity of an individual in the labour market and emphasizes on the traditional social differentiation of the society. For housing policy of this type of a welfare state, there is a typical and significant reliance on the market mechanism; the state intervention into the housing market is also quite active and focused on all forms of housing in the housing market. Germany, Austria, France and the Netherlands represent a housing policy of this type. *The mentioned model might be considered as the closest model of housing policy in the Slovak Republic*.

The third type of housing policy is derived from the liberal state of public and social services, whose main characteristic feature is the emphasis on the activity of an individual and state

interest to provide the help just for those who need it and cannot solve their difficult situation themselves. In the field of housing, the state help is oriented just to low-income and handicapped groups. Financing of housing is through private sources, and public ones are provided partially. In the EU the examples are mainly England and Ireland.

The fourth, the theoretically determined type of housing policy, is derived from the so-called rudimentary welfare state, whose social policy in the broadest sense of the word is not developed, so the state provides for citizens just a rescue social net. This approach is usually also related to the conception of housing policy, which means that any care for housing is left on a citizen and the state is involved minimally. The examples of this approach are more likely agrarian countries, such as Portugal or Greece.

3. Housing affordability

The harmony between housing (the real estate market) and working opportunities (the labour market) became an essential part of public policy of the state and self-government. There are several reasons why the availability of housing is still related to the availability of working opportunities:

- the improvement in the quality of life for a better approach to work, education and services,
- request by companies for workers accommodated in close surroundings,
- solution of problems with transport (high travel fares),
- protection of environment,
- more effective utilisation of land resources and so on.

As Cervero [4] presents, the response to this discrepancy might be so-called the job and housing balance policy. He proceeds from a general condition that the ratio between work opportunities and flats leads to a higher efficacy, equality, quality of life and environmental sustainability. However, the measures of housing and work balance policy do not have apparently a housing character but vice versa; they function in cooperation with other policies, especially of social protection, labour market and transport policy.

According to Krcmar and Rychtarik [5], the analysis of housing affordability in Slovakia can be done on the background of economic and financial cycle. Even if the time series for Slovakia is too short, the available data do suggest a positive correlation between the changes in the real GDP and the flow of loans. On this background housing affordability appears to move against the cycle. In the booming times of 2007 until the first half of 2008, when the GDP growth as well as the lending market reached its historical maxima, average housing became unaffordable for average families. This can be explained by soaring property prices that outperformed growing disposable incomes of households. As the growth of income levels could not keep the pace of the one of the housing market, the lending activity accelerated even more

to counterbalance the lack of savings generally needed for house purchases. A different situation is observed after 2010, when a combination of stable development on property market and the modest growth of disposable income, accompanied by falling interest rates, led to constant improvements in the affordability of housing [5].

4. Institutions and economic tools to support housing

The present condition of housing in Slovakia is the result of complicated historical development. Before 1989 the whole system of housing construction development unwound from the system of planned management of the national economy, which meant the state share in complex housing construction is almost in the whole range. After the year 1990, the responsibility for the financing of housing moved from the state to citizens in Slovakia.

In the Slovak Republic, the system of tools for the support of housing was realized in the form of direct or indirect support.

1. The direct state support:

- subsidy for the procurement of rental flats, technical facilities and removal of systemic defects in blocks of flats in the Act No 443/2010 Coll. on subsidies for the development of housing and the Act No. 134/2013 Coll. (MDaV SR) as amended,
- the contribution for housing (the Ministry of Labour, Social Affairs and Renewal of Housing Stock, hereinafter MPSVaR SR),
- the contribution for insulation of a family house (MDaV SR),
- premium loans for procurement of rental housing and renewal of the housing stock (SFRB),
- subsidies for procurement of alternative rental flats, technical facilities and building plot (the Ministry of Transport and Construction of the Slovak Republic, hereinafter MDaV SR).

2. Indirect state support:

- bank guarantee for the renewal of blocks of flats for the loan provided by the state housing development fund (hereinafter SFRB),
- state subsidy for young, the height of which is determined by the state each year in the Act on the state budget—the Ministry of Finance of the Slovak Republic (hereinafter MF SR),
- state premium to building savings, the height of which is determined by MF SR; the process of determination of percentage height of the state premium is automated and unwinds from the formula, which is defined in the Act on Building Savings (**Figure 1**).

It might be said that the state created a particular (some) system of supportive tools for the development of housing differentiated according to the income structure of households.

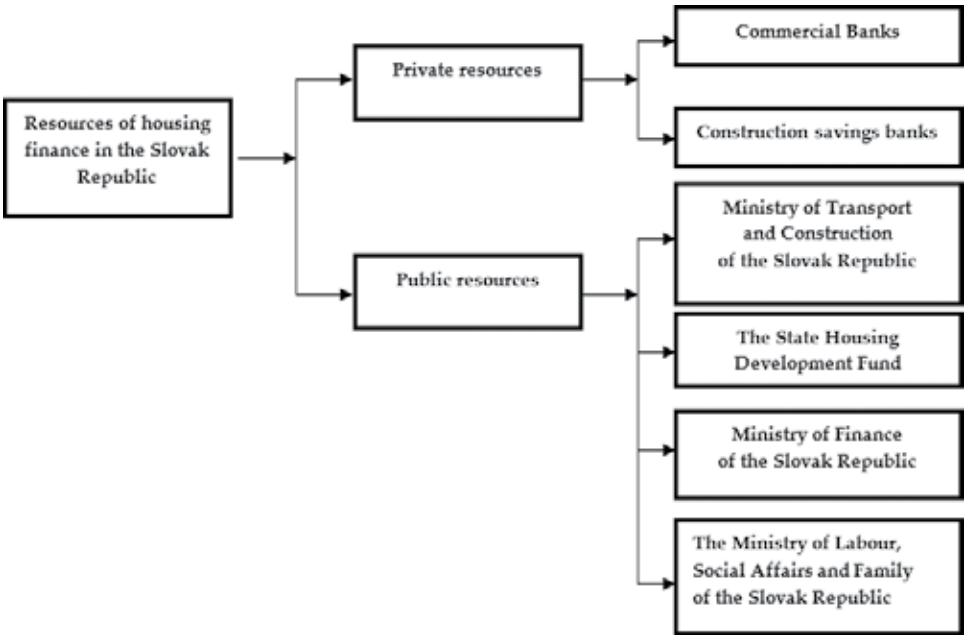

Figure 1. Institutions providing public and private sources of financing in Slovakia.

The particular category from the view of financing is rental flats determined for social housing, which present flats procured with public sources. They are determined for adequate housing of natural entities, who cannot gain housing by their own efforts. The applicants for such a flat have to fulfil the conditions, which are defined by the Act on Subsidies for the Development of Housing and Social Housing No 443/2010 Coll. as amended.

Public sources for the support of social housing might be provided mainly as:

- subsidies for procurement of housing,
- advantageous loans for procurement of housing,
- irrecoverable contributions lowering the cost related to housing,
- irrecoverable contributions for operation of a building, in which social housing is provided.

4.1. Credits for housing

Important factors which distinctly contribute to the dynamisation of the real estate market in Slovakia are accessibility of credit sources and low interest rate. The volume of new credits for housing presents the in long term a crucial part of the overall volume of drawn credits by households. But the aim of new credits for housing is not a priority investment to a purchase of new real estate but also renewal and modernization including the insulation of existing residential buildings as well as the refinancing of older and unfavourable credits. The highest

sum for the financing of housing is repaid by the Bratislava people. The average height of provided mortgage to inhabitants in the Bratislava region (in 2017) was 95,874 Euros and the average height of their monthly instalment is 403 Euros [6].

It is necessary to emphasize that the key factor of development of the real estate market from the view of development of new financial tools in the field of legal entities as also in a retail area was the entrance of foreign investors into the Slovak financial market. The priority financing by commercial banks becomes investment credits oriented mainly to flat construction. A new form of financing of housing gradually became also project financing, investment financing of legal entities in combination with mortgages and purpose-tailored building credits. The trend of housing credits in Slovakia is presented in **Figure 2**.

4.2. Taxation policy

Taxes and subsidies are mutually closely related and might induce the demand for housing. The developed countries consider housing and real estate a significant source of income for the state budget (especially the real estate tax), which is also one of the reasons why they support the development of housing. Tax relief plays a vital role in the development of housing construction in the world, which encourages the participation of the private sector in the development of housing construction, and so they replace direct state intervention. The provision of tax relief is easier and simpler to be managed as a subsidy, because their implementation does not require the creation of new institutions, as the tax offices already exist. Besides that, the tax relief is not too frequently re-evaluated and changed. It makes their acting more stable and more long term than the utilization of other tools of housing policy.

A unique possibility from the view of tax relief in Slovakia is the exemption from the property sale tax after 5 years since the day of acquisition or its elimination from commercial property

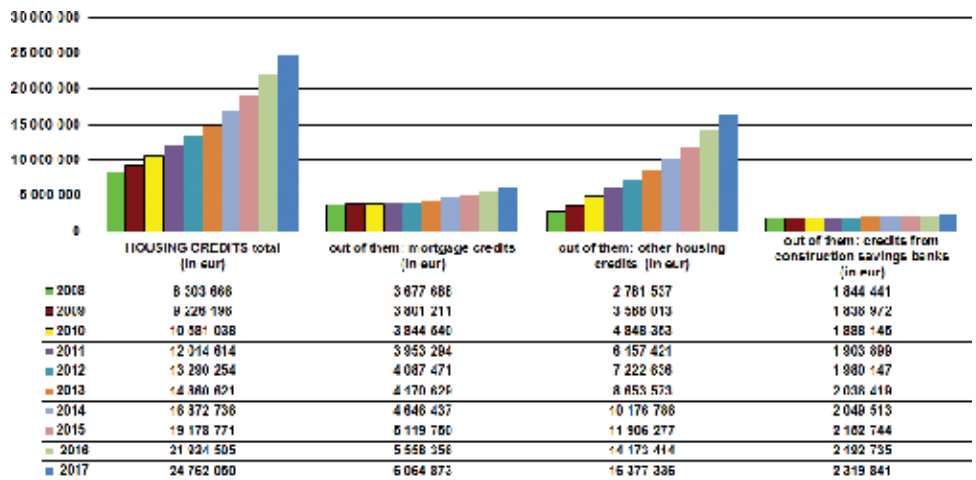

Figure 2. The trend of housing credits in Slovakia. *Source*: own processing by the National Bank of Slovakia [7].

in the wording of valid legislature (the Act on Income as amended). The relief is related just to the first owner or his close person according to the Civil Code.

The tax reform in Slovakia implemented equal tax since 2005, lowering of tax burden and simplification of the tax system, which also stimulated the entry of foreign investors. This reform prefers provision of subsidies, the effect of which seems to be predictable for reform creators. The reform cancelled almost all types of tax relief and at the same time provided minimum space for their sufficient implementation, because it would mean the lowering of the income side of the state budget. Therefore, it limits also the possibilities of implementation of tax relief as a supportive tool of housing policy.

A controversial point of tax reform in Slovakia was the implementation of the unified VAT rate [8], which besides other important commodities also overprices flats, subsequently leading to the lowered accessibility of housing for lower-income groups of inhabitants. However, the majority of the EU countries have kept lower VAT (see **Table 1**).

Source: VAT rates applied in the member states of the European Union, 2016—taxud.c.1, taken from Sutovska [9].

In **Table 1**, we show the overview of rates in the EU member states in two categories, where "ex" means exemption from taxation and "N/A" means not applied lowered rates.

From **Table 1**, we understand that lowered VAT rates for social housing and reconstruction and repair of private flats are applied just in the national legislative of some member states.

CATEGORY	BE	BG	CZ	DK	DE	EE	EL
Social housing	12/6	20	15	25	19	20	23/ex
Reconstruction of private flats	21/6	20	15	25	19	20	23
	ES	FR	HR	IE	IT	CY	LV
Social housing	4/10	5.5/20	25	13.5	4/10	N/A	21
Reconstruction of private flats	10	10/20	25	13.5	10	5	21
	LT	LU	HU	MT	NL	AT	PL
Social housing	21	N/A	27/5	Ex	21	20	8
Reconstruction of private flats	21	N/A	27	18	21/6	20	8/23
	PT	RO	SI	SK	FI	SE	UK
Social housing	ex/6	5	9.5	20	24	25/ex	20/5/0
Reconstruction of private flats	6	20	9.5	20	24	25	5

Table 1. Overview of VAT in EU member states for selected categories.

Lowered rates for social housing are applied in Belgium, the Czech Republic, Spain, France, Ireland, Italy, Hungary (since 1 Jan 2016), Poland, Portugal, Romania, Slovenia and Great Britain.

As Sutovska [9] presents, these lowered rates in the member states are applied just in case of fulfilment of other specific conditions determined in the domestic regulations. In Hungary the lowered VAT rate of 5% is valid just for social housing, where the floor area is lower than 150 m^2. Otherwise the basic VAT rate of 27% is applied.

Even the European Union requires from the member states the implementation of housing policy to the higher VAT rate; some countries rank housing construction for socially weak layers into a lower VAT rate. These countries realise that based on the lower or zero VAT rate for the construction of small-area flats of common standard, the availability of housing might be increased. The stated possibility is not allowed by the present legislative in the Slovak Republic.

5. Housing prices in Slovakia

Much more attention is paid to the development of real estate prices, namely due to the need to investigate their influence on price stability in the Eurozone. Recently as a distinctly differentiated development, there might be considered the development of prices of particular types of real estate determined for living not only in Slovakia, but also in the particular EU member states. The development of real estate prices determined for living from the view of currency stability has a substantial impact on the economic activity and changes of prices as a whole. The growth of flat prices contributes to the increase of economic activity not only via the growth of investments into housing but also by increase in household consumption through effects of ownership related to assessing real estate determined for housing. But the intensity of these effects differs distinctly in various countries and depends on the extent of private ownership of houses and flats. On the other hand a possible decline of prices of real estate prices determined for living presents a risk for the stability of the bank system with serious macroeconomic impacts as from the view of financial stability, the immovable asset is one of the main forms of collaterals of credit resources.

Demand for housing is significantly higher in those areas of Slovakia which provide more job opportunities, which can be based on economic and social parameters, considered as more advanced. For example, due to the currently implemented mega-investment Jaguar Land Rover in Slovakia, the pressure on prices of flats in the region of Nitra has increased. The arrival of the new investor makes the surrounding of Nitra a lucrative locality which greatly contributed to an increase of apartment prices to about 10–15%, in some cases up to 20% in comparison, towards the end of 2015.

Average prices of real estate for housing in the Slovak Republic are in the long term determined mainly by flat prices, as in the market with housing just the offer of flats represents two-thirds from the overall offer of real estate for housing. More than 80% from all realised

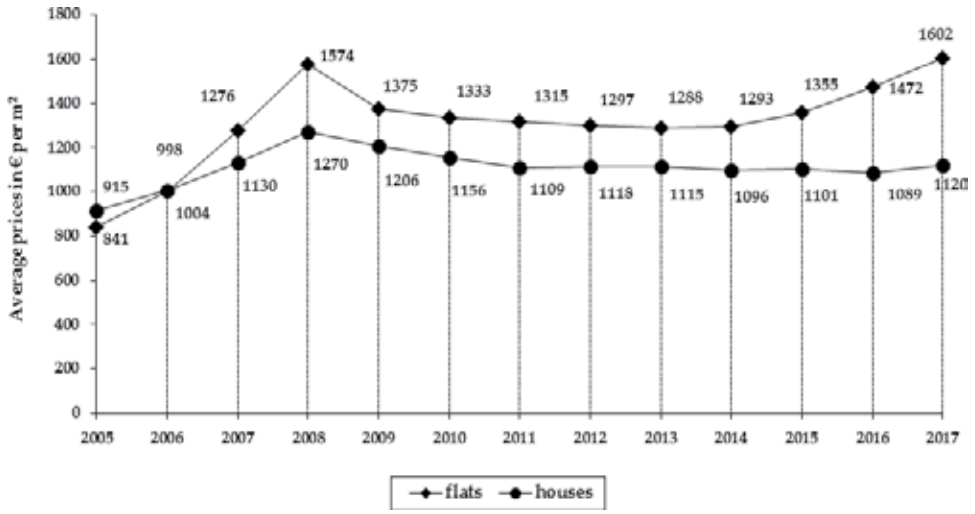

Figure 3. The trend of housing prices in Slovakia: residential property prices by the types of flats and houses. *Source*: own processing by the National Bank of Slovakia [7].

transactions in the residential market are flats. The average price of a square meter of a flat is kept during the last years minimally 10% over the reported overall price of real estate for housing in the Slovak Republic. **Figure 3** presents residential property prices by the types of flats and houses.

6. Public rental housing

Availability of tenement, contrary to home ownership, is limited in Slovakia. The reason, besides its lack, is also high rent. Thus, this fact might be considered as one of the important reasons as to why the share of rental housing in Slovakia is significantly lower than in several countries of the European Union. On the other hand, we might assume that those who finance housing through mortgages are not to be able to repay them and they will lose their existing housing. In a horizon of several years a new group of people will originate, who will have problems with the availability of housing not only due to difficulties to get mortgage but also due to quite high rents in bigger towns (e.g., Bratislava, Košice, Banská Bystrica and Žilina, where the prices of rents remain high for a long time, at present at the level of repayments). Rental flats in Slovakia are possible to be divided into two groups:

- Flats built before 2000 which were initially state rental flats and in the 1990s they moved to the ownership of towns and villages.
- Flats whose construction since 2000 has been covered by villages and towns and they are financed from the Programme for Housing Development. These flats have to keep the rental character for at least 30 years and their tenants can be households with income to "a certain fixed height" (to the general conditions there belongs the income of an applicant

which cannot exceed triple of life subsistence by 31 Dec of the previous calendar year, and at the same time the applicant cannot be an owner of any real estate).

A severe argument for the lack of rental flats is:

- Contrary to western countries, in Slovakia, at the beginning of 1990s, "a massive privatisation of flats" took place. Consequently within a few years, originally state flats or cooperative flats turned into flats under private ownership (as their original "tenants" bought them for residual value).
- This situation did not happen in western countries, and the real estate market went its natural way; this is also the reason why the share of rental housing in Slovakia is significantly lower than in several countries of the European Union.

The difference between Slovakia and countries, where rental housing is presented with a high percentage, is that:

- In the Slovak Republic, it is prevailingly assessed as "social housing" for socially weaker layers of inhabitants.
- In countries, where housing is presented with a high percentage, rental housing is determined for all layers of the society and not only for that one with a lower social standard.
- A majority of inhabitants solve the question of housing mainly with the purchase of a flat into private ownership, while it is a life-long investment with mortgage burden for many years.

Housing in rental flats is under the conditions of the Slovak Republic, contrary to foreign countries, where it is still understood as "the assessment of a social status" of a dweller and is prevailingly also assessed as "social housing" for the socially weaker class of inhabitants. On the other hand, in the countries where rental housing is represented by high-volume flats, they are available for all social classes [10].

6.1. Sources of funding for municipal rental housing in Slovakia

Currently there is only one type of rental housing supported by the state for the socially disadvantaged. Subsidies for rental housing, subsidies for the construction of technical infrastructure and loans from the State Housing Development Fund are public sources of funding which are currently the most utilised and also the most preferred. Other funding opportunities are own resources of towns, villages and commercial loans. Their availability for municipal entities is limited in terms of higher interest rates and limiting factors for spending commercial loans in terms of the Financial Regulation, which municipal entities must comply with. It should be noted (based on the Law of the Financial Regulation of towns and villages) that the loans from the State Housing Fund are not added to loan indebtedness of the given municipal subject (unlike commercial loans, which are added to debt).

6.2. Donation and loan policy in the rental housing

Public funding sources, which are currently provided for the development of the construction of rental apartments, have two forms—subsidies and "cheap" loans from the State Housing Development Fund. It should be noted that in terms of economic theory, direct subsidies are considered as one of the least efficient housing policy instruments and should therefore be used only where the market is unable to provide the needs of certain groups in the construction or reconstruction of housing fund, which is a source of serious problems.

Subsidy (*donation*): they are subsidies for rental flats and the construction of technical infrastructure. According to the legislation, applicants can be only municipalities, respectively boroughs. This means that applicants for grants cannot be housing organisations that would be interested in rental housing for low-income groups.

Government loans: they are provided by the State Housing Development Fund and are considered as "cheap loans" because their interest rate is at 1.0%, with a repayment within 40 years, and the maximum loan amount per dwelling is 60,000 EUR [11].

However, the reality is that for the loan from the State Housing Development Fund as well as different types of subsidies for the development of housing services provided by the Ministry of Transport and Construction of the Slovak Republic, there is no legal entitlement and its provision and purposive fullness is set by strict conditions in the relevant law.

Donations for housing are one of the claims in the provision of assistance in the material need to cover housing costs. The height of the contribution for housing is [12]:

- 55.80 € monthly, if it is a citizen in material poverty and
- 89.20 € monthly, if it is a citizen in material poverty and natural entities, who are assessed together with the citizen in material poverty.

7. The relationship between the housing and labour mobility

Consistency between housing (housing market) and jobs (labour market) has become an important part of the public policy of the state and local governments. The working places are increasingly dependent on the availability of housing (or rental housing). There are many reasons for this—for example, a higher quality of life, such as the demand for businesses for employees living in the neighbourhood or the solution of traffic situation (saving money on transport or saving time in traffic jams). Housing is therefore an important source of employment. The functioning of the housing market is connected with the mobility of housing, which is closely linked with the desired and undesired labour mobility. Many people have become "prisoners" of their homes, whether rented or own housing, due to lack of offers or for economic reasons. Requirement of ensuring increased mobility of housing is a prerequisite for greater labour mobility and thus better opportunities and success in the labour market. In order to ensure the competitiveness of regions and foster job mobility, it is necessary to

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diversify the supply of housing—not only at the level of different types of ownership and usage but also diversity in the supply cost to provide housing. The reason is particularly the availability of quality housing, which will proportionally correspond with the financial resources of households. Also, instant availability of housing for employees is an essential condition for the development of a dynamic labour market—the development of employment is blocked by the lack of housing.

In Slovakia, the real estate market is characterised by a high proportion of owner-occupied real estates and almost non-existent rental housing. Moving for work is therefore complicated because of the lack of availability of rental housing. The current structure of the housing market is largely due to historical development —both in the development before 1989 and in the lack of adaptation of the housing sector to the new conditions in recent decades. After the change of the political system in 1990, the transformation process began, which also included the privatisation process. Part of the privatisation process in 1992 was the introduction of the right to redeem the property for tenants in state apartments at very reasonable prices (apartments were redeemed into private property at prices that correspond to 5% of their market value), resulting in a change in the ownership structure. A large proportion of public rental housing was subsequently purchased by tenants into the private sector. For example, in Bratislava, the share of private housing increased from 12% in 1992 to 70% in 1998. The high occupation of flats, the rise of prices and rents, geographic differentiation of wages and so on lead to the reduced labour mobility [13]. While the historical development has helped to shape the current structure of housing, housing support policy helps to preserve this structure and thus contributes to the slower development of rental housing. At present, most public expenditure spent on housing support is used for the subsidy of owner-occupied housing. Cheaper financing of owner-occupied housing has a direct impact on the entire housing market. Subsidised owner-occupied housing is financially more attractive and more accessible than rental housing. This promotes the demand for owner-occupied housing at the expense of rental housing. The market reacts to a lower demand for rental housing with lower investments for the creation of new rental housing, which leads to a slower development of this segment of market.

Flexible labour market enables workers in the better choice of employment and the efficient allocation of labour among companies. In Slovakia, one of the obstacles of labour mobility in the labour market is low regional mobility. Comparing internationally, Slovaks move for work much less than people in neighbouring EU countries. One of the factors that may negatively influence this condition of the labour market is the housing market. Low mobility on the labour market has a negative impact on economic growth. Regional unemployment is rising while jobs remain unoccupied. The low labour mobility also reflects regional differences in unemployment rates. It leads to inefficient use and allocation of human resources. People are forced to refuse job opportunities in other regions, where they could generate more economic value and thus earn more money. Higher unemployment and limiting productivity growth are associated with lower GDP and lower living standards. Labour mobility involves changes in the physical location of workers (geographical mobility) or their movement across jobs and sectors (occupational mobility). Two main types of internal labour mobility are in the centre of attention—internal migration and commuting. Migration is usually associated

with a change in the residence of a worker (in economic literature, a migrant is considered a person who stays in the destination region for more than 1 year). Commuting occurs as a rule without a change in the worker's residence (i.e., a worker's place of work and place of residence are located in two different regions) [14].

From **Figure 4** we can see the negative trend in the development of rental flats in Slovakia.

Important is also the fact that social rental housing depends on income. This means that in case of the entitlement of rented apartments, the motivation to earn more money is lower. The reason is the fear that the tenant loses his entitlement to a rented flat. The result of such a situation is reduced incentives to work and thereby a decrease in the mobility of labour. On the other side, the second extreme in Slovakia is a high proportion of persons who have apartments in their ownership [16]. Purchase, respectively, rental of residential property is generally not just a matter of rational economic calculation, but to some extent it is also a reflection of national usage. Within the internationally comparable survey on income and living conditions (Statistics of Income and Living Conditions—SILC) in European countries, it is proven that not only in Slovakia but also in most countries the ownership of the house or apartment is preferred more than rent. In the EU, 28.70% of the population subscribes to the ownership of residential property. However, between countries there are obvious differences. Slovakia clearly belongs to the category of countries where the term ownership of real estate considerably resonates (up nearly 90%). On the other hand, the most significant relationship to rental housing in Europe is shown by the people of Germany and Austria.

Available cross-country comparisons show that mobility flows in Slovakia are low in international terms. This applies in particular to internal migration, which means to flows connected with a change in the place of residence. The internal migration rate for Slovakia, measured as gross regional outflow as a percentage of working age population is significantly lower than in most EU countries and other advanced economies as well as neighbouring Visegrad countries (see e.g. [17]). According to national statistics, 1.6% of the productive age population

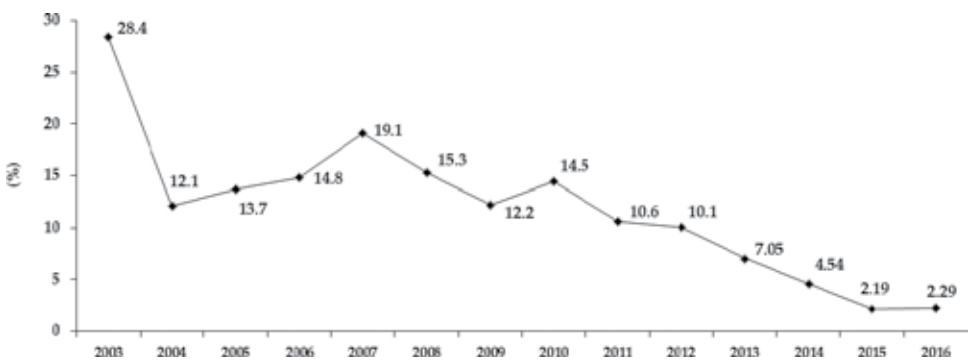

Figure 4. The evolution of the share of rental apartments in Slovakia among the total number of completed apartments (in percentage). *Source*: own processing according to data from the Ministry of Transport and Construction of the Slovak Republic [15].

(15–64 years) changed their place of residence in 2011, of which 46% moved between municipalities within districts (i.e., short-distance migration), 29% between districts within a region and 25% between regions. These figures are remarkably stable over time (there are only minor variations in data between 2000 and 2013), implying that the overall internal migration capacity and main flows are relatively unresponsive to external factors such as international migration or policy interventions. No more than 3–4% of residential migrants (3.3% in 2011) indicate employment-related motives as the reason for relocation. "Housing reasons" and "following a family member" account for almost two-thirds of officially declared migration reasons. The share of labour migration increases with the spatial distance of relocation and is the highest in migrations between regions (8.5% of all inter-regional migrations in 2011; in comparison, employment reasons were stated in merely 1.1% of relocations between municipalities). Jurcova and Vano [18] points out that this observation is consistent with data on the educational structure of migrants and the general assumption that the propensity to move for work increases along with educational attainment.

8. Conclusion

In this chapter, we tried to discuss the development of housing policy in Slovakia after 1990, some selected issues related to the development of housing in Slovakia and the availability of housing and labour mobility. An indispensable factor in housing development is a well-developed institutional environment regarding efficient economic instruments (particularly credit and tax policy) as well as the establishment of the organisations in the housing market.

Finally, we can say that focusing on supporting housing housed by owners with existing tools causes a particular disruption to the real estate market. There are possibilities to help adjust the current situation and avoid future complications. One of them is the redirection of the state aid for housing housed by the owner for financial contributions to housing (housing allowance). This housing policy tool would allow the recipient to choose between a rental and a housed owner. It means that financial contributions could be more tied to income and other social criteria and thus to achieve the more significant resurgence of resources. The strengthening of this instrument in Slovakia is also recommended by the OECD.

The high occupation of flats, the rise of prices and rents and geographic differentiation of wages lead to reduced labour mobility. In Slovakia, one of the obstacles of labour mobility in the labour market is low regional mobility. Comparing internationally, Slovaks move for work much less than people in the neighbouring EU countries. One of the factors that have negatively influenced this condition of the labour market is the low share in the offer of rent housing for various income groups of inhabitants.

In the future there is a need to focus on the simplification of administration schemes of supportive state financing in the field of rental housing, to prepare new financial mechanisms to improve the development of the rental sector in the Slovak Republic.

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Chapter 3

Children's Playgrounds in Slovak Mass Housing Estates: History and Current Trends

Katarína Kristiánová

Additional information is available at the end of the chapter

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Abstract

Children's playgrounds represent an important amenity in the concepts of mass housing, The study chapter presents the unique concepts of children's playgrounds that have been applied in the Slovak mass housing estates of the second half of the twentieth century, designed by architects and artist, and inspired by the best European experiences, for example, by the landscape design of the Stockholm School. The early inhabitants of the Slovak mass housing estates were predominantly young families with children. The residential aging of this homogenous social structure caused that during the lifespan of housing estates, the demand for playgrounds decreased, they became underused and fell into decay. Today, the social structure of mass housing estates becomes more heterogeneous, what puts new requirements on the design of open public spaces and, as well as, on the regeneration and design of children's playgrounds, to serve the rising demands of the inhabitants and to enhance the livability of the housing estates. The study examines the current examples of the children's playgrounds from Slovak mass housing estates, which show that nowadays the typified design of the standardized catalog type elements is used and preferred.

Keywords: mass housing, children's playgrounds, playground design, public open space, regeneration of housing estates

1. Introduction

The quality of housing stems from the fulfillment of the basic and superior living standards within the housing unit, as well as the amount of complementary services, housing utilities and amenities in the living environment. Design of the residential areas must satisfy a very wide range of human needs and desires and constitute a cultural and social milieu, reflecting

the way of life of individuals and the community [1]. Access to important urban amenities and facilities, including healthcare, education, shopping, working, transport services, culture, recreation, leisure, and the quality of public and open green spaces, increase the livability of residential neighborhoods.

Places for play and sport for different age groups, and especially children's playgrounds also belong to the amenities and facilities having the potential to increase the wellbeing of dwellers and users.

Playground experiences are having developmental significance in children's lives, playgrounds offer children opportunities to create, organize, and control their own play experiences, they allow them to learn and practice important social skills, exercise decision-making and other practical skills that will be used across the life span [2, 3].

The earliest playgrounds, reflecting the interest in the quality of urban children lives, emerged in Europe in the late nineteenth century and spread to the United States. These new spaces were intended to address social concerns about the development and health of urban children and in urban environment provided a safe place to play [4–6].

The importance of playgrounds for residential neighborhoods has been widely recognized by urban planning of the twentieth century. It was understood that children's recreation and playgrounds must be planned on a comprehensive scale: facilities need to be considered on the basis of a town as a whole to ensure that all areas are adequately served, and that the playgrounds need to be planned to provide as many as possible activities. It was suggested to prepare master plans for playgrounds and play spaces in parks, housing estates, and playing fields [7]. It was recommended to site the playgrounds in the centers of neighborhoods, adjacent to a primary school sites, to serve the interests and needs of children and at the same time to afford recreational opportunities for all people of a residential neighborhood, but also situate the toddlers` play areas and play areas for children of 5–15 years of age directly in residential areas, within convenient distances from their homes [8].

The importance of playgrounds as an urban amenity which can increase the standard of living was reflected in the urban design concepts of the mass-housing estates of the second half of the twentieth century in Slovakia as is described and illustrated by the following examples.

2. Children's playgrounds in urban design concepts of Slovak mass housing estates

In the design concepts of the large-scale mass housing estates in Slovak cities from the socialist period of the second half of the twentieth century, the modernist urban visions of dwelling in multistorey buildings, standing in the middle of extensive green areas, and modernist approaches toward creation of public space, were reflected [9, 10]. The urban concepts of large residential complexes and prefabricated panel housing estates aimed to solve the demand for "housing for all," in the era of rapid industrial and urban development of towns, and mirrored the "collective dream" of the socialist era [11]. Public spaces in the mass prefabricated

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housing estates were well equipped with roads, parking places, pedestrian walkways, waste collection sites, and they were adorned by artworks, sculptures, statues, and fountains. The landscape architecture design of public spaces represented the architectural qualities of modernism of the second half of the twentieth century [12].

Because the early inhabitants of the Slovak mass housing estates were predominantly young families with children, the children's playgrounds belonged to their important amenities.

2.1. Children's playgrounds of Terasa housing estate in Košice (1962–1971)

In the urban design concept of the Terasa (Terrace) housing estate, then called New Town, in Košice, architect Berthold Hornung (1925–1997) used his knowledge of the last trends in the residential development in the countries where already gave a lot of emphasis on the coexistence of man with nature and created a concept of "living in the Park."

Inspired by the ideas of the Stockholm School and its park program [13], he followed the mottoes that the park breaks up the unrelenting flow of urban construction, and that taken as a group, parks can form a network in the urban fabric that provides citizens with necessary air and light, offer spaces for recreation, for promenades and rest, for sport and play, and that parks can create borders between different parts of the city and provide each district with an individual character and identity. According to these ideas, he formed residential districts called Luniks, each as a separate section with central amenities, which were located in the green zones [14].

As shown in the conceptual proposal for the first three Luniks from 1957 (**Figure 1**), each residential district was equipped with adequate civil facilities, school facilities, preschool

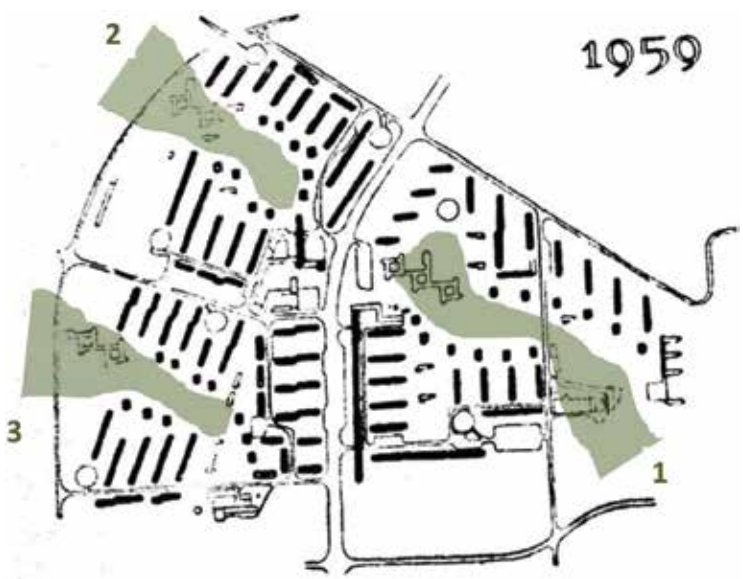

Figure 1. The first urban design concept for the three districts of the Terasa mass housing estate in Košice, the central part of every district—Lunik is created by a park with children playgrounds—(1) Suzanne's Park, (2) Kate's Park, and (3) Anne's Park. Source: Author's personal archive.

facilities, a shopping center, and also with playgrounds in the vast green space areas, which were given popular girl names—Zuzkin Park, Katkin Park and Aničkin Park, Suzanne's Park, Kate's park, and Anne's Park (**Figure 2**).

Parents could feel free to send their children to school, or to playgrounds, because the paths to schools, kinder gardens and playgrounds did not cross the roads designated for car traffic (**Figure 3**). The building of the Terasa housing estate started in April 1962, and the construction site was visited also by deputation from Sweden.

2.2. The play area joy, Štrkovec housing estate in Bratislava (1970–1976)

The concept of the playground complex Joy, in the Štrkovec housing estate in Bratislava, was set by landscape architect Alfonz Torma and the team of the municipal gardening company in the early 1970s of the twentieth century [15]. The complex included many attractions for

Figure 2. One part of the children's playground in the Kate's Park, in the Terasa housing estate, equipped with austere and simple elements—square window ladder climbers, slides, swings, and sand pits. Source: Archive of Source: Archive of Centre for Landscape Architecture.

Figure 3. Green open space of the Terasa housing estate in winter, serving as winter playground. Source: Archive of Centre for Landscape Architecture.

children, mini bathing pool, mini golf, simple typified swing sets, seesaws, monkey bars, slides, and also rest areas with various surfaces and grass. The complex served not only to the inhabitants of the neighborhood, but also to visitors from wider surroundings. The typified play elements have been complemented by specific art-design elements, designed by sculptor Rastislav Miklánek, as for example the popular sculpture of camel (**Figure 4**), or the maxi chess figures (**Figure 5**).

2.3. The playground of housing estate Medzijarky in Bratislava (1973–1979)

The high-rise blocks of flats in the hosing estate Medzijarky in Bratislava, designed by architects Štefan Svetko and Štefan Ďurkovič in the 1970s of the twentieth century, have been arranged in the forms of big octagonal courtyards. This solution allowed to exclude the cars from the inner space of the courtyards and to create there green spaces as adventurous playgrounds with various playground elements (**Figure 6**).

Figure 4. The concrete sculpture of camel in the sand play area was the most beloved play element of the playground. Source: Archive of Centre for Landscape Architecture.

Figure 5. The wooden chess figures in the part of the playground designated for chess game. Source: Archive of Centre for Landscape Architecture.

Figure 6. Sand area and play elements made of concrete in the playground of the housing estate Medzijarky in Bratislava. Source: Author's personal archive.

Figure 7. "UFO" as an art-design play element of the playground area, situated on the top of artificial hill, in the housing estate Medzijarky in Bratislava. Source: Author's personal archive.

The landscape design of the courtyards included artificial hills, used in the winter for sledge riding and also a unique play element "flying saucer"—unidentified flying object or "UFO," made by sculptor Juraj Hovorka in 1979 (**Figure 7**).

3. Design of play elements in the playgrounds of Slovak mass housing estates in the second half of the twentieth century

Except the unique art-design elements designed by architects and artists, in the design of playgrounds in the housing estates built during the 1960s and the 1970s of the twentieth century in Slovakia, mostly simple typified and standardized playground elements have been used. Climbers, slides, swings and merry-go-rounds were made of steel, the form of the steel frames was simple, geometrical (**Figures 8** and **9**).

The minimalistic design of metal playground elements used the in playgrounds of the housing estates in the 1960s and the 1970s of the twentieth century in Slovakia, recall the design

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Figure 8. The typified merry-go-rounds from the 1970s are still found in the playgrounds—example from the housing estate Juh in Rožňava. Source: Author's personal archive.

Figure 9. The popular playground element from the 1970s, called "Globe," was used as a climber and as a merry-go-round—example from Trnava. Source: Author's personal archive.

of the Aldo van Eyck's playground elements—the rectangular and round steel frames for climbing, or the latter like an igloo. Van Eyck's play equipment invited the child to actively explore the numerous action possibilities it provided. He paid special attention, for example, to estimating the proper distances between the bars in his climbing frames. Van Eyck intentionally created abstract play elements that do not have a single meaning and function, but rather they can be used in different ways and stimulate children's imagination [16–18].

The popularity of sand and the use of plain concrete, in elementary abstract forms, as rims of sand pits or jumping blocks, used in the Slovak playgrounds from the 1960s and the 1970s as well as witnesses Van Eyck's strong influence on the playground design of the second half of the twentieth century.

In the 1980s of the twentieth century new materials came to use in the playgrounds of Slovak housing estates—wood, in the form of logs and beams, and also ropes, as for example in

Figure 10. Examples of the play elements used in the playgrounds of the housing estate Petržalka in Bratislava, districts Háje and Lúky, in 1980–1986, design by Eva Grébertová and Jozef Slíž. Source: Author's personal archive.

Figure 11. Wood and ropes—new materials used in the design of playground elements in the housing estate Petržalka (1980–1986), by architects Eva Grébertová and Jozef Slíž. Source: Author's personal archive.

the playgrounds of the Petržalka housing estate, districts Háje and Lúky, built in the years 1980–1986 and designed by architects Eva Grébertová and Jozef Slíž (**Figures 10** and **11**).

4. Transformations of playgrounds in Slovak mass housing estates and current trends

Open public spaces are spaces intensively reflecting the cotemporary needs of the communities for their use. Public spaces reflect the society and its culture [19]. The new socio-economic conditions after the change of the communist regime have created new demands of the society toward the open public spaces in the mass housing estates, and today, the current requirements continue to transform them [9].

The residential aging of homogenous social structure of mass housing estates, previously composed of young families with children, caused that during the lifespan of housing estates, the demand for amenities like kinder gardens, elementary schools and also playgrounds decreased. Children's playgrounds became underused and fell into decay. The concept of generously designed broad green open spaces, which belonged to the most characteristic features of the mass housing estates, and were used as play areas, had its failings and shortcomings, too. Broad green open spaces suffered problems of maintenance, loss of control, or safety [9, 12].

The last decade of the twentieth century were the years of changing intra-urban patterns, which arose from the various processes conditioned by the political, economic, and social changes symptomatic for the post-socialist or transition period [20]. Since the 1990s of the twentieth century, densification of housing estates by additions of new residential, commercial, or administration buildings, and, as well as, increasing demand for car parking spaces caused losses of green open spaces [9], and also disappearance of children's playgrounds.

Today, the social structure of the mass housing estates becomes again more heterogeneous, what puts new requirements on the design of open public spaces and, as well as, on the regeneration of children's playgrounds and their design to serve adequately to the rising demands of inhabitants. While during the socialist period market with flats did not exist and was limited only to a mutual exchange of flats, after 1990, the emergence and development of real estate market with flats enabled new inhabitants to buy and move in the flats in housing estates, and today, the new generation of young families with children again creates the demand for children's playgrounds.

Many of the former playgrounds which during the previous period fell into decay have been revitalized. However, only in few cases, the playgrounds have preserved their original design structure and the original play elements (**Figure 12**). Today, the original steel playground elements, as for example the popular "Globe," do not fulfill the safety requirements according the current technical standards.

Figure 12. The preserved original steel play equipment, in front the "Globe" and the "Rocket," in the small play area in the housing estate in Šaľa. Source: Photograph by author, 2018.

In most of the cases, the old steel play elements have been replaced by new equipment, usually using the former landscape architectural setting and the former concrete elements, as could be seen, for example, in many playgrounds in the housing estate Petržalka in Bratislava (**Figure 13**).

Current examples of the children's playgrounds from Slovak mass housing estates also show that nowadays the typified design of the standardized catalog type elements is used and preferred (**Figure 14**); however, some of them show individual design (**Figure 15**).

Another characteristic feature of the children's playgrounds in the housing estates is that they become in many cases fenced (**Figure 16**). Sand and concrete are not used today, or are used very rarely. Nowadays, mostly rubber surfaces are used for the safety surfacing under play elements (**Figure 17**). In the cases of "natural" playgrounds, usually woodchips are used.

Figure 13. The original landscape architectural concept of the playground at the Gessayova Street in the Petržalka housing estate is still readable from the abstract geometrical forms of concrete platforms, which host new play elements. Source: Author's personal archive.

Figure 14. Typified and standardized play elements are mostly used in the playgrounds—the example from housing estate in Šaľa. Source: Photograph by author, 2018.

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Figure 15. Some of the typified catalog play elements show individual design, play structure "Ant" situated in the courtyard of housing estate Veča in Šaľa. Source: Photograph by author, 2018.

Figure 16. The example of fenced and gated playground with typified and standardized play equipment in the housing estate Veča in Šaľa. Source: Photograph by author, 2018.

Specific art-design play objects, designed as sculptures, have disappeared from today's playgrounds. The reason is that today, every new play element installed in the playground must meet the requirements of Slovak and European technical standards—STN EN 1176, which determines general safety requirements and test methods for playground equipment and surfacing, and STN EN 1177, which determines impact attenuating playground surfacing and critical fall height. The play elements installed in playgrounds must have either a certificate or declaration of conformity with the norm, what is a complicated process.

As noted by Herrington [21], reliance on mass-produced play structures and standardized mass equipment as the primary source of outdoor play has led to playgrounds that do not relate to a community's local environment. Children seek novelty and stimulation and the playgrounds consisting only from repeated mass-produced elements ceased to be an exciting, inspiring places.

Figure 17. The rubber surface is laid under the typified and standardized mass-produced play equipment in the playground of the mass housing estate in Šaľa. Source: Photograph by author, 2018.

In Slovakia, it is possible to notice also the trend of commercialization of playgrounds [22]. The children's play has shifted from the housing estates and neighborhoods playgrounds to the specialized purpose designed centers, provided by shopping centers, or by profit making organizations. The play often moves also indoor, to play zones of retail outlets, family pubs, restaurants. Parents restrict children to use the neighborhood space around the home, to protect them from perceived social dangers [23], and to regulate where children play. The trend toward transporting children to leisure and a drift from public toward the private provision of opportunities for leisure [22] has become characteristic for playground provision in Slovak urban environment, too.

As technology evolves and becomes smarter, designing playgrounds for interaction with networks of devices has become more challenging, and using mobile phones becomes an important feature of the playgrounds [24]. However, the current trend of intelligent, interactive playgrounds, using advanced digital technologies [25, 26] is not observed, and not used, yet, in the public playgrounds of Slovak housing estates.

5. Conclusion

Successful playgrounds provide space for children's socialization, imaginative play and physical activity, provide social opportunities not only for children but also improve social cohesion between families and community members [27]. It is agreed that effective playgrounds include natural elements, encourage interaction, are highly accessible for variety of user groups, include spaces for active play, provide risk and challenge, and are safe and free of hazards [27].

These key components are considered crucial for the successful playgrounds: the design should be "tailor-made" to the playground to suit the environment in which it will be placed, the playground should be placed as to be readily accessible to all, and close to the users, it should use the natural elements, the nature of the country and surrounding plants, the playground should provide a wide range of experiences, including the selection of a variety of surfaces, textures, plants and a combination of free and organized areas. The playground

should be accessible to disabled users, to be able to play together with others and should provide for the possibility of choosing from a variety of equipment. The playground should offer different game options, should allow the children of different ages to play together, and it should allow to test the children's skills. The playground should accommodate the needs of the community; therefore, the community should be involved in its design, which should be the result of general consensus. The playground should be properly maintained and it should allow changes according to the needs arising over time.

Access to playgrounds is an important urban amenity, enhancing the quality of housing and living environment.

In the Slovak mass housing estates of the second half of the twentieth century, unique concepts of children's playgrounds have been applied, designed by architects and artist, and inspired by the best European experiences, for example by the landscape design of the Stockholm school, or by the playgrounds of Aldo van Eyck. Design of public open spaces and public playgrounds in the Slovak mass housing estates represented the architectural qualities of the modernism of the second half of the twentieth century, but their main problem was the lack of maintenance, resulting from the lack of resources.

Today, the trend to use the mass-produced play equipment in playgrounds does not respect the site specifics, reduces the potential of playgrounds to stimulate children's imagination, the trend to fence and gate the play areas, and shift them to specific zones and indoor, and reduces the access of children to play.

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Chapter 4

Collaborative Public Participatory Web Geographic Information System: A Groupware-Based Online Synchronous Collaboration to Support Municipal Planning

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Abstract

Co-PPGIS has a wide variety of applications like municipal planning, emergency response, public health and security, etc. The main focus of this paper is on the development and design of a web collaborative PPGIS (Co-PPGIS) infrastructure. As part of municipality's planning and management services, Co-PPGIS is developed for real-time map sharing application system. Co-PPGIS is an effective and essential online meeting system for supporting group collaborations on geographic information such as maps and imageries and capturing and sharing of local/domain knowledge in real time. Co-PPGIS permits amalgamation of geospatial data and collaborator's input in the form of geo-referenced notations. It incorporates coherent components such as map sharing, real-time chat, video conferencing, and geo-referenced textual and graphical notations. The study aims to focus on public participation and geo-collaboration facilitated with information sharing, interactive geo-conferencing, real-time map, and data sharing with tools to draw features or add annotation to the map while discussions, uploading documents, and live communication. Co-PPGIS provides an efficient and reliable platform that will significantly reduce the time to acquire, process, and analyze data. The significance of this study is to contribute to existing public participation practices, to municipal planning, to decision-making, or to geographic information science.

Keywords: PPGIS, GIS, GSC, participation, feedback, WWW, CSCW

1. Introduction

1.1. Study context

In recent years, providing public role in decision-making regarding spatial problems has developed an ease for geographic information technology adept in supporting collaborative spatial decision-making. According to Densham et al. [1], it has been stated that geographical information system is the technology to sustain PPGIS, but expert methods are needed to reinforce spatial decision-making in a collective way. Although now geographical information system and PPGIS are not prototype to assist multiuser associations, many approaches may require group-based involvement for decision-making. The idea of collaborative geographical information system, computer-supported cooperative work (CSCW), and collaborative decision support systems (DSS) was proposed as information technology to provide understanding about spatial complications and provide computer-based spatial decision-making [2].

Multiuser collaboration is playing its role in many works involving stakeholders from different departments and organizations, in which mapmaking sometimes play a main role for giving visual information for the support to decision-making [3]. Web technology is rapidly expanding its range and has made it possible to take decisions over the web. Due to demands for web-based open mapping, an Application Programming Interface (API) united with other information systems and CSCW tools has become more important for the support of real-time map sharing output. Accordingly, the development of map-based applications for real-time collaborative is one effective step taken by researchers who are efficiently working in many fields, e.g., emergency system, urban planning projects, municipality management, GIS data production, monitoring of urban sprawl and epidemic spread, and many more that assimilate collaborative role [4–9].

A concurrent approach is made for the support of collaboration among the users [6]; although, little work has been done on developing and designing such open-source software (OSS) which is based on online map sharing tools and support real-time collaboration. By assessing the researchers' work and their contributions from the literature review, this study aims to develop an outline about the significance of the execution of irreplaceable and sufficient methods, tools, and techniques to fill the gap in the research. Multiuser synchronous discussions and communications among the people and between the community and stakeholders sometime improve the understanding that shows an effective feedback and magnifies decision-making [10–14]. This paper actually shows a customizable framework used for an online system for collaboration with the installation of different web GIS, OSGIS, OSS-based tools, and open mapping APIs on geographic information to solve the issues that are related to emergency/disaster occurrence and municipal planning. Additionally, the study anticipates designing an open mapping API-based real-time collaborative synchronous infrastructure with the option of installing local data for improving the involvement of during debate. Some of these research prototype elements based on this kind of model are still in development procedure and in its starting stage in the house applicable testing.

1.2. Study objectives

The study aims to develop a real-time map sharing mechanism and collaborative PPGIS (Co-PPGIS) and for collaborative assessment the amalgamation of other open source-based groupware solutions on an effective GIS-based meeting platform. The aim of this study was also (1) to assure that Co-PPGIS model will help to improve or increase involvement of participants and will provide assistance to decision-makers in reaching a final decision efficiently; (2) to explain certain facts or observations, i.e., core concepts, design and technology, etc., with an overview of enabling technologies for analyzing and designing a successful real-time map sharing framework; and (3) to describe a prototype development based on case scenarios that looks into integrating CSCW principles and open-source groupware tools with web-based GIS. In order to assist municipal planning and development through a better and effective decision-making process, the primary research goal is to develop a web GIS-based contemporary collaborative participatory infrastructure. In order to fulfill the main research's goal, this study will focus on achieving the following objectives:

1. To gain better and effective understanding of the PPGIS nature, its culture, its limitations, and basic requirements by modeling general as well as high-level participation requirements after proper and complete analysis of the municipal planning and development (P&D) process workflows and by reviewing the existing online PPGIS applications
2. To portray collaborative, real-time web GIS-based participatory infrastructure that can employ open-source geospatial data, standards, software tools, and web services

This research primarily encompasses the working mechanism of real-time collaborative web map sharing framework that is going to be addressed within a fixed time period.

1.3. Background and literature review

Increasing importance of the need for an effective public participation in a decision-making process during municipal planning and development is on the main focus in this section of study. Through the integration of GIS technologies, involvement of public or local stakeholders in decision-making can become more effective. Public meetings, which is one of the traditional methods of public participation, is integrated in some PPGIS projects to accumulate public ideas, values, and preferences [15]. Collaborative use of GIS-based services encompasses the involvement of public and planners in the decision-making process with geo-conceptualizing a map and accommodating public and planners to build local spatial knowledge and exchange ideas. In order to get instantaneous access and conceptualize the spatial information and participate in decision-making process, collaborative GIS-based services provide opportunities to local stakeholder [16]. An increased public participation can lead to a better and effective decision-making because the processes of decision-making and public participation have a direct relationship which means that better decision-making processes can also lead to an increase in a user's participation and vice versa.

1.3.1. Rationale on municipal planning and management through existing public participation

In almost every field of life, planning process has certain defined goals or objectives just like in developing a small- or large-scale municipal plan and has some objectives such as to make planning process accessible, to accommodate in the conveyance or dissemination of ideas, and to support the decision-making process. Participation of public in municipal planning and management, according to traditional methods, includes neighbor notifications, interviews, exhibitions, public meetings/focus group discussions, and public enquiries through telephone, letters, mails, fax, or public hearings [17, 18]. In order to disseminate the need of a proposed solution during public meeting, planners and decision-makers present their plans through PowerPoint or point boards which is still considered as one of the most commonly used participatory approach [19]. In western world, public meetings are organized in order to accumulate feedback of public during planning- and development-related workflows for effective and better decision-making. For example, in the United States and Canada, local governments and many municipalities necessitate a level of participation in their decision-making processes [18].

Table 1 reveals the issues and concerns that are commonly faced during planning- and development-related processes in existing practices of public participation. It illustrates or portrays the complete assessment of existing public participation practices related to communication channels, notification, access of information, and exploring spatial data of municipal projects. Li et al. [18] also disclosed several main issues regarding traditional public participation practices like inadequate access to the information needed for public input, for exchange of ideas or information, and for communication; there is a lack of essential or creative platform, restricted awareness mechanisms, and notification channels. Factors like "successfully revealing and educating the public about the program before hearing, proper planning and management of meeting, providing an understandable and media-rich demonstration of the issues and organizing a proper follow up" are those factors upon the success of public meetings depends.

Issues	Concerns	
Notification	Limited means, e.g., newspaper, flyer, etc.	
Communication channels*	Public meetings/public calls/information resource center	Formal/informal presentation
		Open talk with public
		Flat board displays containing preliminary design/model solution
Exploring spatial data	Using hardcopy maps, etc.	
Access of information	Less feedback or public involvement	
	Lack in project data management	

*Establishing confrontational contact, dominated by higher authority, fix time, feedback lack, and accessibility issues.

Table 1. Issues and concerns in existing practice of public participation.

According to Meredith et al. [20], for successful public participation, proper and adequate access to information, effective connections to decision-making process, and effective tools for getting input into a decision-making process are very essential. Public participation can become better and effective only if a large number of participants easily understand the message and give valuable feedback in short time frame.

1.3.2. Rationale on CSCW and groupware

Previous studies related to the depiction and execution of real-time collaborative mapping technologies are still in its stage of growth and development. Although in the last decade, many attempts have been made to the research of developing collaborative PPGIS, but despite of this insufficient literature is obtainable in this field [21–24].

Using proprietary software approaches, e.g., PCI geo-conference, a few GIS-based tools encompassing groupware and CSCW technologies have been originated. Some attempts have been made to originate simple map sharing applications using open map services. As a result of modern developments in geographic information technology (GIT) that assists large spatial databases, groupware technologies, and web-based GIS, several frameworks that accommodate real-time collaboration were designed and developed [25–28]. Jankowski et al. [29] developed the Spatial Group Choice, a spatial decision support framework to assist the CSCW technique.

By acquiring "argumentation philosophy," argumap (which is an asynchronous perspective for spatial participation planning, to accommodate group discussions by connecting specific notations to map features) was developed by Rinner [30]. In order to support planning and decision-making processes, SoftGIS was developed which permitted mapping local knowledge and integrating it into urban planning practices [31]. Community action geographic information system (CAGIS) is a participatory GIS approach developed by Stewart et al. [32]. Virtual emergency operations center (VEOC) framework was designed for the purpose to provide a collaborative virtual environment that allows connectivity among participants while implementing synchronous, script-driven tests and assumptions [33]. For participation in community planning, MapChat is an online geospatial tool designed at the University of Waterloo. In collaboration with planning and/or emergency management related to decision-making, Rinner [34] recognized OSGIS technologies and OSS-based Web 2.0 concepts. The aim of this study is to describe core concepts, design, and technology with an examination of allowing technologies for analyzing and designing a successful real-time map sharing mechanism. This study also narrates a framework development based on a research project that looks into connecting CSCW principles, PGIS, and open-source groupware tools with web-based GIS.

1.4. Summary of closely-related research models

Already existing PPGIS application or model assessment helped researchers to find limitations of applications' framework and current practices. Three research models which are considered relevant to the present study are discussed below. Rinner [30] introduced the

argumentation model; in his model, he introduces argumentation maps as an object-oriented model for geographically related discussions. As shown in **Figure 1**, it shows the relationships between an argumentation elements/discussion, a geographic reference object/map feature, and user-defined graphic reference objects/sketches [34].

The argumentation model object classes have reinforced many-to-many relationships. For example, an object which is geographic can associate many argumentation components, and an argumentation component can be associated by many objects that are geographical. Additionally, as shown in **Figure 1**, the objects have their self-relationships to each other of the same class. For example, geographic reference class objects have spatial relations to other objects, and argumentation component class objects can have logical relations to other objects; again, many-to-many relationships are supported [34]. The argumentation model provides an open standard-based prototype with a special focus on the use of standards to confirm interoperability. The discussion component was developed using open-source programming languages, i.e., JavaScript and Java applet. The map elements are based on an open-source Java API, i.e., GeoTools and libraries. The same kinds of models were established and acquired by Tang [35] and Hall [36] but many other technologies were used to design the prototype of research MapChat and GeoDF.

The MapChat argumentation model (see **Figure 2**) engages the same classes and objects for spatial and textual relationship in comparison with previously discussed models. A new real-time map discussion class was introduced in this model, which provided the functionality of real-time geochatting in connection with every graphic-related object. An open-source application infrastructure is provided by MapChat argumentation model. It appoints open standards in relation to the overall system specification, it uses open-source coding based on

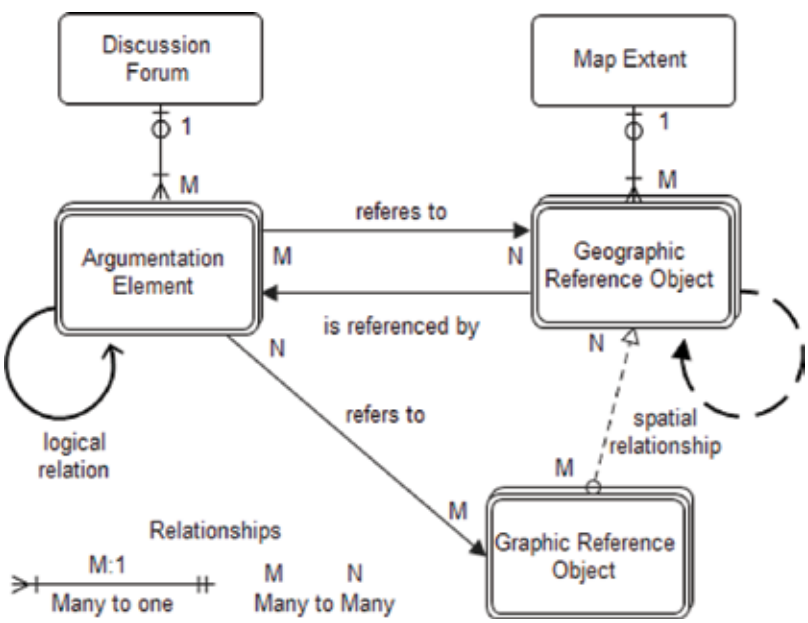

Figure 1. Modified argumentation map model. Source: [34].

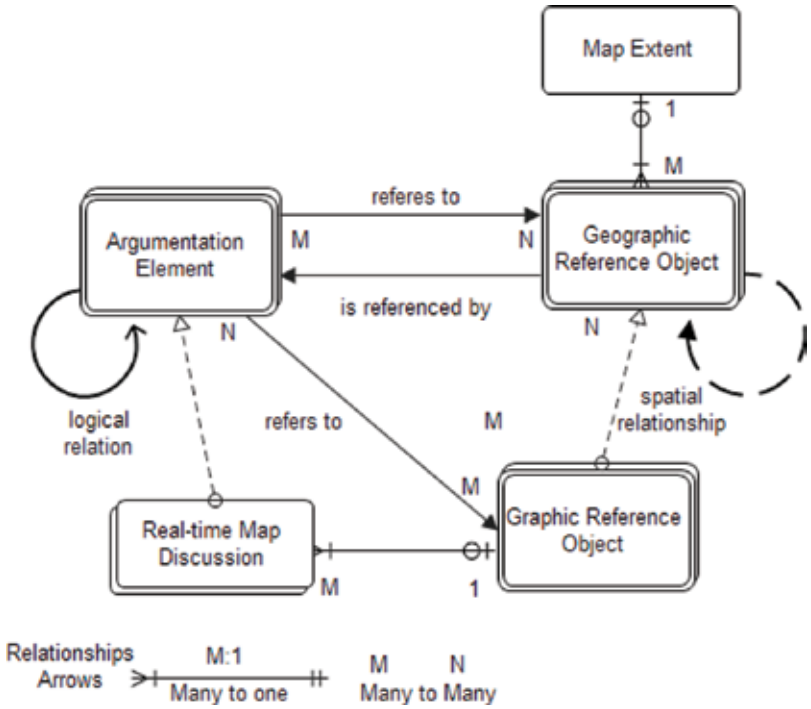

Figure 2. Modified argumentation map model for MapChat. Source: [34, 35].

PHP and JavaScript, and it uses a reliable architecture to give the installation of other tools of models [35].

These models have some sort of similarities like to introduce an open standard-based object model and to share the same map extent during discussion, making a spatial relationship with graphic reference objects and adopting an asynchronous participatory approach for map-based discussion. All three argumentation models allocate structured discussion, about different features of map and geographic-related objects, in many geographically meeting respondents to provide an approach of the asynchronous spatial data. For example, for the approach with the asynchronous spatial data sharing, it is not possible to find out an argumentation component related to the object of real world simultaneously in different respondents/members. The MapChat provides geochatting discussion functionality with real time, which cannot be implemented over other two models that used discussion threads with relation objects for geographic referencing. Unifying the chat with discussion elements gives a flexible and a powerful way of managing discussions that are geographically referenced, but participants should train themselves with this function that is amalgamation which get advantage from this reliability.

2. Design modeling of Co-PPGIS

The prosperity of developing and establishing a geospatial-enabled Co-PPGIS, for enhancing the ability of people participation in collaborative decision-making during management

workflows and municipal planning, most importantly depends on a brief understanding of firstly the ideas of community participation in management and planning which involves basic ideas of role in participation, amount of community participation, and already existing participation of community at the time of municipal development, planning, and management, and second important concern is on functional and nonfunctional requirements that are identified by existing PPGIS and that are related to research models, which are developed during municipality management to support public participatory processes. It begins with an explanation and overview of a Co-PPGIS idea, which executes the role of a real-time synchronous and asynchronous participatory approach to help the decision-makers to make decisions in assimilating the role of people at the time of a municipal planning process. Some are the information sources and withdraw for the requirements of modeling of an advance Co-PPGIS for planning and management of municipal-related projects. Although, it gives an introductory source of information that introduce an idea of advance Co-PPGIS, to understand the infrastructure of a Co-PPGIS and to find out the gaps between existing municipal planning processes and possible improvements in Co-PPGIS.

2.1. An idea of advance Co-PPGIS

An idea or concept is a plane, intention image of a specific thing, institution, or a class, and a framework is introduced as a form which gives support to the number of elements and fulfills as a packaging. Basically, a conceptual framework is a structure of interlinked ideas, which gives support of a certain phenomenon or process to build understanding. Public participation is necessary for the evolution of a country, city, and municipality planning, development, management, and decision-making, which will speed up the process of planning. During planning, development, and management of municipality in a city or state, the management of geospatial data remains a challenge. Co-PPGIS gives us a planning- and management-related spatial and nonspatial information to the decision-makers, higher authorities, and government bodies on a basis of real-time geospatial web conferencing infrastructure. In this paper, the advance Co-PPGIS has focus on municipal projects through developing a GIS-enabled virtual meeting idea. The advance Co-PPGIS framework is showed as five viewpoints, which are shortly discussed below:

Social viewpoint: The first side of social viewpoint in the Co-PPGIS is to highlight and show a name of project which will help stakeholders (see **Figure 3**) to play its role in the related project or matter. Before joining the meeting that will aid the stakeholders to find out the status of all participants submission of user profile, there are some ethics, rules, and values for community in social interaction. Their interaction level rises when the participants join the meeting or session. They exchange their ideas and views, which guide to better decision-making processes for municipal projects.

Geospatial viewpoint: This idea links with mixture of time, place, and channels of communication. To address a meeting physically, it is difficult for everyone nowadays. That is why the advanced latest technology provides participants to envision the working location. Through GIS technology, the advance prototype allows a participant to visualize an area of interest, draw or highlight, and navigate on the map any patch on the map. This is how the

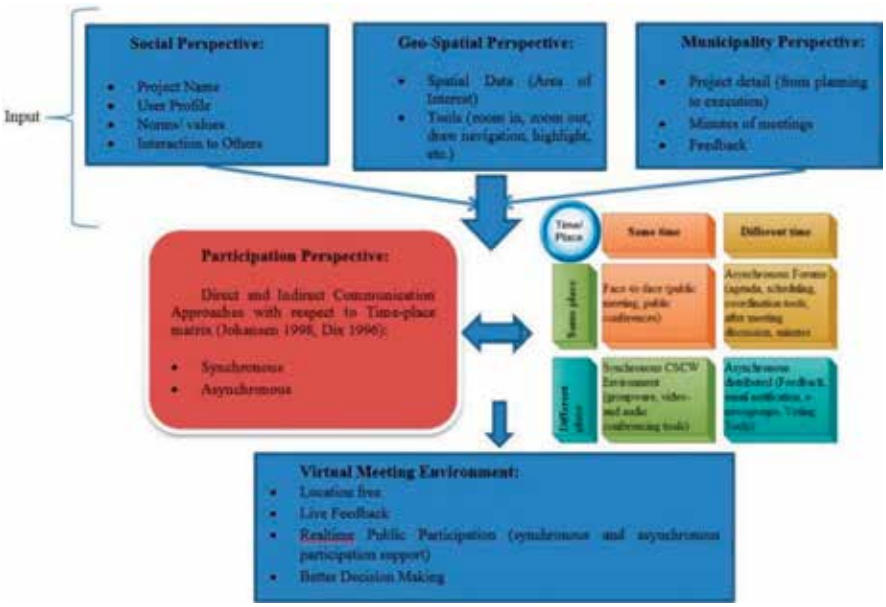

Figure 3. Conceptual framework for proposed collaborative PPGIS.

participants can seek others for discussion related to analytical issues on any point, and the provision of a small point is very essential in any project which is related to municipal.

Municipality viewpoint: In any municipal project, the idea of all information regarding a project at one place is very important. This is how one project from another project differentiates the status in the same domain. The advance collaborative PPGIS has the provision to gather supervision of data, e.g., planning info, minutes of previous meetings, drawings/maps, feedback form, notification, etc., at one place, and a participant can easily get the information at that level which they want. So, a new participant can easily reach the present level after taking information from step one. Public role is very essential in the development of projects, and its importance was not perceived in the last few decades, whereas community is now playing its essential role in making the decision-making process transparent and better.

Participation viewpoint: This crucial idea is very essential while constructing a collaborative PPGIS. It enhances participant's abilities in the municipality project standard and with their available conditions and time. In synchronous public participatory approach multiple stakeholders can view each other participation at the same time, on real-time basis, on the dashboard, white-board, and mapsharing environment. Video chats are the best example in which everyone can see and understand what the other is doing. Stakeholders have indirect communication facility through asynchronous approach in which it is not compulsory to see what the other is saying at the same time. Among stakeholders filling a feedback form is a good example of indirect communication. The advance PPGIS gives both direct and indirect communication facilities for improving the participation of stakeholders. The best example to fit the advance PPGIS participation viewpoint is the time/place matrix

which is categorized according to the spatial and temporal dimensions [37, 38] and starts from the same time (synchronous) and same place (co-located), different time (asynchronous) and same place, different time and different place (distributed), and same time and different place.

Virtual meeting environment: With the passage of time, technology has become more advance and friendly. The advance Co-PPGIS has a solution in which a participant can easily participate through the electronic meeting facility without appearing physically in the meeting and share his views with relation to project. Participants can do video chat and can drop a message for a specific participant without any restriction. This is how decision-makers can easily involve in any project, which is being developed for a municipality for its effectiveness and efficiency, which will ultimately lead to better decision-making process. In developing countries resources are minimum and need is maximum like Pakistan and India. There is massive need for developing such thing for public, which gives all these facilities which are mentioned above to give comfort to decision-makers.

Shortly Co-PPGIS environment is an online meeting procedure for supporting participant's collaborations on geographical information like mapping and imageries and collecting and

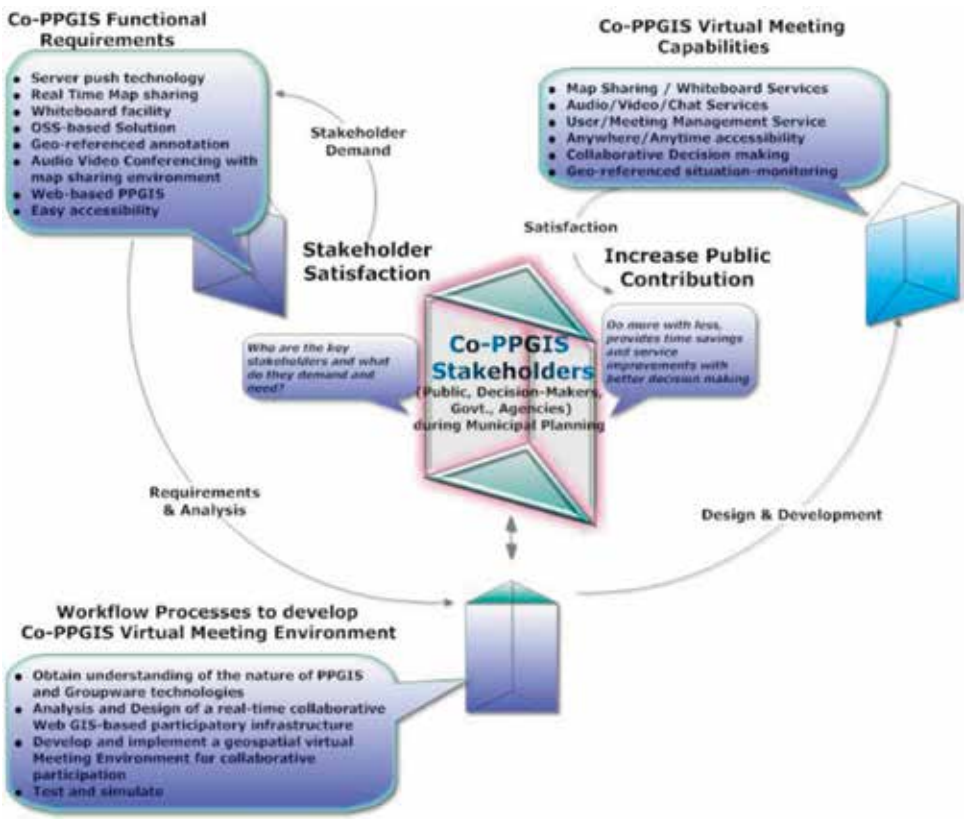

Figure 4. Co-PPGIS workflow processes and service abilities.

sharing data during processes of management. **Figure 4** shows Co-PPGIS virtual meeting workflow processes and service abilities to describe situations when its functional capabilities are useful.

This kind of environment allows combination of geospatial data from other sources from web services and collaborators input through geo-referenced comments. It involves components such as audio/video conferencing, map sharing, geo-referenced textual, real-time chatting and graphical annotation, and user or session management.

2.2. Exploring gaps in existing municipal planning practices and possible improvements using Co-PPGIS

Exploring and contrasting of existing PPGIS application's performance are essential or helpful in recognizing the functionality gaps between those collaborative PPGIS applications which organized crucial basis for Co-PPGIS requirement analysis and architectural design. **Figure 5** depicts the research gaps in current or existing communication mediums or participation practices found during the literature review and recommended how the Co-PPGIS contributes to the existing practice in order to increase public participation in municipality planning and development projects. It also explains how the approaches in relation to the proposed/enhanced infrastructure of Co-PPGIS will organize, improve, stimulate, accommodate, and contribute to the existing public participation practices.

The issues and improvements of these issues through Co-PPGIS are explained in this section. For instance, (1) through or by using Co-PPGIS meeting environment, the issue of inadequate communication, generated due to fixed-time meeting schedules, accessibility issues, lengthy

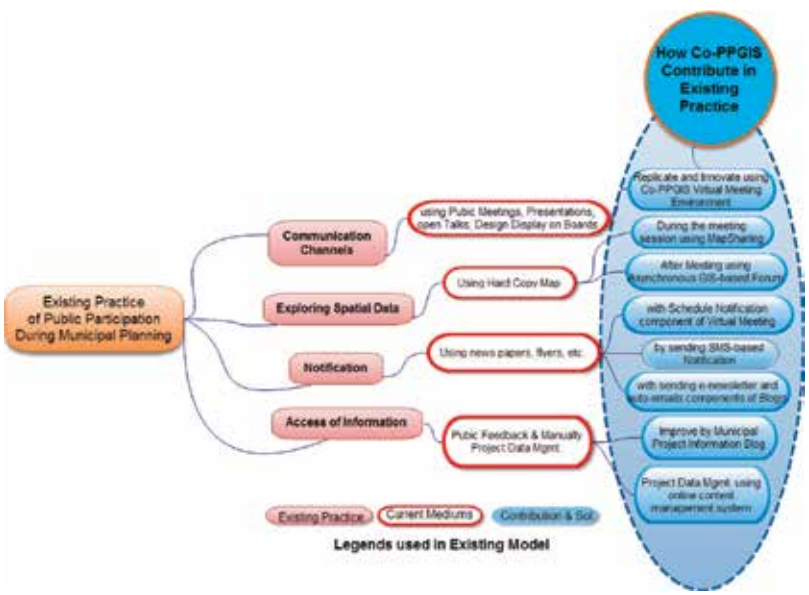

Figure 5. Identifying relation between existing participation practices and the suggested Co-PPGIS.

presentations, and open talks with authorities, can be accompanied because Co-PPGIS supports accesses anywhere/anytime/to anyone with real-time participation support. (2) Through a spatial component of GIS-based platform or through real-time map sharing cooperative component of the Co-PPGIS, the issue of inadequate way of investigating spatial data is the use of hard copy maps in the meeting sessions because CPPGIS increases the degree of public participation along with spatial data investigation during essential meeting sessions. (3) Through meeting scheduling/notifying and/or by the e-newsletter components of Co-PPGIS Blog, the issue of inadequate process of sending notification related to existing municipal development projects can be self-regulating/self-operating. (4) Information access associated to a municipality project's level data can facilitate through project information blog which exhibits the existing or future municipal project's notice detail, minutes of the meeting, presentation, document, location, and all valuable information. (5) Through Co-PPGIS, the absence of support to quick decision-making can be encouraged because Co-PPGIS upgrades or improves public participation or input as well as assists scattered decision-makers to work coincidentally on a real-time basis to conclude the decision in timely manners, which eventually diminish the time span of planning and probability of failure.

The upcoming sections demonstrate prototypes' execution of the proposed framework to assist its real-time synchronous participatory procedures that exhibit the innovations to be expected when trying to perceive the concepts established in this research.

3. GeoMeeting prototype

In order to aid the Co-PPGIS synchronous participation procedure, which is originally developed and designed to resolve the issues associated with the municipality planning and management, GeoMeeting prototype is executed as a proof of concept. GeoMeeting prototype was developed and designed for effective geo-cooperation among the national society, government, and local and international NGOs. GeoMeeting prototype is basically a web-based geospatially enabled conferencing system that accommodates synchronous and real-time amalgamation of data from different sources through web map services, like APIs, and supports the amalgamation of local knowledge demonstration by meeting participants. It also supports real-time map sharing, geo-referenced map notations, geochatting, and user and meeting management for accommodating conversations among multiple users that are geographically located at different places. GeoMeeting is developed from scratch, amalgamating the technologies of open layer and flex technologies, having associated step-by-step development processes (that means limitations discovered during the first version of prototype are enhanced in the next version of the development).

GeoMeeting system which is geo-enabled comprises the following capabilities:

- All the multiple users and participants in a GeoMeeting can sight the same geo-referenced map simultaneously; that's why it is called geo-enabled GeoMeeting system.

- In order to undertake synchronous conferencing, the GeoMeeting server application employs a push technology procedure like real-time instantaneous messaging which is a typical example of push services.
- GeoMeeting provides real-time map sharing among multiusers or participants.
- GeoMeeting is provided by geo-referenced pointer with a purpose of pointing at the shared view of map.
- With the aid of whiteboard facility, multiple users or participants can produce geometry-based incidents.
- GeoMeeting provides the opportunity of proper handling of maps (like modifying layers, map scale, and its position) to participants and users. It is very easy to rotate or change the map view among different base map layers like street map, satellite, hybrid, and terrain in GeoMeeting prototype.
- In GeoMeeting participants or multiple users can easily produce and share geo-referenced notations.
- In the construction and installation of GeoMeeting prototype, a web-based client-server architecture is very easy; we just need to plug and play.
- Through the use of any browser like Chrome, Opera, Internet Explorer, and Firefox, GeoMeeting prototype provides the opportunity of the easy accessibility of the main interface of a prototype to the users.

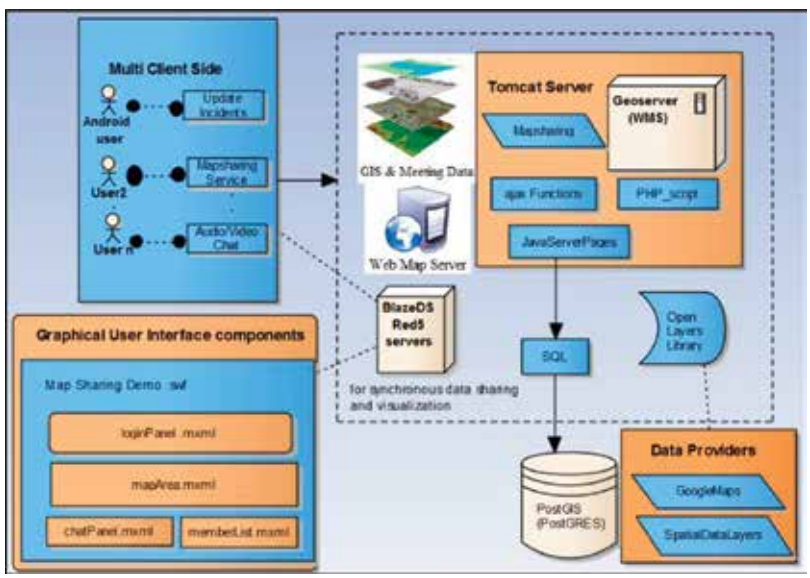

Figure 6. Conceptual architecture of the GeoMeeting system.

- Online map sharing application is depicted using open-source technologies, APIs, and programming languages like Flex SDK, MXML, Adobe BlazeDS, JavaScript, ActionScript, OpenLayers API, etc.
- GeoMeeting application is considered extremely useful during collaborating decision-aimed events such as emergency response, disaster management, and urban planning activities because GeoMeeting is a live conference technology.

GeoMeeting has myriad of capabilities, but its operational status is still in its progressive stage. **Figure 6** demonstrates a conceptual architecture of the GeoMeeting system.

The upcoming section discussions are based on the execution of different versions associated with the GeoMeeting prototype development.

4. Concluding remarks

Co-PPGIS, a web-based geospatially enabled conferencing system, assists a real-time participation to facilitate and improve public participation for collaborative decision-making which will bring fundamentally more understandability in any system. This web system provides real-time amalgamation of data from different sources through web map services, such as APIs, and supports the amalgamation of local knowledge expressed by meeting participants. In order to aid the Co-PPGIS synchronous participation procedure, which is originally developed and designed to resolve the issues associated with the municipality planning and management, GeoMeeting prototype is implemented as a proof of concept. GeoMeeting prototype framework facilitates any sort of e-governance, management, and emergency scenarios (e.g., municipal planning, forest management, urban sprawl, state lands, crime mapping, disaster response, etc.) related to collaborative decision-making and provides an effective, valid, and see-through system in which all the discussion and recommendations between authorities and participants are conserved in the database and can be viewed anytime to know the irresponsibility of even a common person to some authority handling the entire situation. The GeoMeeting is an evolution of map sharing component build previously based on collaborative PPGIS framework, which accommodates effective and better decision-making through its innovative map sharing component technology.

The infrastructure of GeoMeeting was established on several component-based services such as login management, floor control, map sharing, Android, feature-based chat, feature popup service, geometry and multimedia sharing feature services, bookmark, and live video services. Registered users can have direct access to GeoMeeting through login authentication. The component also includes chat facility, drawing specific location (point, line, and polygon/area), base layer switcher for better understanding of map, and search field for any area of interest, synchronously. These component-based services make it effective and efficient platform for information/data sharing. Previously, teleconferencing was the only medium used during emergency management planning, but the drawback for teleconferencing was the absence of any geo-collaborative console, i.e., map sharing. GeoMeeting provides real-time geo-collaboration, which improves accuracy and efficiency as well as saves cost and time

of the emergency management organization. Consequently, this Co-PPGIS framework-based GeoMeeting provides an interactive interface to have geo-enabled collaborative participatory discussion platform among decision-making authorities and common people.

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Chapter 5

Urbanization and Meeting the Need for Affordable Housing in Nigeria

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Akanbi Oyebanji and Michael Gerges

Additional information is available at the end of the chapter

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Abstract

Urbanization is an ongoing trend in developed and developing countries. With particular reference to Nigeria, studies have shown that many urban centres have been experiencing rapid and continuous growth over the years, as people tend to migrate from rural areas to urban centres in order to better their living conditions. However, there has been an inadequacy of the necessary infrastructures to meet the needs of the increasing urban populace. Empirical studies have also shown that about 75% of the urban settlers live in slums and improper housing, which is antithetical to human dignity. Therefore, this study aims at exploring the causes, advantages, and disadvantages of urban slum dwelling in Nigeria, and similarly proper possible solutions to the prevailing urbanization challenges in the country. The authors agree that the policy can bring about an effective provision of affordable housing, thereby meeting the needs of housing and helping to solve most of the problems of urbanization in Nigeria. It is recommended that each element of an effective housing policy, as entrenched in the National Housing Policy 2012, should be critically explored towards the delivery of affordable housing, which would in turn go a long way in solving urbanization problems in Nigeria.

Keywords: urbanization, housing needs, housing policy, affordable housing, Nigeria

1. Introduction

Every country in the world is experiencing urbanization in different dimensions. Urbanization has been defined as the increased concentration of people in cities rather than in rural areas [1]. Demographic Partitions [2] describes urbanization as the "process by which towns and cities are formed and become larger as more people begin living and working in central areas". It is

the gradual increase in the number of people living in urban areas, with subsequent decrease in those living in rural areas [3].

Urbanization is a fundamental phenomenon of multidimensional transformation which rural societies go through in order to evolve into modernized societies from sparsely populated areas to densely concentrated urban cities. Urbanization is an ongoing trend in both developed and developing countries, including Nigeria which is the main focus of this chapter. Nigeria is the largest country in West Africa; classified as a low-middle income country despite the fact that it is the biggest oil exporter in Africa with the largest natural gas reserve in the continent. The Nigeria Gross Domestic Product (GDP) is $405.10 billion in 2016 [4]. However, the huge revenue derivable from oil and allied products have not positively impacted an average low income earners in the country, as they live below 1 dollar per day. The impoverishment of the citizens has also been largely worsened by the corrupt and wasteful handling of petrol dollars by successive governments in the country. Simply put, the huge money made from oil remains a noticeable paradoxical contradiction when viewed against prevailing endemic infrastructural deficit and abject poverty in the country.

2. Urban development in Nigeria

Prior to the colonial era, Nigeria had several cities of different sizes and importance. Examples of such cities are Lagos, Ibadan and Ilorin, in the south western region, Kano and Zaria, in the northern part, and Onitsha and Aba, in the eastern area, as well as Port Harcourt and Calabar in the south. The aforementioned are all with their distinctive socio-cultural identities even as they are locations occupied by the three major ethnic groups in Nigeria, plus the southern sub-ethnic group, respectively. The rate of movements of the people from rural areas to the cities during this era was low, as majority concentrated on agricultural occupation. In the post independence era, starting from 1960, people in Nigeria kept migrating at an increasing rate from the rural areas to the urban centres in pursuit of better living conditions. Like every other nation of the world, the migration has been causing rapid and extensive growth in the urban centres. The urban population in Nigeria has grown from 6.9 million, 15.4% of the total

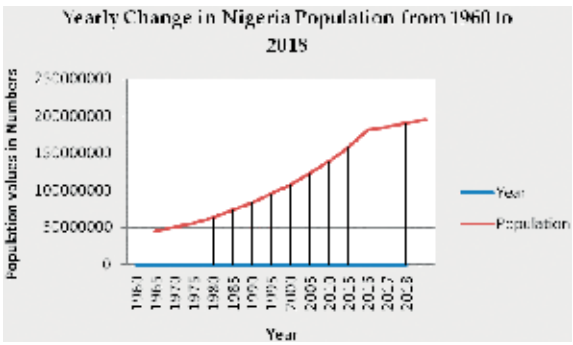

Figure 1. Percentage change in population from 1960 to 2018. Source: adapted from Worldometer.info [5].

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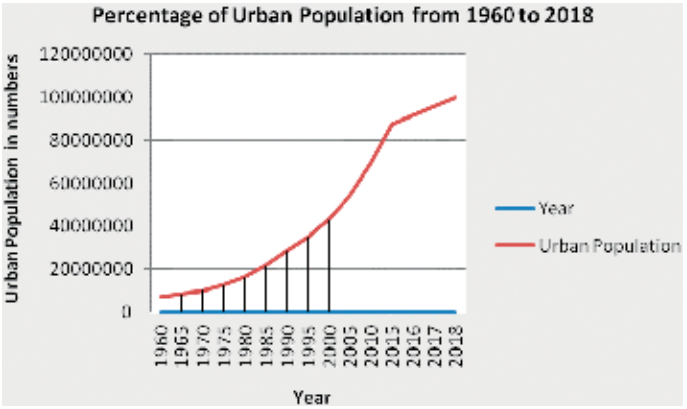

Figure 2. Percentage growth of urban population from 1960 to 2014. Source: adapted from Worldometer.info [5].

population of 45 million in 1960 to 99.9 million, which is 48.9% of the total population of 195.8 million today [5] (**Figures 1** and **2**).

Consequently, many more towns such as Akure, Osogbo, Bauchi and Sokoto have emerged, and they are fast turning into urban centres due to explosion induced by migration, both in numbers and sizes. There are 26 urban centres in the country, with a populations of approx. 500,000 in each urban centre (**Table 1**) [6]. Lagos, the former capital city, still remains the most urbanized city despite the movement of the country's capital to Abuja. This may not be unconnected to the fact that Lagos still remains the commercial capital for Nigeria.

	Urban centre	Population		Urban centre	Population
1.	Lagos	13,910,000	14.	Ikorodu	825,000
2.	Onitsha	7,850,000	15.	Owerri	815,000
3.	Kano	3,875,000	16.	Maiduguri	795,000
4.	Ibadan	3,070,000	17.	Warri	770,000
5.	Abuja	2,605,000	18.	Enugu	755,000
6.	Uyo	2,230,000	19.	Zaria	750,000
7.	Port Harcourt	2,060,000	20.	Osogbo	715,000
8.	Nsukka	1,840,000	21.	Akure	630,000
9.	Benin City	1,445,000	22.	Sokoto	620,000
10.	Aba	1,290,000	23.	Lokoja	570,000
11.	Kaduna	1,140,000	24.	Bauchi	560,000
12.	Ilorin	935,000	25.	Abeokuta	540,000
13.	Jos	830,000	26.	Ogbomosho	505,000

Table 1. Largest built-up urban centres in Nigeria with population of 500,000 and above (source: adapted from Demographia world urban areas [6]).

3. Reasons for or factors that caused urbanization in Nigeria

3.1. Trade and politics (pre colonial era)

Trade and politics are the two predominant causes of urbanization in pre-colonial era in Nigeria (before 1900). The existing urban centres serve as trade centres where goods, mainly agricultural produce, and traditional production of crafts commodities, like clothing and household utensils, are brought from their neighboring rural communities to be traded or stored for the purpose of exportation. They also serve as hubs for importation of merchandise from other countries. Consequently, there are massive concentrations of wealth, political power, prestige and the seats of regional governments with its attendant employment opportunities and the need to provide housing for the rich and powerful people; thereby attracting increased number of traders and migrants from their catchment areas and also from other regions and nations.

3.2. Industrialization (colonial and post-independence era)

At the advent of colonialism in Nigeria (1900–1960), the colonial masters and missionaries developed the urban centres into cities with good infrastructural facilities like electricity, good roads, rail networks, European style housing, educational, religious and recreational facilities for themselves and the Nigerian elites. Furthermore, new urban cities were built by them for the purpose of industry and improved trade centres. Industry, according to Anamgba, is "a collection of individual firms producing similar commodities" [7]. He further describes industry as "any commercial activity that provides goods and services". Examples of such cities are Jos, with an established Tin mining industry, Enugu, known for coal mining, and Bida, with industries manufacturing glass and brass.

Later, there came a shift from the old agricultural practices to the new mechanized agriculture for larger production outputs and increased employment opportunities. The era also witnessed the provision of social services and infrastructural facilities like electricity, potable water, education, public health care, banking, postal services and modern transportation: namely, rail, road and air. Consequently, an improved standard of living was ushered in, in terms of better housing, transportation, food production and health care. In addition, traditional attires were replaced with new formal white collar dresses, and sophisticated fashion products, which equally involved women enlightenment and empowerment.

3.3. Movement of Nigeria Capital City from Lagos to Abuja

After the amalgamation in 1914, Lagos was made the capital city, thereby becoming the seat of the national government and a centre of trade, commerce, industry and economic development. All these became pull factors, attracting rural dwellers to Lagos. Afterwards, the capital of Nigeria was moved to Abuja in 1991. Hence, the seat of the Federal government and all Federal government agencies were moved to Abuja. This development made a large number of people

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to migrate from Lagos and other parts of Nigeria, including the rural areas, into Abuja, the new Federal capital of Nigeria.

3.4. Creation of new states and infrastructure

The creation of new states in 1989 and 1991, led to the creation of new state capitals and new local government areas in different parts of the country. Consequently, many new Federal and States-owned Universities, Polytechnics and Colleges of Education were also established. All these contributed, in no small measure, to urbanization. They have also encouraged mass expansion of other commercial and industrial establishments such as banking, construction and manufacturing industries, in these newly created states, resulting in the movement of more people into them [8].

4. Advantages and disadvantages of urbanization in Nigeria

The rapid growth of urbanization in Nigeria has affected the society, both positively and negatively. The following are the advantages of urbanization in the country:

Urbanization has induced modernization to a certain level which has enabled the use of the modern methods of construction and equipments in some areas of living and accomplishing day-to-day activities, both at work and at home; hereby enhancing the lives of the urban populace, from the rural to modern. It has also brought about an improved economic development in form of improvement in trades and industry which has in turn contributed to the gross domestic product (GDP) [4].

With the establishment of industries, powered by mechanized equipment, workers required training on the technical mode of operating the equipment. This created learning and training opportunities for workers, which were often provided by the employing companies resulting in subsequent technological advancement, enlightenment and improvements for the workers generally. This also came with attendant growth of the literacy rate of the urban populace with the consequence of improved standards of living for the workers.

Nigeria has experienced tremendous economic growth from independence to date as indicated by the GDP which was US$4.1 in 1960 and is presently US$405.10 billion. However, the GDP experienced its highest in 2014 with a GDP of US$568.49 billion [4], after which it started witnessing a decline. It is yet to regain an upward growth since then. Owing to the presence of industries in the urban centres, many of the dwellers are involved in the processing of staple foods, using agricultural products as raw materials. Commercial activities are in the increase due to urbanization, which encourages the establishment of shopping centres, markets and offices.

Many of the urban centres are seats of the Federal, States and Local governments, thereby providing administrative and contract jobs for the people. Urbanization also encourages the establishments of educational institutions like universities, polytechnics, secondary and

primary schools; places of worship like churches and mosques; relaxation centres like restaurants and hotels. As a result, these improve the socio-cultural interactions and development among the population. Conversely, urbanization also has some attendant disadvantages as described below:

Overpopulation is a major setback of urbanization, as people keep migrating en masse from the rural areas to the urban centres without a commensurate increase in the existing social infrastructure. Decent accommodation is not always adequate, leading to overcrowding and slum life. Inadequacy of resources and acute shortage of land space as the density per km^2 keep increasing with subsequent overcrowding and overburdening of the existing resources resulting in shortage of the resources.

There is shortage of jobs as more people migrate to the urban centres in search of jobs to sustain their daily living without the government creating new job opportunities. This is more so as a result of some industries that shut down because of the downturn in the economy. There is also a shortage of the required job opportunities to adequately engage majority of the populace in the urban centres. Hence, there are a lot of people, especially the youths, without any jobs who find it difficult to make ends meet on a daily basis. Consequently, the rate of criminal activities within the urban centres is very high. The unending influx of youths and jobless able-bodied people into urban centres is posing a serious threat to the already precarious state of the country's security challenges like kidnapping, robbery, ritual killings and so on.

The cost of living in urban centres is relatively high, hence, making it difficult for the low income groups to maintain a decent standard of living. This can be gleaned from the huge number of people demanding for scarce or inadequate facilities such as houses, transportation facilities, foods, drugs and clothings. Needless to mention that the stiff competition for limited resources and facilities would engender contestatious living among the people.

Another negative characterization of urban life is pollution. Air and water pollution may be caused mainly by either the release of greenhouse gases (GHG) and effluents from the industries into the environment or produced by exhaust emissions from vehicles used for transportation. It can also be caused by poor indoor air quality due to overcrowding and lack of proper waste disposal. Continuous release of these GHG, over time, has resulted in global warming. This is a critical issue which is affecting the world as a whole and every nation including Nigeria still face challenges in terms of finding a long-lasting solution to the predicament.

Migrants who cannot afford the high rent of housing in the urban centres tend to develop make-shift houses in and around the cities where there are vacant and unclaimed parcels of land that are farther away from the core urban centres, thereby resulting in slums. A slum is defined by the UN Habitat as "a heavily populated urban area characterized by substandard housing and squalor" [9]. It further describes it as "the poorest quality housing, and the most unsanitary conditions; a refuge for marginal activities including crime, 'vice' and drug abuse; a likely source for many epidemics that ravaged urban areas; a place apart from all that was decent and wholesome" [9].

These slums and shanties are not built in accordance with building regulations. None of the rules and regulations is considered from land use to permit and approval, to materials used to structural considerations. They are built with any material within the reach of the people, such

as scrap wood, cardboards, bamboo, zinc roofing sheets, rammed earth, tarpaulin, to mention a few. Some are even occupied without basic features such as windows, doors or roofs; most of which are being substituted with used fabrics or polythene materials to protect them, however minimally, from the adverse weather conditions. These areas attract the urban poor, and thereby, they are usually overpopulated, thereby resulting in poor indoor air quality, poor ventilation and day lighting as well as lack of proper waste disposal/management, lack of potable water; without proper furniture leading to indecent and substandard way of living and inaccessibility to good public health care services and so on. All these lead to severe illnesses and sicknesses which could be acute or chronic and might lead to reduced life-span and increased morbidities and mortalities. Most urban centres are not spared from these unlawful settlements. Slum areas in Lagos include: Makoko, Ajegunle, Bariga, Mushin and so on. Likewise slum settlements in Abuja include: Nyanya, Lokogoma, Garki village, Gishiri, Lugbe to mention a few. **Figures 3** and **4** are samples of slums in Lagos.

With increased and ongoing influx of people into the cities, there is a consequent increase in household waste. Most landfills, which are not located within the urban core but in and around the squatter settlements, are completely full and overflowing to the surrounding areas with open decomposition of wastes. This leads to the outbreaks of diseases, festered by insects and rodents like houseflies, rats, and cockroaches, which in turn take a negative toll on the swamp dwellers. In addition, there are inadequate sewage facilities in areas of unchecked rapid growth of slums and squatter settlements which are unlawfully developed by the urban

Figure 3. Makoko, a slum with part of its community built on stilts along the Lagos lagoon. Picture credit: CNN [10].

Figure 4. A slum in central Lagos. Picture credit: BBC [11].

poor who cannot afford the exorbitant rent within the cities. The result is a huge crisis of untreated sewage, which carelessly drains into the open environment and leaves behind either decomposed or dried-up elements causing eventual water and environmental pollution as it drains into the nearby streams, rivers and oceans.

As evident from above, urbanization in the country results in poor health condition of many urban dwellers. This is a resultant effect of mainly slums and indecent settlements that are usually precipitated by urbanization. Urbanization also brings about environmental degradation. This is any change or disturbance that is harmful to the environment [12]. It is the destruction of the natural habitat or ecosystem through the depletion of natural resources such as air, water and soil. In comparison, Mason, states that urbanization "can, and in some cases does, contribute effectively to overall national economic growth and development". Examples are China and Korea where urbanization is accompanied by income growth [13]. The UNFPA asserts that "no country in the industrial age has ever achieved significant economic growth without urbanization" [13]. It further argues that the urban centres have the capabilities of finding solutions to the challenges they face, claiming that "the potential benefits of urbanization far outweigh the disadvantages: The challenge is in learning how to exploit its possibilities" [14]. Thereby establishing a fact that urbanization in itself is not really bad, and if properly managed, it will result in socio-economic and environmental development of the nation.

5. Solving problems of urbanization

Problems of urbanization can simply be solved, among others, as follows:

1. Provision of sustainable affordable housing i.e. housing that is affordable in a sustainable way, with effective waste management for ensuring environmentally friendly cities. Such steps will also include effective planning of development activities.
2. Provision of essential infrastructural facilities and services for the urban residents such as potable water, constant electricity, access to education and public health services, good transportation and communication network and technology for the urban residents will make life in the urban centres easy for the inhabitants. Investing substantially in infrastructural facilities can help to eliminate urban slum and squatter settlements thereby creating decent living and working environments.
3. Provision of job opportunities, both skilled and unskilled labour, for the urban residents will boost their standard of living, self-reliance and subsequent self -dignity. This can help in reducing the rate of crime in the urban areas.
4. Embarking on an effective land policy will go a long way in reducing slum and squatter settlements. For instance, effective land use plan, zoning regulation and a reduction in land cost will promote easy accessibility to land by the low income urban dwellers.

Out of all the negative impacts of urbanization, lack of adequate housing, which has resulted in discriminate development of slums and squatter settlements affects one of the three fundamental

human rights and basic needs of life; that is, shelter [15]. As mentioned in 1 of 4.3 above, many of the problems relating to urbanization can be solved through effective planning of housing in the country. This is because most of the other disadvantages are relative to the development of slums and squatter settlements. The main aim of this chapter is to show that if this particular need of affordable housing, which is shelter, is met in the urban centres; it would go a long way in addressing most of the other negative impacts of urbanization in Nigeria.

6. The need for affordable housing in Nigeria

Housing, also referred to as shelter, is one of the three fundamental human rights, and it forms an essential part of human settlement with great impact on the health, welfare, productivity and quality of life of man [15, 16]. Coker et al. citing Fanning (1967), Macpherson (1979) and Riaz (1987) stated that "researchers have shown that housing can affect mental and physical health, both positively and negatively [17]; hence its provision for the people should be one of the primary concerns of every nation. The provision of adequate affordable housing for Nigerians will initiate a notable growth as it will provide shelter for the people and also, bring about lots of infrastructural development, thereby meeting some of the social needs of the populace. It will also generate an increase in the activities of the housing and building industry, thereby creating more job opportunities for both skilled and unskilled labour through the construction industry, resulting in increased productivity and a subsequent rise in the country's GDP; thus improving its economic development. A well planned housing system will also promote environmental sustainability because the provision of adequate housing will go hand in hand with the provision of improved indoor air quality, potable water, good sanitary, sewage and waste management, improved and sustainable transportation network and consequent reduction in environmental pollution. This achievement would, overall, be a driver for the nation towards development in a sustainable way; indicating that housing has significant effects on all the three domains of sustainable development.

To a nation such as Nigeria, housing is a very important and critical component in its social and economic framework [18] because it accommodates the smallest unit of its society, referred to as the family. Hence, housing is an indicator of a family's standard of living or societal class [19]. Consequently, housing also signifies the living standards of a society [20]. However, the difference between the demand for housing and its supply in Nigeria and most developing countries is overly incongruent. With the high cost of building materials as a result of the cost of production and importation as adduced by Fasakin and Ogunseni [21], it may still be a very challenging situation for the government to solve the affordable housing problems, except something is done to cut down on cost [22, 23].

Evidently, there is an increasing rise in the housing deficit which now stands between, 17 and 20 million housing units at a growth rate of 900,000 units per annum, due to the fast population growth and urbanization which will require at least 1000,000 housing units and approximately US$363 billion to curtail [24]. The Nigerian population is at 195,875,237 of which the urban population is 48.9% [5]. Over 90% of the country's population are of the

no/low-income groups [25]. The present Gross Domestic Product (GDP) equals US$405.10 billion presently nonetheless; the Per Capita Income is very low at US$2457.80 as lastly recorded in 2016 [26] which indicates clearly the fact that there is an unequal distribution of wealth as people's income is not commensurate with the economic growth.

The current cost of renting a standard 3-bedroom apartment is US$5000 per annum and the average purchase price of US$100,000 [24]. This simply implies, taking into account the present US$2457.80 Per Capita Income in Nigeria, that housing is not affordable as affordable housing should cost 30% or less of a household's income [27]. This has left the population struggling with poverty, inequality and indecent form of housing that is not sustainable. The fast rate in population growth and urbanization infer an exponential rate of housing deficit, with 61.7% of the urban population being slum dwellers [24].

6.1. Factors influencing the limited supply of housing in Nigeria

The reasons for the high demand for housing and its limited supply in Nigeria can be traced to the following factors namely: (1) high cost and lack of easy access to land [28, 29]; (2) high cost of building materials [30]; (3) high cost and long processing duration of property registration [28]; (4) inability of earlier policies and programmes to adequately resolve the backlog of housing problems [30–32]; (5) Absence of proper monitoring and evaluation of public housing policies and programs [31, 32]; (6) Absence of proper monitoring and evaluation of public housing policies and programs [31, 32]; (7) Absence of proper monitoring and evaluation of public housing policies and programs [31, 32]; low capacity of public housing agencies [32]; (8) poor government administration, inadequate funding, insufficient infrastructural amenities, as well as inadequate housing finance [33].

Consequently, the need for an urgent solution of adequate and affordable housing supply to the population is imperative, if the problem of shortage of housing it to be solved. Further review of pertinent literature reveals that there had been several attempts made by both the Public and Private Sectors of the country to address the fast increasing housing demands, which have recorded very minimal success [29, 32, 34–38]. There have been, and currently are, government strategies and efforts in form of housing policies and programmes to address the aforementioned problems/challenges. Nonetheless, these have also attained very little success. Housing policy is the act put up by a government for the purpose of managing and controlling homelessness and improving the quality of the housing stock of dwellings within its domain [39]. It could also mean government intervention in the housing provision with respect to the regulation of housing finance markets to influence activity in the national economy or restrictions on the amount paid in subsidy to low income households to encourage available incentives to work. The Housing Policies in Nigeria have evolved from the pre-colonial era to date.

6.2. An overview of housing policy in Nigeria

Before the colonial period in Nigeria (1928–1960), most communities engaged in a communal system of housing delivery. This is a situation whereby peer groups turn out collectively to

assist any member to build his/her house on appointed days and the builder provides sumptuous meals for all in return [40]. This is alternated between all members, thereby enabling housing delivery.

The evolution of housing policies dates as far back as 1928 by the government of Lagos Colony during the Bubonic Plague that lasted till 1929 [32] when the Lagos State Development Board (LEDB) was established. This era is tagged the Colonial Period between 1928 and 1960. It was basically for addressing the problem of housing at a national scale [37] and was targeted on the provision of quarters for expatriates and some selected indigenous civil servants [41] such as: the Armed Forces, Police, Marine and Railway workers in Lagos and other regional headquarters like Enugu, Ibadan and Kaduna. This approach to African Urban Housing by the Colonial Masters aimed at redeveloping 'decaying core areas', renewal of slums or squatter settlements and the construction of rental public housing estates. The Nigeria Building Society (NBS), which is similar to a mortgage institute with the intention of giving both workers in public and private sectors opportunities to have their own houses, was founded after the World War II.

Nigeria was divided into three regions within this era and all the regions established housing corporations in 1964 respectively with a vision of developing housing estates. These are meant to provide mortgage for people so they can build their own houses and pay back over a long duration of time. However, only the capital cities of these regions were impacted by this programme. An example is Bodija Estate developed by the defunct Western Regional government [42]. The Federal Government made a direct effort on the housing sector by establishing the National Council on Housing in 1971. The NBS was renamed by the Federal Government to Federal Mortgage Bank of Nigeria (FMBN) in 1973. This was when it took over its ownership through the indigenous Act with the aim to expand mortgage lending services to all segments of the population. It started with a capital base of 20 million Naira and this was increased in 1979 to one 150 million Naira. FMBN functions as a secondary mortgage market and hence, primary mortgage market was made opened to the private sector giving rise to another problem of how to fund the Primary Mortgage Institutions (PMI). Consequently, every Nigerian earning up to 3000 Naira per month were mandated to contribute 2.5% of monthly salary to the National housing Fund (NHF), [43] with the benefit of borrowing money from the fund through the PMIs after 6 months for the purpose of housing. This also not productive as majority of the workers could neither access the fund to get loans nor recover their saved money.

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The Federal Housing Authority was inaugurated in 1973 through the promulgation of Decree No. 40 of 1973 and begins formal operation in 1976. Its main objectives were: (1) to make proposals to the Federal Government on Housing and ancillary infrastructural services; and (2) to implement those approved by the government. During this period, the first low cost housing estate, Festac Town was developed in preparation for the first all African Festival of Arts and Culture (FESTAC) slated for 1977. Another government housing scheme was the Ipaja Town followed by the Amuwo Odofin Phase 1 estate and more low cost housing estates in 11 state capitals. This era marked the first major Federal Government effort in providing affordable housing to the citizens on long term mortgage repayment arrangement. The FMBN had plans to deliver 202,000 housing units but because it was solely dependent on government, it could not pass the test of time; out of the 202,000 houses planned to be provided, only 28,500 units were realized which amount to just 14.1% [32]. The National Housing Programme was later instituted to provide 350 medium and high income housing units by the FHA during the 1981–1985 post colonial era. This is in addition to the national low income housing programme known as Shagari Low Cost Housing in each of the then 19 states of the federation [44]. In addition, the NHP targeted 200,000 units of which just 47,500 (23.75%) units were constructed [45]. Afterwards, a period known as "A Period of Consolidation" between 1986 and 1993 was ushered in. Emphasis was shifted from founding more new housing schemes to the completion of the many suspended and abandoned housing projects that resulted from the past unsuccessful housing schemes [43].

The military government established a different housing policy tagged "Housing for all by the year 2000". This was meant to provide decent and affordable housing for all before the end of the year 2000. It estimated 700,000 housing units per year with 60% built in urban areas by providing housing loans to individuals and corporate bodies through the FMBN and other mortgage institutions which collect, manage and administer contributions to the National Housing Fund (NHF). This era marked a huge success in the provision of housing for the population. Although the housing provided cannot be termed affordable as the housing cost more than 30% of their income.

As development increases in the urban centres, the rate of urbanization also increases; meaning more people moving in from the rural areas in search of better lives. Subsequently, there is more deficit in housing as the available housing supply could not meet its demands. In 1991, the National Housing Policy was promulgated in order to propose possible solutions to housing problems. A pool of funds was established for this purpose called the NHF in 1992. The NHF was based on realistic standards affordable to the owners to encourage every household to own its own house; through the provision of more credit and fund. Thus, giving priority to housing programmes intended for the low income group [36]. The number of housing units to be delivered by NHF in 1994 was 121,000 but only 5% were achieved. This implies that the NHF was ineffective as it could not meet its target and the success rate was too low. Meanwhile the movement of people from the rural to the urban cities kept increasing, thereby aggravating the problems that come with urbanization.

Between 2000 and 2004 the Federal Government established the Federal Ministry of Housing and Urban Development. During this period, the federal government only concerned itself with the provision of basic infrastructures leaving the provision of affordable housing delivery to the private sector [32] which seems to be the main solution to shortage of housing in the country [45] as most of the government efforts have failed. In 2004, the Federal Government declared its willingness to adequately fund researches that have to do with the use of local materials in the housing sector with a target of 40,000 housing units of at least 1000 houses per state before the year 2007 [32, 46] with the assistance of the Nigeria Building and Road Research Institute, NBRRI. Another version of the National Housing Policy, NHP 2012 was adopted with an improvement on the NHP 1999. The main purpose of the NHP 2012 is to ensure not just the provision of housing units but also ushers in the need for affordability in housing by the year 2020 [25]. The generally acceptable definition of Affordable Housing is 'housing which cost no more than 30% of the income at each income level' [27, 47, 48]. It is the capability of households to meet their housing needs and at the same time maintaining the capability of meeting other basic costs of living. Aribigbola 2011 citing MacLennan and Williams 1990 defined housing affordability as the ability to assure some "given or different standards of housing at a price or rent which does not impose an unreasonable burden on household incomes, assessed by the ratio of a chosen definition of household costs to a selected measure of household income in a given period" [48] and usually defined by the income of the population served [49]. Approximately 50% or more of household income spent on housing is described as "severe burdens" [47]. Another good thing that comes with housing provision is the infrastructural development. Such as: good transport communication network, potable water, planned waste management systems, job opportunities especially within the construction and property sector. With all these in place, good health, reduced pollution and environmental degradation will also be achieved.

S/N	Income group	Annual income with respect to NMW*	Actual annual income (N)	Actual annual income (US$)	30% of annual income for housing (US$)
1.	No income	Less or equal to 25% of N216,000	0–54,000	Less or = 150	0 – Approx. 45
2.	Low income	More than no-income but not more than NMW	54,001–216,000	150–600	Approx. 45.3 - Approx. 180
3.	Lower-medium	More than NMW but does not exceed 4 × NMW	216,001–864,000	600–2400	Approx. 180 – Approx. 720

*NMW – Annual National Minimum Wage in Nigeria = 216,000.

Table 2. An overview of the take home of the no-income, low-income and medium low-income groups in Nigeria (source: adapted from NHP 2012 [25]).

Table 2 shows the take home of the no-income, low-income and medium low-income groups in Nigeria. It also illustrates the level of poverty and the severe burdens most households are subjected to in order to meet with its housing needs as well as the reason why there would be a continuous increase in the development of slums and unlawful settlements within the urban areas of the country if nothing is done to improve the delivery of housing. Thus, it is clear that these three income groups are under a 'severe burden' and incapable of meeting their housing needs as the cost of renting a 3-bedroom apartment in ranges from US$5000 per annum and the average purchase price of US$100,000 [24]. This has resulted in about 68 million i.e. about 36% of the population remaining homeless [50] or living in houses that are not affordable.

However, this policy, so far like the others, has been rendered ineffective. This is because of the persistent increase in the cost of building materials, stringent loan conditions from mortgage banks, deficiency of proper housing finance arrangement, high cost and lack of easy access to land, high cost and long processing duration of property registration amidst other problems [51]. All these imply that the policy has not been properly implemented, and until something is done to ensure the implementation of these policies, as brilliant as they might be, Nigeria will not be able to enjoy the positive impacts of urbanization.

Furthermore in 2014, the Federal Government inaugurated an independent company, Nigeria Mortgage Refinance Company (NMRC), with the intent of finally increasing the opportunities for Nigerians to 'own homes at affordable prices' through mass housing [52]. Mass housing is housing that is funded publicly and given out to low-income families. This is the latest programme of the Federal Government on housing towards the provision of affordable housing for the Nigerian population. There is a rapid emergence of housing development by the NMRC but majority are neither affordable nor accessible to the no-income/low-income/lower-medium families because of their exorbitant prices. Nonetheless, the urban rich, who could afford more than needed for their families purchase many of these housing units and in turn sublet them to the lower income group at high cost and those who cannot afford the rent have no other option but to go to the slums or remain homeless. This takes us back to the cycle of the negative impacts of urbanization within the country. It is evidently clear that it would end up like the others if nothing is done to ensure fairness in its implementation. For urbanization to deliver a socio-economic and environmental development in Nigeria, then the government

and all stakeholders must see the provision of affordable housing as a very critical and crucial subject of concern and make it their utmost priority.

7. Conclusion

Nigeria, like other developing countries, is faced with increased rate of urbanization, with different urban centres emerging as a result. There are both positive and negative impacts of urbanization on the nation. Apparently, the negative ones outweigh those that are positive, and the former affect the urban populace than the positive variables. Nonetheless, most of them are hinged on the housing deficit which keeps increasing because it is not affordable to majority of the population. Hence, it has been identified that is pertinent to ensure the availability of affordable housing by giving a better commitment and attention to the delivery of housing facilities that are affordable and accessible to Nigerians, especially those within the no-income, low-income and lower medium-income groups. It has also been established that infrastructural development accompanies housing delivery; signifying the resolution of most of the negative impacts of urbanization. The authors believe that Nigeria does not need any new policy because the NHP 2012 is a brilliant instrument, with potentials for achieving success in housing delivery. We agree that the proposed outcomes of this policy are achievable, if effectively and fairly implemented by the successive governments of Nigeria. The chapter proposed that achieving affordable housing will raise home ownership to about 50%, improve the country's Human Development Index (HDI) Ranking and contribute over 20% to its GDP. It will also expand the construction sector and the mortgage market. Furthermore, poverty will be significantly reduced in households; and at the same time as well as increase the productivity and quality of lives of the citizenry. Consequently, there will be a remarkable impact on the society and communities as it stimulates economic growth and job creation. The benefits of urbanization can then be enjoyed, not only by the urban rich but the poor as well. Hence, the NHP 2012 should be critically explored towards the delivery of affordable housing, as it will certainly and subsequently go a long way in solving urbanization issues in Nigeria.

Conflict of interest

There is no conflict of interest concerning this chapter.

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Section 3

Housing Quality and Affordability

Chapter 6

Housing Quality and Risk Factors Associated with Respiratory Health Conditions in Nigeria

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Additional information is available at the end of the chapter

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Abstract

This chapter presents an overview of the condition and quality of housing in Nigeria and its implication on respiratory health. Addressing housing issues offers public health practitioners an opportunity to assess an important social determinant of health. This chapter detailed the housing characteristics in Nigeria and revealed that respiratory health conditions, especially among children is associated with certain environmental factors that perturb the composition of the indoor air, and thus the housing quality. Drawing on this perspective, this chapter pursues the following questions: (1) What are the factors that affect the quality of housing where people spend most of their time daily? and (2) Given the housing condition in Nigeria, what housing-related factors influence the prevalence of respiratory health conditions especially among children? In the course of the discussion, we described the meteorological conditions of houses in relation to respiratory conditions, established a link between indoor air and housing quality, and elucidated the indicators for evaluating housing quality. Drawing on the associated risk factors, it argues that the quality of housing, including the external and internal structures, as well as the internal environment has a selective force on the respiratory health status of its occupants.

Keywords: housing quality, risk factors, respiratory health conditions, Nigeria

1. Introduction

Housing, as a neglected site for public health action, has been identified as a major risk factor in a number of recent studies globally [1, 2]. The quality of housing where people

spend over 80% (3/5) of their time daily is crucial for healthy living and people's well-being. The notion of housing, however, encompasses a very large number of factors, including biological (mould, cockroaches, dust mites, etc.), chemical (tobacco smoke, paints, etc.) and structural (moisture, ventilation, etc.). Housing is therefore the process of providing a large number of residential buildings with adequate physical infrastructure and social amenities (services) in planned, decent, safe and hygienic neighborhoods to meet the basic and special needs of the population [3, 4]. Housing conditions play a major role in the health status of the individual and a wide variety of housing features have been reported to influence the physical, social, economic and the mental well-being of occupants [5]. WHO [6] stated that housing should provide: protection against communicable diseases, protection against injury, poisoning, and chronic diseases, and reduce psychological and social stress to a minimum. The problem of deficiency in housing quality in Nigeria is common both in the urban and rural areas. The situation is very severe in urban areas due to the fact that most people live in houses that are of poor quality with unsatisfactory environment. The population growth resulting from rural-urban migration and rapid urbanization therefore leads to homelessness, the growth of slums and overcrowding [7–10]. Among the diverse environmental concerns facing developing countries including Nigeria, housing is probably the most fundamental. In the developed countries, numerous studies have associated poor quality housing with increased prevalence of respiratory symptoms in children as well as adults [11]. Drawing on previous studies, there are few studies from the developing countries particularly Nigeria, where a large percentage of the population live in substandard apartment, in which the housing conditions in terms of the building structure and the surrounding environment are unhealthy.

2. Component of housing quality

Components of housing quality are the measures used to assess housing scheme based on quality rather than cost [12]. Quality housing should provide adequate protection from cold, damp, heat, rain, wind, structural hazards, diseases vectors, and other threats to human health. However, the quality of the internal environment is also important. The components of housing quality measurement should ideally include the external structure, the internal structure, the internal environment coupled with an assessment of the neighborhood and environmental sustainability as described in **Figure 1**. The external structure is described by the structural integrity of the building, weathertightness, security, integrity of the external materials and insulation. The presence of basic facilities such as water supply, sewage disposal, power supply and other internal facilities such as closed doors, secured electric wiring, tightened windows explain the internal structure of the building. The internal environment is described in terms of ventilation, lighting, indoor air quality and moisture. A broader assessment of the quality and safety of the neighborhood in terms of community facilities, quality of paths/streets and services coupled with environmental sustainability forms an integral component of housing quality.

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Figure 1. Component of housing quality. Source: Statistics New Zealand Information Centre.

3. Brief profile of Nigeria

Nigeria is the most populous nation in Africa with over 155 million people [13]. Based on 2010 Gross National Income (GNI) per capita, the World Bank classified Nigeria as a "Lower Middle Income Economy," i.e., GNI ranging from $1006 to $3975. Nigeria is situated in western Africa on the Gulf of Guinea and has a total area of 923,768 km^2. It shares a 4047 km border with Benin (773 km), Niger (1497 km), Chad (87 km) and Cameroon (1690 km), with a coastline of at least 853 km. Nigeria is between latitudes 4° and 14°N, and longitudes 2° and 15°E. The country has more than 500 ethnic groups, out of which the Hausa, Yoruba and Igbo are the largest. Nigeria is the 12th main manufacturer of petroleum in the world and the 8th major exporter, and has the 10th largest proven reserves. Petroleum plays a large role in the economy of Nigeria, accounting for 40% of GDP and 80% of Government earnings.

4. Housing conditions in Nigeria

At the national scale, [14] studied 40 cities cutting across various Nigerian city typologies. He noted that as a result of low building technology and absence of durable building materials, not more than 9% of houses were built of mud and bricks which had very short life spans. He further reported that the only cities with a reasonable percentage of buildings older than 80 years were the coastal towns located on sea and river ports and few other hinterland cities that formed contact points for colonial trade and administration [14].

A study carried out by [15] studied the association between housing conditions and health status among households in Nigeria's deserted rural areas, with specific focus on rural Akwa Ibom State. They revealed that rural household in Akwa Ibom State suffered marked deficiency in all the five indicators of housing examined. The safety and security apparatus of the households indicated that 92% of the households lacked fire extinguisher in their homes, 73% had no first aid box while 78% lived in fenceless houses. In terms of indoor temperature/ventilation, 66% reported having no ceiling in their rooms while 41% lived in homes with bedrooms lacking windows on two walls [15]. The study also revealed that 60% of the households live in houses with leaked roof, cracked wall (56%) and broken windows (54%) while 75% of the household lived in houses with broken floor condition (**Plate 1**) [15].

According to a study by [16] in the urban setting of Nigeria, the quality of housing was reported to be very poor due to the quality of building materials used for construction, and poor planning standard in handling the building components. Sun dried blocks and muds accounted for materials mostly used for building in the study area. Only 7.69% of buildings were reported to be in good condition (see **Figures 2** and **3** for details).

A case-control study carried out in Ibadan among under-five children with and without acute respiratory infections [17] revealed that more cases than controls reside in houses with poor housing quality (OR = 2.5; CI = 1.3–5.1, $p < 0.05$) (**Table 1**). A large proportion of houses of cases than controls showed the presence of damp walls (OR = 2.9; 95% CI = 1.1–8.1). Similarly,

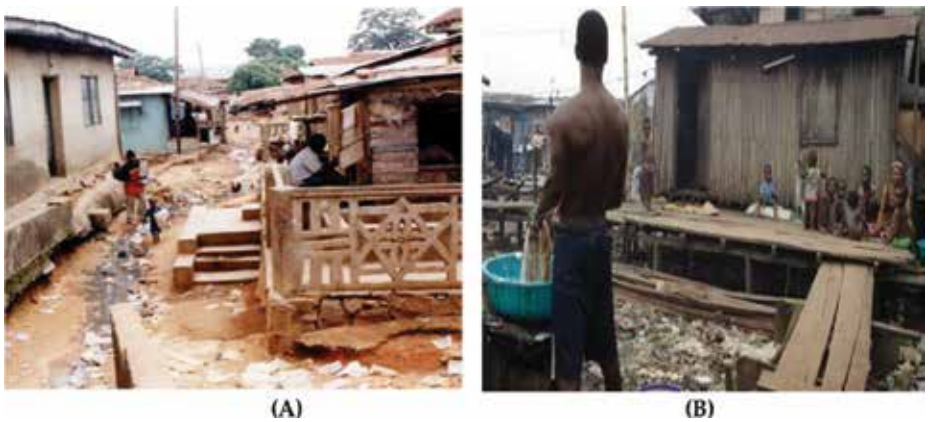

Plate 1. (A) Slum houses and (B) a typical building in a riverine community of Nigeria.

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a large proportion of houses of cases than controls recorded the presence of algal growth on walls (OR = 6.3; 95% CI = 2.0–19.6). More houses among cases than controls were built using muds (OR = 4.6; 95% C.1 = 1.6–12.8) [17].

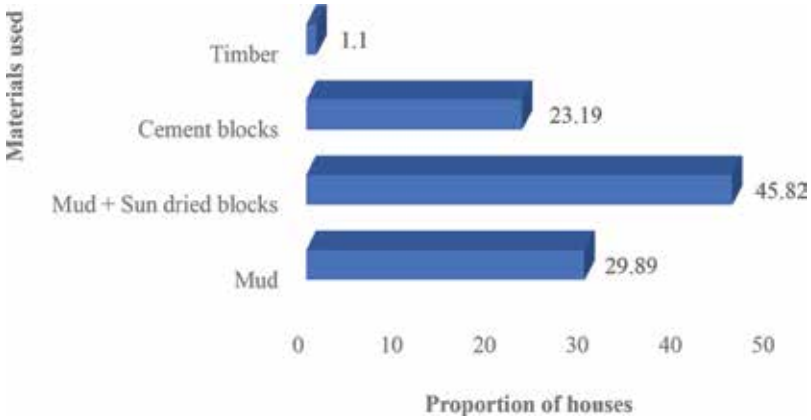

Figure 2. Materials used in building.

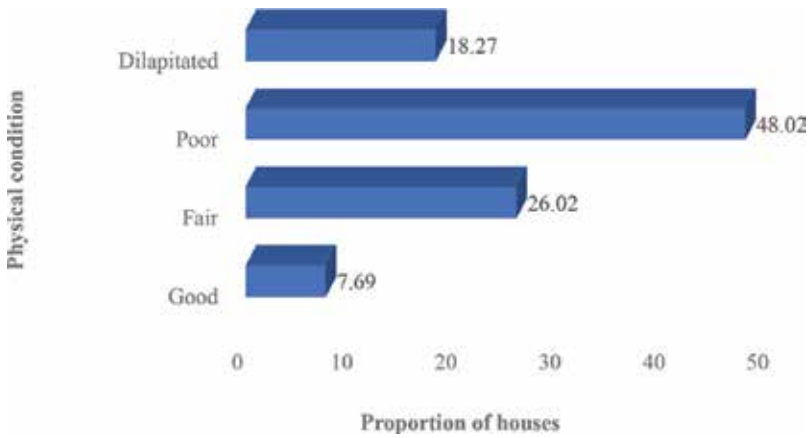

Figure 3. Physical conditions of buildings. Source: Owoeye and Ogundiran [16].

Category/score		Control		p-Value
Case		Poor	Good	
	Poor	18 (41.9%)	25 (58.1%)	0.017
	Good	10 (43.5%)	13 (56.5%)	

Source: Fakunle et al. [17]

Table 1. Relationship between housing quality and ARI.

5. Indicators for evaluating housing quality

In assessing the quality or suitability of housing, qualitative studies have identified some criteria as relevant indicators for quality evaluation in residential development. Among such is [18] who acknowledged aesthetics, ornamentation, sanitation, drainage, age of building, access to basic housing facilities, burglary, spatial adequacy, noise level within neighborhoods, sewage and waste disposal and air pollution among others, as related quality determinants in housing. However, [19] concluded that qualitative housing involves the provision of infrastructural services, which could bring about sustainable growth and development through improved environmental conditions and improved livelihood. In determining the quality of residential development, [20] stipulates five basic criteria which include compliance with tolerable standard, free from serious disrepair, energy efficient, provided with modern facilities and services, and that it must be healthy, safe and secure.

There are however indications from these various studies that a single variable may not be sufficient to assess the qualitative nature of residential development; therefore, housing acceptability and qualitative assessment should also take into account type of constructions, materials used, services, spatial arrangement and facilities within dwellings, function and aesthetics, among others [21].

6. Urbanization and housing quality

As a result of urbanization and lack of economic opportunities in rural areas, many people move to the urban areas that are already dealing with issues of overcrowding, infrastructure and high cost of living. As a result, most people are forced to seek shelter in slums and urban fringe. United Nation Habitat in 2006 found that 90% of slum residents are in the developing countries with struggling economies. In addition, most urban settings were not designed to handle millions of people which directly impact the availability and affordability of housing, forcing millions to live in substandard dwellings with poor housing quality [22]. This is mainly because substandard accommodation in the urban areas is very cheap.

7. Indoor air and housing quality

Indoor air is defined as the air within an indoor environment, coupled with the quality of housing that remains as major players in ascertaining the wellness and healthy living of occupants. However, the influence of one in ascertaining the state of the other cannot be overemphasized. Housing is said to be of diminished quality, if it does not have basic facilities, infrastructure and services such as adequate space, ventilation, waste collection and disposal facility, sanitation, electricity, water supply and general environmental quality [23, 24], which are important agents that impair the air quality in an indoor environment. A number of factors that include the origination of indoor pollutants such as human activities, building materials and carpets; and pollutants penetration from outdoor environments by forced ventilation, diffusion or infiltration, have been said to dictate the inevitability of human exposure to air

S/N	Parameters/unit	Range of air quality in study area		Air quality regulatory limit (WHO, 2006)
		Parlor/Living room	Kitchen	
1	SPM_{10} ($\mu g/m^3$)	255–391	271–439	250
2	CO (ppm)	12–33	18–41	10
3	NO_2 (ppm)	0.19–0.30	0.18–0.30	0.04–0.06

Source: Rim-Rukeh, 2015.

Table 2. Range of values of indoor air quality in the kitchen and living rooms of selected households in the slum squatter settlements of Warri, and the WHO regulatory limits.

pollutants, considering the amount of time stayed indoor [25]. However, Ana et al. reported that the influence of such pollution on human health may vary, depending on age, sex, nutritional status, physiological conditions, and individual predisposition to the pollutants in question [26]. A study conducted by Rim-Rukeh in a slum squatter inundated area of Warri, Nigeria, reported the measured levels of nitrogen dioxide (NO_2), carbon monoxide (CO) and suspended particulate matter (SPM_{10}) in all sampled households to be above the WHO air quality regulatory limits (**Table 2**) [27]. His report suggests that air quality index (AQI) in areas with poor housing settings such as slums, could be described as unhealthy for active children, women, adults and people with respiratory disease such as asthma, as it is usually associated with poor air quality. This therefore further suggests that impairing air quality in housing setting has an inverse relationship with the housing quality, and thus a negative impact on the health and wellness of its occupant.

8. Prevalence of respiratory diseases in Nigeria

Respiratory problems refer to as the disorders of the airways and lungs that affect human respiration have been reported to be a major cause of mortality and morbidity among Nigerian children (**Table 3**). Acute respiratory infections (ARIs) are group of heterogeneous diseases caused by a diverse group of organisms in which the anatomical site(s) involved consists of the airways from the nostrils, pharynx down to the alveoli [28, 29]. In most developing countries including Nigeria, the burden of respiratory disease is largely unknown; however, on an average, it was reported that every child has about 5 to 6 episodes of ARI in a year accounting for about 30–50% of the total paediatric outpatient visits [30, 31]. Data from national demographic health survey 2013 reported the prevalence of ARIs in Nigeria to be about 2% [32].

In a study conducted by [33] between the year 2000 and 2003, it was reported that pneumonia accounted for 20% of deaths in children under the age of 5 years in Nigeria. However, there is a seasonal variation in acute respiratory infections in Nigerian children with more episodes occurring during the rainy season [34]. Few studies have also investigated the etiology of pneumonia in Nigerian adults. A retrospective study of 3671 adults cases seen at the emergency room at the Federal Medical Centre Ido-Ekiti in South-Western Nigeria showed that 368 adults had respiratory diseases out of which 127 (34.5%) had pneumonia, 108 (29.4%) had complicated and uncomplicated PTB, 90 (24.5%) had acute asthma attack while 38 (10.3%) had acute

Infectious respiratory disease	Adult
	Tuberculosis
	Pneumonia
	HIV-related infections
	Children
	Acute respiratory infection
	Tuberculosis
	HIV-related infection
Noninfectious respiratory disease	Adult
	COPD
	Asthma
	Occupational lung disease
	Pulmonary malignancies
	Sarcoidosis
	Children
	Asthma
	HIV-related malignancies

Source: Akanbi et al., 2009.

Table 3. Classification of respiratory disease.

Respiratory diseases	**N (%)**
Pneumonia	**127 (34.5)**
Pulmonary tuberculosis (All)	108 (29.4)
-Uncomplicated	79 (21.5)
+Cor-pulmonale	14 (3.8)
+Pleural effusion	9 (2.5)
+Massive hemoptysis	4 (1.1)
+Pneumothorax	2 (0.5)
Acute asthma	90 (24.5)
Acute exacerbation of COPD	38 (10.3)
Upper airway obstruction	2 (0.5)
Malignant Pleural effusion	2 (0.5)
Acute chest syndrome	1 (0.3)

Source: Olufemi et al. [35].

Table 4. Respiratory diseases seen at the emergency room of the Federal Medical Centre Ido-Ekiti, south western, Nigeria, from November 2004 to December 2010.

exacerbation of Chronic Obstructive Pulmonary Diseases (COPD) (**Table 4**) [35]. A study of 74 patients with pneumonia in Zaria, Northern Nigeria, however, showed that 50% had positive pneumococcal polysaccharide antigen and 16.2% had *Mycoplasma pneumonia* [36]. A prospective cohort study carried out in Ilorin, Nigeria, reported that the rate of acute respiratory infection was three episodes per child per year with pneumonia being responsible for 1.3 episodes per child per year [33]. In another hospital-based study in Ibadan, 28.4% of children admitted to the hospital with acute lower respiratory tract infection had acute bronchiolitis with respiratory syncytial virus being the most common viral etiological agent [35]. WHO [37] reported that about 20% of all deaths in children under 5 years are due to Acute Lower Respiratory Infections (ALRIs - pneumonia, bronchiolitis and bronchitis); 90% of these deaths are due to pneumonia.

9. Meteorological conditions of houses in relation to respiratory conditions

Meteorological conditions refer to the prevailing environmental conditions as they influence the prediction of weather. A case-control study carried out among children under the age of 5 years with and without ARI in Ibadan revealed that a higher proportion of houses visited recorded a relative humidity (RH) value above the comfort level (30–60%) (**Table 5**) [17]. This high RH (above comfort level) observed among a large proportion of houses among cases could be as a result of high moisture content. With such high relative humidity levels, microorganisms such as fungi and bacteria can survive on non-living materials including dusts [38]. High relative humidity above 70% also tends to favour the survival of viruses that infect the membrane of the respiratory tract.

Measurement	**Category/score**		**Case**		
			Comfort	**High**	***P***
Temperature	Controls	Comfort	4 (50.0%)	4 (50.0%)	0.00
		High	42 (72.4%)	16 (27.6%)	
Relative humidity	Controls	Comfort	2 (50.0%)	2 (50.0%)	0.00
		High	40 (64.5%)	22 (35.5%)	

Source: Fakunle et al. [17].

Table 5. Relationship between meteorological condition of the indoor environment and ARI.

10. Housing risk factors for respiratory conditions

Numerous studies have shown that people who live in poor housing are at increased risk of exposure to the determinants of respiratory diseases [39]. A substandard housing may increase exposures to biological (e.g., moulds, mites, roaches), chemical (e.g., lead, carbon monoxide, volatile organic compounds), and physical (e.g., extreme temperature, fine particles, radon) hazards leading to a wide range of adverse health outcomes, especially respiratory diseases [40–43]. Adequate

housing therefore remains critical to human health, comfort and general well-being [43]. Thus, understanding the link between housing and respiratory health condition is of importance in designing effective strategies to improve quality of life. Crowding, poor air quality within homes as a result of inadequate ventilation, and the presence of mould and smoke contribute to poor respiratory health in general and have been implicated in the spread and/or outcome of tuberculosis (TB) [44–46]. Therefore, housing risk factors for respiratory conditions can be broadly classified into three namely; structural, biological and chemical factors. Specific aspects of these risk factors are described below:

10.1. Structural factors

10.1.1. Overcrowding

Limited air movement in an enclosed place have been known to be a contributory housing risk factor to respiratory challenges in developing countries as shown in **Plate 2**. Udoh and Uyanga reported that the major predictor for bronchitis and cough in a study carried out in Akwa Ibom Nigeria was overcrowding [15]. Lienhardt reported that overcrowding is a risk factor for respiratory infection and for increased risk of disease after infection [47].

Studies in developing countries have found that the average area of habitable space per person is well below the WHO recommendation of 12 m^2 [48]. As reported by Ana and Umar, the mean number of occupancy among children under the age of 5 admitted in a tertiary health facility for ARIs was 6.0 ± 1.5 as compared to 4.0 ± 1.0 among controls [55]. A positive association was found between the level of occupancy and indoor total bacterial count. This suggests that the number of persons in the household is directly proportional to the level of bacteria build-up in the indoor environment.

10.1.2. Inadequate ventilation

Transmission of *respiratory condition* to a non-infected person is more likely if there is poor ventilation. Inadequate ventilation is associated with a higher risk of airborne infectious

Plate 2. (A) Overcrowding condition in a typical community in Nigeria. (B) Overcrowding condition in a typical school setting in Nigeria.

disease transmission, including tuberculosis, as well as the accumulation of indoor pollutants and dampness, which are factors in the development of allergies and asthma [49]. Room ventilation is usually expressed in terms of air changes per hour [45, 50]. Studies in hospitals and health care facilities have shown that poor ventilation design or construction have contributed to the transmission of infection, particularly among clinical personnel in patient rooms with fewer than two air changes per hour [51]. Poor ventilation have been associated with failing respiratory health [40, 52]. In the same wise, Livebuga et al. also found that the presence of mould proved to increase the risk of Asthma and Bronchitis [53].

10.1.3. Housing quality and dampness

Moisture damages on walls, roofs, floors, leaking pipes, cracked walls, broken window seals are all platforms for occurrence of house hazards and for the growth of visible moulds and mildews leading to poor housing quality. About 60% of households suffer roof leakage, cracked walls and broken floors with increased risk of pneumonia due to mould and damp development [54]. Dampness has been repeatedly linked to a number of health outcomes, including respiratory symptoms, nausea and vomiting and general ill health. Fakunle et al. [17] in a study reported that housing quality and conditions among cases were major contributory factors to ARI when compared with the controls (**Table 6**). The study reported that more cases than controls reside in houses with poor housing quality (OR = 2.5; CI = 1.3–5.1, $p < 0.05$). In a large proportion of houses of cases than controls, there were presence of damp walls (OR = 2.9; 95% CI = 1.1–8.1). Children under five living in houses with presence of old/deteriorated furniture were found to be thrice more likely to develop ARIs than children residing in houses without such furniture. More houses among cases than controls were built using muds (OR = 4.6; 95% C.1 = 1.6–12.8) [17]. This study suggests that a link exists between housing quality and the prevalence of respiratory conditions among children under 5 years.

10.2. Biological factors

10.2.1. Bioaerosols

A study carried out by Ana et al. [55] showed that the genera of fungi isolated in the indoor environment of day care centers included *Aspergillus, and Penicillum* spp., which have been related to asthma and other allergic respiratory diseases. Some of these species, such as *Penicillium* and *Aspergillus* can also induce type III allergy (IgG mediated), while at high concentrations, may also initiate combined type III and IV reaction manifested as hypersensitivity

Building condition		Cases	Control	OR (95% CI)	p-Value
Presence of damp roof	Yes	15 (22.7%)	6 (9.1%)	2.9 (1.1–8.1)	0.03
	No	51 (77.3%)	60 (90.0%)		
Presence of algal growth on walls	Yes	19 (28.8%)	4 (6.1%)	6.3(2.0–19.6)	0.001
	No	47 (71.2%)	62 (93.9%)		

Source: Fakunle et al. [17].

Table 6. Condition of houses visited among children under-five with and without ARI.

pneumonitis [56]. Airborne fungi may be harmful to human health, but may also destroy the building itself (**Plate 3**), particularly wooden parts, such as roofs and walls. Inadequate ventilation is one of multiple factors that contribute to the development of mould in a home [57]. Household humidity and encumbered space may also contribute to mould growth in a house. However, mould have been implicated in increased susceptibility to respiratory infection, asthma and allergies among children [58]. Dales et al. found an association between exposure to indoor fungal contamination and altered T-cell differentiation in children [59].

A recent study by Ana et al. [60] designed to determine the burden of airborne microbes in houses that predispose children under the age of 5 years to acute respiratory infections revealed that the indoor airborne bacterial load in houses of children under-5 years with ARI (9.6×10^2 cfu/m^3) was higher than the acceptable limit ($\leq 5.0 \times 10^2$ cfu/m^3) proposed by the American Industrial Hygiene Association (AIHA) for residential locations compared to houses of children under-five without ARI (3.5×10^2 cfu/m^3) (**Figure 4)**.

10.3. Chemical factors

10.3.1. Tobacco smoke among parents

It has been postulated that cigarette smoke may impair the pulmonary defense mechanism, resulting in airways that are more susceptible to infection; however, there are no published studies to support this hypothesis [61]. A study carried out by Adegoke et al. [62] investigated the effect of tobacco smoking on lung function indices among male undergraduate students. They revealed that smokers had significantly reduced FVC (3.42 ± 0.42 vs. 3.87 ± 0.4 liters; p = 0.03), FEV1 (2.39 ± 0.37 vs. 3.22 ± 0.38 liters; p = 0.001) and FER (%) (70.7 ± 7.58 vs. 82.3 ± 4.05; p = 0.01). Among the smokers, a relationship was observed between years and numbers of cigarettes smoked and lung function. The proportion of participants with FER below the age-matched reference was significantly higher among smokers than non-smokers

Plate 3. (A) Damped roof in a building in Bere Area of Ibadan, and (B) mould growth on wall and ceiling of a typical house in Ibadan.

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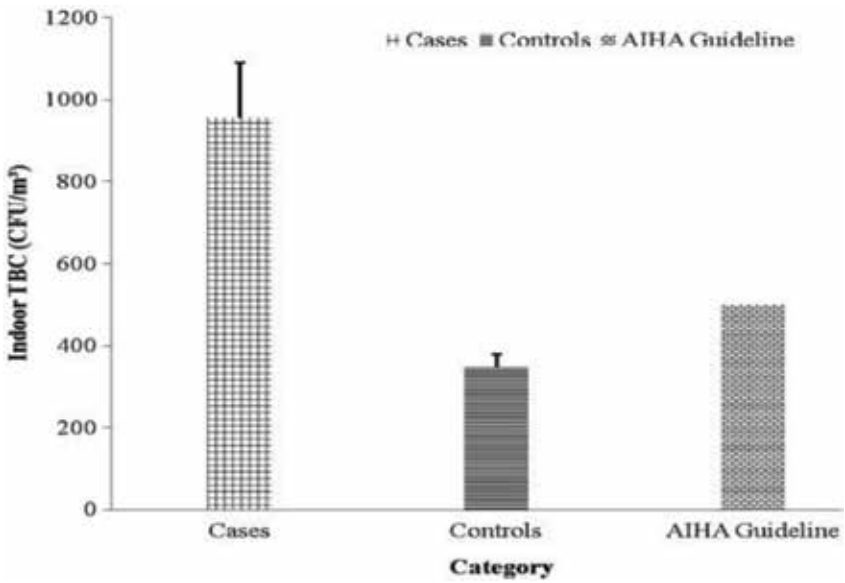

Figure 4. Mean indoor TBC among cases and controls as compared to AIHA Guideline. Source: Ana et al. [60].

(40.4 vs. 6.7%) p = 0.021. [25] in their study reported parental smoking or any other smoker in the house as a risk factor for ARIs in children under the age of 5 (OR = 4.7; CI = 0.9–2.17, $p < 0.05$). This could be due to the accumulation of emissions from cigarette smoking in the indoor environment as a result of inadequate ventilation [63]. Furthermore, indoor air pollution, arising from tobacco smoking in the home showed significant effects on respiratory symptoms (Cough, Wheezing, Pneumonia, Bronchitis and Asthma) among children [64, 65]. Tobacco and cigarette smoking emits sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) which impair phagocyte functioning of the lower respiratory system and thus reduce immunity. A systematic review of 33 papers indicated that passive smoking (second hand smoking) and smoking were associated with an increased risk of tuberculosis. The review further revealed that compared to non-smokers, smokers had an increased risk of having active tuberculosis and testing positive on tuberculin skin test [66].

10.3.2. Exposure to Biomass fuel used for cooking and heating

About 3 billion people in developing countries including Nigeria rely on firewood or charcoal for their daily cooking purposes [67]. According to the World Health Organization (WHO), smoke-induced diseases are responsible for the death of 4.3 million people every year, making it one of the most lethal environmental health risks worldwide [68]. The largest burden of mortality due to biomass fuel is borne by women and young children (**Figure 3**). Among the 4.3 million who die from the consequences of smoke emission each year, 500,000 are children under five that die due to acute respiratory infections (ARI). Young children are particularly vulnerable for two reasons: First, they are usually with their mothers during the cooking process and thus inhale large loads of particulate emission. In a recent systematic review, it was

Plate 4. Mother and child exposed to biomass emissions.

found that children's particulate emission exposure is similar to their mothers' [69]. Second, in comparison to adults, the still growing bodies of young children are more susceptible to ARI, leading to a high death rate in this age group [70].

In a study on the concentration of indoor air pollutants due to the use of firewood for cooking and its effects on the lung function of women living in the selected homes in Nigeria, Ana et al. [71] reported that the concentration of PM_{10} and gaseous emissions such as CO and NO_2 significantly exceeded the WHO limits by several folds. Chronic exposure to such high levels of indoor air pollutants particularly the respirable particulate matter as shown in **Plate 4** could possibly compromise the lung function status of women [71]. Olufunmilayo and Chi [72] reported that there is increased likelihood of ARI symptoms associated with children aged 1–2 years old in communities where indoor-biomass is used by households in North-Western and South Southern Nigeria Communities. A majority of households burn biomass fuels in open fireplaces, consisting of simple arrangements as three rocks, a U-shaped hole in a block of clay, a pit in the ground or in poorly functioning earth or metal stoves. However, the process of combustion in most of these stoves is incomplete, resulting in substantial emissions, which in the presence of poor ventilation produce very high levels of indoor pollution [73]. A case-control study carried out by Fakunle et al. [74] in Ibadan revealed that Children under-five carried by their mothers while cooking were 3.2 times more likely to develop ARIs.

11. Conclusions

That a man requires good quality housing has become a fact that cannot be entirely invalidated if he must enjoy a healthy life and wellness. However, several studies have reported that as opposed to the intents of man, built environment does not usually protect their inhabitant from various physical, social, economic and mental hazards, especially housing with poor quality. This therefore suggests that the quality of housing plays a major role in the health status and overall well-being of its resident, even though everyone has the right to decent and good standard of living. Overcrowding, poor ventilation, use of biomass fuel, mould growth in houses, dampness and poor quality have been identified as major predictors that have

been implicated in the prevalence of respiratory conditions and morbidity among humans, especially children under the age of 5 years in Nigeria. Therefore, against the backdrop of these effects of poor housing quality, it is imperative that measures such as health policy changes regarding construction of homes, better ventilation of kitchens and homes, and use of environmentally friendly, low-emission and energy-efficient cooking stoves should be put in place, if the prevalence of respiratory conditions among Nigerian children must be mitigated. Also, more should be done in the aspect of strengthening community health program, raising housing awareness, encouraging good self-help environmental sanitation among households, and the development of good and effective master/development plan for physical planning.

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Chapter 7

Housing for Younger and Older Populations

Boštjan Kerbler and Barbara Kolar

Additional information is available at the end of the chapter

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Abstract

In Slovenia, a post-socialist Central and Eastern European country, a high percentage of young people still live at home with their parents. However, they wish to become independent and to leave their parents' home, but unemployment and, consequently, the lack of financial means make this difficult. In contrast to the young, older people do not wish to leave their homes. They want to stay in their own-occupied housing as long as possible, postponing moving to an institutionalized accommodation. A lack of finance is an aggravating factor for older people as well. It particularly affects those individuals who live in a single-person household or in their own, often oversized house. This study, therefore, presents housing conditions of two age groups, that is, younger population, focusing on individuals aged from 18 to 35 years who still live with their parents, and older populations, represented by individuals aged 60 and above not living in institutional forms of accommodation (yet).

Keywords: housing, the young, older people, living, purchase, renting, financing

1. Introduction

1.1. Theme

The right to housing is a basic human right. As stated by the author in Ref. [1], suitable, affordable, and accessible housing is generally recognized as a fundamental component of a peaceful, dignified, and safe life. Housing is clearly among the most important factors of quality of life and human welfare [2], which is recognized in both the social sciences (see, e.g., [3–7]) and numerous international policy documents, which many authors draw attention to (see, e.g., [8–13]). But the "way to the property" in which we are living, whether it is an owner-occupied or a rental, represents a big and important move in the life of an individual.

The home for an individual means permanence, security, a sense of continuity, and repetition of what is known, as well as enables to possess rituals [14]. The main thread of this chapter is to present the problems of the younger and older populations in real estate area in a post-socialist Central and Eastern country Slovenia. This particular group of individuals was chosen because they are often ignored on many levels. In view of the problems in the area of employment and consequently of the finances of the younger people, as well as the population aging and the financial distress of the elderly, we are practically still turning around in a vicious circle, from which until today we have not found an exit yet. As part of our research, we focused on the problems and desires faced in the real estate area, and especially the financial situation of both age groups, because this is closely linked to the purchase or renting of the real estate among young people and the maintenance of real estate among the elderly. Also, young people and the elderly represent the greatest potential for migration. One of the possibilities of these two groups is also intergenerational coexistence.

The life span of individuals is increasing across all over the world, and this is typical especially for a western society. According to the World Health Organization, the population in Europe is projected to increase from 894 to 910 million by 2020, with an increase in the number of older people, especially those with 85 years and older. The number of these is projected to increase from 14 to 19 million by 2020 and to 40 million by 2050. With age, there is a growing need for care for the elderly, especially those who are functionally impaired. People of a high age need help with daily tasks. The level of assistance is individual, depending on the individual's ability and not related to the age level. The living environment of an individual is limited by age, and in the case of a disabled person, it only narrows down to a certain space. The situation in which elderly people often find themselves is worrying. They are mainly faced with the high costs for maintaining their real estate. For Slovenia, it is characteristic that older people are to a large extent the owners of their real estate. The elderly aged 65 and over are owners of their real estates in 96%. According to the research on housing and the welfare of the elderly, which was carried out in Slovenia and compared with selected European countries, older people want to preserve their housing property for as long as they can, as they see it as the most important asset [2]. The elderly believe that the acquisition of property is part of a long-term security strategy for old years. For the elderly, therefore, in Slovenia still the most widespread form of residence is owner-occupied housing. Accommodation in retirement homes is planned for around 5% of the elderly population, and there is much less sheltered housing available. In Slovenia, there is (almost) no other residential care, except for some apartments especially adapted for the elderly.

But with the big problems, like the elderly, also the young people are facing. Young people are today in a quite different position than the previous generations. Problems are encountered both in employment and in the financial area, which in turn leads to the fact that a large percentage of young people remain at home with their parents, thus delaying their independence. Many young people today could hardly exist without the support of parents and grandparents. The fact that young people are increasingly staying at home with their parents is worrying. The percentage of those young people who own the property in which they reside is very low. The housing policy in Slovenia is defined by the National Housing Program, which aims to ensure adequate housing for those who do not have such an opportunity.

However, housing policy cannot meet the level of demand for housing, because the supply of real estate on the market, especially non-profit housing, is insufficient. Dwellings have been sold, practically before the construction work is completed. The younger population has the choice of renting a non-profit apartment, renting a market apartment or buying a dwelling or a house, in addition to being able to stay with parents or relatives, and assistance in exchange for an apartment. Among the younger people, one of the forms is staying in a student dormitory home, but most of them still combine living with their parents.

The study, therefore, deals with the problems of two age groups in the real estate area, that is, the younger population, where we focused on individuals aged from 18 to 35 years, and older population, represented by individuals aged 60 and over. These two age groups represent the basic target group. In the group of young people, the age limit was set at 34 years on the basis of the general operating conditions of the Housing Fund of the Republic of Slovenia. Article 20 stipulates that a young family shall be considered as a family with at least one child and in which none of the parents is more than 30 years of age regardless of the age of children or 34 years of age, but no child is visiting a school yet. The second group covers those older than 60 years. The limit for the elderly population at the age of 60 is determined by the United Nations. But the old age limit could also be 65 years. This limit, for example, is stated in the national "Rules on standards and norms of social welfare services" and also in the "Rules for renting sheltered housing, the conditions for accommodation in retirement homes and sheltered dwellings." However, it was decided to move the limit lower, because we also wanted to cover those who still do not fulfill the conditions for accommodation in these forms of living and are not thinking about them at the moment, but at the same time, we wanted to find out what they plan in the near future.

1.2. Purpose

The main purpose of this chapter is to present the housing problems of the younger and the elderly in Slovenia, the post-socialist Central and Eastern country. In short, we want to present the types of housing accommodation that the younger and older populations have at the market and within state assistance. In addition, we want to present the situation of younger people who are in the phase of buying or renting a real estate, as well as the situation of older individuals who are facing the problems of changing their housing accommodation.

2. Hypotheses

Four hypotheses have been formally formulated, which we tried to support or reject using different research methods, focusing especially on the questionnaire and the statistical data.

Hypothesis 1: *For the younger population, the problem represents economic and administrative barriers, since it makes it difficult for them to leave their parents' home into their first independent (own or rented) real estate.*

Hypothesis 2: *The elderly would move out of the current accommodation only in case of excessive maintenance costs or reduced autonomy in housework and personal care.*

Hypothesis 3.1: *The younger population takes a quicker decision to move/abandon (sell) the current real estate (place of residence) due to relocation into a financially/cost-effective variant/form of residence than the older population.*

Hypothesis 3.2: *Both the younger and the older populations do not want to share a common residence (intergenerational coexistence) in the same real estate.*

3. Housing situation in Slovenia

3.1. Housing policies

The quality of life, among other things, is determined by housing conditions in which an individual lives. The development of the right to housing started with the Universal Declaration of Human Rights, confirmed by the United Nations General Assembly in 1984. In Article 25, it is stated that everyone has the right to a standard of living that provides him or his/her family health, well-being, including food, clothing, medical care, etc. as well as housing. Maternity and childhood are entitled to special care and assistance. In 1966, the United Nations General Assembly accepted the International Convention on Economic, Social and Cultural Rights, which entered into force in 1976. In addition to the 127 countries, it was also ratified by Slovenia, and its implementation is supervised by the Committee of the United Nations Economic, Social and Cultural Rights. Article 5 of the Convention quotes that the signatory states recognize the right of everyone to an adequate standard of living for themselves and their families, taking into account appropriate food, clothing, and housing, as well as the continuous improvement of living conditions. Later, this right was upgraded by the United Nations Resolution on Human Rights to an Appropriate Housing accepted in 1993. According to this resolution, the right to housing is transferred to everyone, which includes all people, regardless of wealth, race, health status, etc. In 1996, two international legal regulations were accepted to determine the obligations of countries in ensuring the right to housing. These are the Istanbul Declaration of the United Nations Organization on Human Settlements and its Agenda Habitat Action Plan [15]. They advocate the provision of a suitable housing for all as one of human rights and fundamental freedoms. These acts are not legally bound, but they express the objectives to which the signatory countries have committed themselves [16].

3.1.1. National housing policy

Household policy plays an important role in solving the housing issue of people in each country. Slovenia is also trying to follow the goals set out in international documents as closely as possible. In Slovenia, the basis of housing policy is determined by the Housing Act and the National Housing Program [15]. With the National Housing Program, the state creates the conditions for the implementation of the constitutionally written option of choosing to solve the housing issue for all inhabitants and sets out the general goals in the area of housing care. It focuses specifically on ensuring the quality of living of more vulnerable groups of the population, such as younger and older. Four key objectives of the country's housing policy are (a) balanced offer of suitable housing, (b) easier access to housing, (c) quality and functional housing, and (d) increased housing mobility of the population [17].

a. Balanced offer of suitable housing

While statistics show that the number of dwellings in the housing stock exceeds the number of households, this does not mean that the availability of suitable dwellings is appropriate. The imbalance is due to the discrepancy between the needs of the population about housing in certain locations, their actual availability, and quality. The provision of housing in major cities is insufficient, because there is the greatest demand for employment, schooling, access to public functions, services, and better transport connections. The consequence of the higher demand is higher real estate prices in such areas. Quite the opposite is with supply and demand in peripheral and economically less developed areas. The uninhabited housing stock is also responsible for the smaller number of apartments that are actually available. In 2011, 20% of the housing stock was probably uninhabited. Uninhabited housing stock is affected by the unfavorable location, the physical condition of the dwelling, and the lack of interest of the owner in using the apartment. In order to ensure a balanced supply of suitable housing, the policy is to activate existing uninhabited housing stock. In order to increase the housing stock, an adequate number of communicable utility lands are planned to be provided in the long term. Also, degraded areas are planned to be activated, enabling cities to have a wider urban and social renewal.

b. Easier access to housing

Housing accessibility is of a great importance for inhabitants in order to provide functionally suitable housing according to their needs. The criterion of housing accessibility is a relationship between the housing costs, that is, the prices and the income of an individual or a household. Particular emphasis is on the affordability of housing for different population groups. One of the biggest problems in Slovenia is the poor housing accessibility to younger and older individuals. The lack of rental housing is affected by poor access to housing, which represents only an 8% share of all dwellings. Most of the rented apartments are owner occupied. Data from 2015 showed that around 6600 households were waiting for a non-profit rental apartment. The situation on the rental housing market in the country is poor; almost a quarter are supposed to be rented illegally. Special attention is paid to young individuals and those who are just creating a family, and their creditworthiness is poor. It is necessary to increase the rented apartment stock, to establish the necessary mechanisms for providing housing for them, in terms of both long-term lease and the purchase or for buying the first apartment. On the other hand, the elderly find it difficult to cover the costs and need more adapted apartments to live in. In this area, housing policy foresees necessity in the provision of a greater number of sheltered housing and to improve the possibilities for different forms of coexistence. In addition to these two groups, housing policy also pays attention to those needed to (other) socially most vulnerable people, that is, those who remain without a roof over their heads due to evictions, natural disasters, violence, or financial threats. According to data from 2015, about 800 temporary accommodation units were expected to be lacking. For this, housing policy foresees necessity in ensuring the construction of an adequate living standard apartment, which should be at the lowest possible cost. For these three groups, it would be necessary to provide housing of different types.

c. Quality and functional housing

The quality of residence consequently affects the quality of living of the population. It is necessary to pay attention to the energy and functional efficiency of housing. The apartment is of high quality if it is suitably constructed, is of a suitable size, meets the needs of users, and has as little maintenance costs as possible. In the country, in 2015, about 70% of dwellings were over 30 years old, which means that renovations are needed. For this reason, housing policy foresees ensuring a greater coordination of incentives and benefits for the renovation of housing.

d. Increased housing mobility of the population

According to different life periods of an individual, the need for different types of dwellings is also changing. In youth, a person needs a smaller dwelling; later, when creating a family, a person needs a bigger place, and when a person is old, he/she also needs a different type of dwelling. By enabling a greater housing mobility, a more streamlined distribution of households in the existing housing stock is ensured, thus enabling individuals to use an apartment that is more appropriate for their needs. Particular attention should be paid to raising awareness of the population by encouraging new forms of social assistance. The fact is that the greatest potential for migration is represented by young people and the elderly.

In the area of youth independence, the National Housing Program encourages renting. The measures of the National Housing Program focus on increasing the accessibility of the rental housing stock. The arrangement of rental relationships is planned, as well as the establishment of a new tenancy policy for increasing the offer of rental apartments from the existing housing stock. New construction measures are directed toward the provision of public rental housing in larger centers, where the need for housing is greater. Under the new housing program, in the context of economic independence and family creation, young people can choose among the range of measures to continue housing rental and the possibility of arranging their own housing (guarantee for purchase or renovation, functional adaptation of one-dwelling residential buildings for the coexistence of different generations) [17]. In case of the elderly, the National Housing Program focuses on housing forms that provide quality health and other care while at the same time ensuring integration into society and mutual assistance (proximity to social activities, mixed neighborhoods). When designing a housing stock for the care and accommodation of older persons, the program envisages that architectural and functional requirements and principles of energy efficiency are taken into account (reducing the cost of operating housing units). According to the program, suitable forms of housing are adequate for the elderly, which provide an adequate level of care, for example, sheltered housing. The provision of such housing is sensible to be carried out through a public-private partnership, which enables the provision of dedicated rental apartments at affordable prices. Considering that the National Housing Program promotes renting for both the elderly and the young, the types of lease in the country are presented for better understanding. Four types of rented apartments have been distinguished in Slovenia: a) profitable housing, b) non-profit housing, c) social housing, d) official residence [18].

a. Profitable housing

These are dwellings where owners rent for the purpose of gaining profit. The rent levels in these dwellings are the highest in practice. Rent is shaped freely by the market, without state control. The problem is that the rental market is very limited and the rentals are high.

b. Non-profit housing

Subsidized rental apartments (in Slovenia called as non-profit apartments) are intended for those whose income does not make possible to rent an apartment at market prices or buy a home. Owners of non-profit rental apartments are in the vast majority the municipalities, Housing Fund of the Republic of Slovenia, different public housing funds, and other non-profit housing organizations. A non-profit apartment can be rented only through a tender. For non-profit dwellings, the highest possible rent is prescribed by the methodology. The rent covers amortization, capital costs, management and insurance costs, and current and investment maintenance. The owner can freely decide to set a rent that is lower than the maximum permitted by law. The size of the dwelling is also determined according to the number of household members. A number of criteria must be met to obtain a non-profit housing.

c. Social housing

Owners of social housing are in the great majority the municipalities. Conditions for prescribing social apartments are also prescribed. A social apartment can rent a citizen of Slovenia, who meets the eligibility criteria. The Housing Law in Article 83 does not define social housing; instead of this, it defines a purpose-built rent housing intended for the institutional care of older people, pensioners, or special groups of adult population.

d. Official residence

These dwellings are owned by employers; they rent them to their employees to solve their housing needs. They are leased out for a certain period of time or until the expiration of the term of the employment contract or the termination of the employment relationship. The rent is determined by the employer.

3.2. Housing situation of the younger

Today's generation of young people are in a quite different position than, for example, the generations of their parents. Many believe that for young people, today's circumstances are difficult. The post-modern pluralism of a Western society can be an opportunity or an obstacle to them. Young people are faced with unemployment and precarious work, which is followed by many problems that are manifested in financial deprivation, weak housing supply, lower rate of independence, psychological pressure, etc. In addition to unemployment, among young people, the housing issue is a central problem at the way to get independent. According to Eurostat, 60.4% of young people between the ages of 18 and 35 lived with their parents in 2016, which ranks Slovenia near to the European top [19]. Independent living is one of the key factors for the independence, reaching the autonomy of young individuals. The problem in Slovenia and in other European countries is that there are less young people while the elderly population is growing. Young people in Slovenia represent a good fifth of the population, and it is expected that the share of young people will continue to decline [20].

The most common way of family life in Slovenia is the so-called dispersed extended family. These are formally separate family households, usually parents and children (maybe also siblings or other relatives) who live in the same dwelling, in separate housing units, or in the immediate vicinity. They offer mutual support and help, material, working, service, and emotional. In Slovenia, more and more young people live longer with their parents. This is the

so-called LAT phase (Living Apart Together phase); this is a period of semi-family life, which has several manifestations [21]:

- young people live at home during extended education, up to the age of 26,
- young people also live at home after schooling and after work,
- young people live at home with occasional life elsewhere,
- young people live elsewhere and regularly visit parental families and use their services and support.

LAT phase is an intermediate phase between family dependence and independent life. It is characterized by economic dependence or interdependence from parents with social independence. This period is often delayed in the 30s. The reasons for prolonging the life with parents can be in the absence of economic independence, unemployment, difficulty to find the place to live, extended study, and others. On the other hand, such a way of living, on the condition of mutual understanding, is easy and cheap, and there is material and emotional security with simultaneous high personal autonomy [21].

According to many researchers, the following factors are key to the late leaving of young people from their parental home: unemployment, income, housing prices, and rents. In Slovenia, the share of full-time employees is low. Temporary employment does not provide young people with all those opportunities such as full-time employment. In particular, young people get stuck with a loan application request from a bank. Therefore, regular employment has a significant impact on earlier leaving of parental home. Researches have shown that young people whose parents live in the house often stay at home even if they have a job. According to this, it can be assumed that employment encourages young people to leave home only if they are connected with a shortage of space in the house. The level of income of young people is also important, as it must be high enough to allow them to rent or repay loans. Among young people, rental apartments prevail or dwellings that are owned by their parents or partner's parents. However, those who are the owners of the apartment in which they live obtain it on the basis of inheritance (48.7%) or they rent a loan from a bank institution (32.9%). Cash purchases of a real estate are rare among young people, but if they are, this is at least to some extent the resources of parents or relatives. According to data from 2011, only 15% of young people who moved out of their parents' home bought the real estate (in which they live) with their funds or loans from the bank. The fact is that among those who moved away from parents, 41.7% of them live in a real estate owned by their parents. Adding those whose parents financed or partially financed the purchase of their real estate, 55.4% of young people moved out of their parents' home, and this move was in the economic sense directly enabled by their parents. Young people also have a high disparity between their desires and reality. A large proportion of young people (92.1%) between the ages of 15 and 18 want to leave home by the age of 29. The reality is that in the age of 29, only 31.6% of young people actually live in their own apartment [22].

The consequences of a housing situation may vary, and those young people who live with their parents are not independent and are more difficult to gain independence, while those who move out have more financial problems even also rental problems. But both have

problems with a creation of an own family. Concerning financial problems, the problem is price accessibility to housing. Rental problems are different:

- a lack of rental housing and profitable rentals are high,
- the problem of young people who are single is also that they do not have the possibility of renting public housing with non-profit rent due to housing policy, which prefers young families, which leads to the problem of independence [23],
- it is also noticed that landlords often reject young families and couples, that is, young people in general, which makes it more difficult for them to find accommodation [24].

Similarly, it is much more difficult to build a dwelling house than in the time of their parents' youth. For young people, housing is difficult to access also in terms of both buying and renting. There are problems with the purchase of a loan when buying, mostly because of low incomes (or even without revenue) and working relationship in most cases with a fixed-term contract. The requirements of the mortgage lenders are the initial deposit, solid credit insurance, or a guarantee, which can also make it difficult for the loan itself for those young people who have sufficient income and with an indefinite duration contract of employment. For the financial standard of young people, the problems are also high real estate prices in Slovenia, especially those in larger urban centers with most of jobs [24]. In Slovenia, there is also a problem in the area of subsidies for young families, because the money is directed to that part of housing markets where ownership is most accessible. In order to enter into ownership, it is necessary to have a certain income standard; therefore, only few candidates apply for subsidies. Income limits are universally set for the whole country, regardless of the fact that the average net wages vary according to the country's territory. Therefore, subsidies involve those young families whose income already enables them the transition into ownership. Those who want to solve the housing problem in areas where the availability of housing is low cannot do due to higher incomes for subsidies. Namely at the given housing prices, the income that is required to enter into ownership is higher than the set census. The novelties in the set of measures are subsidies for young families in renting market apartments. The problem of this instrument is that it is intended only for young families directly after the study. It is a short-term assistance that does not significantly contribute to improving their housing problem [25].

To conclude, possible solutions for the housing problem of young people are: (1) renting a subsidized (non-profit) apartment, (2) renting an apartment at a market price or (3) buying an apartment or a house. In addition, young people can become independent, (4) by extension of the parents' house or (5) by inheritance of real estate (e.g., inherited by relatives). Less independent forms of living are (extended) (6) staying with parents or relatives, (7) staying in a student dormitory and assistance in return for housing.

3.3. Housing situation of the elderly

Most of people want to grow old but this is also accompanied by fear. This period of life brings many problems that older people and people around them must face. The fact is that the age is beautiful, if it also serves the body and mind. Some older people decide on their own where

and how they will live, while others are victims of their life situation. Institutional forms of living can be perceived by the elderly as something negative (a traumatic experience), or as the best solution according to their current life situation. How an individual accepts this depends on himself, his/her relatives and friends, and on the staff of the institution.

The share of the elderly population is increasing, especially the population over 80 years. The trend is present everywhere in the developed world, especially in Europe. The situation in society poses a challenge for the modernization of current social protection systems, especially for long-term care, because the older population is the most numerous. For the elderly, there has to be provided certain assistance in daily tasks due to illness, disability, or age-related illnesses, thus ensuring a better quality of life [26]. According to forecasts, every fifth inhabitant in Slovenia will be older than 65 in 2020, which is 19.4% of the population [27]. By 2060, the share of the elderly will rise to 31.6%, which means that at that time, each third person will be older than 65 years [28]. According to age, older people in Europe are divided into young-old (65–74 years), middle-aged old (75–84), old-old (85–94), and very old-old (over 95 years) [29]. In the United States of America, the division is something different: go-goes (old people who can walk), slow-goes (old people who find it hard to walk), and no-goes (old people who cannot walk) [30].

The elderly are often discriminated in the area of social affairs, health, employment, education, culture, information, politics, security, research, etc. In the area of protection, rights are limited, which affects older patients, disabled and poor, who cannot pay for private services. Access to health services is getting worse, especially nursing, rehabilitation, and home care services. There is a lack of nursing departments where patients will be trained to the extent that they can return to their home environment. Elderly people live in apartments and the buildings that are not suitable for them (without lifts, architectural obstacles, etc.). By improvement of living conditions, the elderly are hampered by low incomes, which in turn mean that they cannot obtain loans from banking institutions. Even in constructing buildings, sufficient rules are not taken into account that would make it easier for the elderly to move. The problem is also in the sheltered housing locations, because they are mostly built outside towns, which is an additional possibility for the exclusion for the elderly [31].

For Slovenes, the relationship to the real estate is different than elsewhere in the world. The property means something holy for the elderly, and even if older individual is starving, it does not allow mortgages or seals on the property. As much as 80% of the property is owned, which places Slovenia to the top in the world. But over the years, owner-occupied real estate can also become a burden. There are more and more old-aged property owners who cannot afford their own dwelling. The houses are too large, and they have many architectural obstacles and become too expensive to maintain [32]. Many Slovene elderly people just barely cover current expenses and annual taxes, and for other obligations related to the maintenance of real estate, they often do not have enough savings [33]. In a survey [34] in the area of pension receipts of pensioners[1] and their real estate, it was found that few respondents were ready to sell real estate in exchange for a better life; only 18.7% of respondents would do that. Another study show that only 6% of older people move to a retirement home because of inadequate living conditions in their own homes, and 60–70% due to the health reasons, that is, when it is absolutely essential. Only when health problems occur or when unpaid

[1]In 2017, the average net pension amounted to EUR 620.

bills begin to accumulate, and the older individual find out that he/she cannot do it anymore. But it would be maybe too late to find other possibilities of living. The most appropriate time for moving is the time when children leave their home or after the death of the partner. It is important that the elderly ask themselves whether they really need such a large property, how much it will cost and whether they will be able to cover them, and whether the current apartment is at all appropriate to their needs, and above all whether they are too large [32]. In general, dwellings are relatively large in Slovenia. According to the 2011 census data, the average size of the occupied dwelling was 82 m^2 [35]. From this, it could be concluded that elderly people live in rather large dwellings. As noted by Ref. [36], the size of the dwelling of old people decreases with age—the study showed that 34% of respondents aged 50–55 lived at more than 90 m^2; among the elderly over 80 years of age, this share was 13%, which is still considerable. But there were as many as 38% of the owners with dwellings (houses) that were larger than 90 m^2.

Problems that older people have in the housing sector are [23] as follows:

- older people have an adequate or even more than a suitable property or rent apartment, but their incomes are so low that they cannot afford to pay high costs (especially exposed are widows with low pensions),
- older people have an adequate housing for their own needs, but they must share it with children (including their families) as another vulnerable group who cannot acquire their own property,
- older people have an affordable and functionally suitable apartment, but it is inappropriate due to the certain characteristics (e.g., building without a lift, distance from services, etc.),
- older people as tenants of private profitable apartments are living in uncertainty about the rental relationship and do not have the opportunity to obtain rent subsidies,
- older people may be for various reasons without real estate.

As a solution to these problems, it is suggested in Ref. [32] that those who have excessive rental property, which means that it is too expensive, change it for smaller one. Those who have a costly expensive apartment and who are without relatives who would financially help them should consider of sale and leaseback of their property.[2] The fact is that it is financially most unfavorable if a person lives alone. In Slovenia, as this problem is becoming more and more worrying in recent years, the share of older people who live alone or together with another older person is increasing in society. Among the persons who were at least 65 years old at the 2002 census, as many as 25.3% of those were living alone (i.e., single-person household) [37]; at the end of 2012, already almost 30% of people, older than 64 years old, lived alone [38]. As long as old people stay healthy, they can live an independent and active life; but when they become weak and dependent on the help of others, there is a greater risk of becoming socially isolated, because they are more likely to remain in their apartments and they become depending on the

[2]In sale and leaseback of property, the owner sells his/her real estate and concludes a lease with the buyer for the same real estate. Selling real estate and its simultaneous return lease is a recommended option for older people who are difficult to maintain their real estate, but they do not want to move out of it.

help of others [33]. In order to ensure the quality of life of the elderly, good community care is essential. Long-term care is an important part of the overall care of an elderly individual. Long-term care is a broad term that includes health, housing, and social care. In addition, it also covers various aspects of everyday life, such as household assistance, shopping, socializing, and by patients with dementia also control [39].

In Slovenia, services are developed for the elderly, which are intended for individuals to live in their home, despite their minor or greater incapacity in carrying out everyday life tasks. The services are also intended for family caregivers to relieve them. Care providers are divided into formal and informal. Formal providers are paid for their services that are organized in communities (e.g., day care centers or in case of home assistance), which are intended to support older people living in the community, but they can also provide care in the institutional way of staying. Informal care workers are not paid. These are most family members, relatives, friends, and neighbors who provide care at the home of old person. Informal careers are supposed to provide as much as 90% of all care. For Slovenia, multi-generational households are characterized. Therefore, in more than half the cases, the children of the elderly are the main providers of care. The periods of care are very long; most of older people need over 5 years of intensive care. Intergenerational solidarity is important for the exchange of care within the family, which points to the importance of children who care for their parents when they become older. Researches on social care have shown that in critical situations, such as illness, and in need of help, older people first turn to their children. There are opinions that it is not appropriate to ask someone else for such extensive assistance. A survey showed that for the elderly (age group 70 years and over), their children are a key factor in assistance. Children support their parents in cases of illness in 40%, in case of financial assistance in 44%, in material support in 34%, and emotional in 29% [39]. In Slovenia, there is strong intergenerational solidarity. It can be defined as a social cohesion of several generations [40]. These generations can be thought of as groups in society (i.e., younger-old, middle-aged old, and old-old), or people who are related to one another (i.e., grandparents, children, and grandchildren). In Slovenia, care for parents is a strong value. The family is supposed to be the first to be responsible for caring for the elderly, as 78% of people think that it is a duty of adult children to take care of their elderly parents. As a consequence, children should also pay for the care of their parents, if their income is insufficient. As much as 60% of people agree with this, compared to only 48% in Europe. Likewise, most people believe that the state is responsible for ensuring a decent life for older people.

In the framework of institutional accommodation, the elderly in Slovenia have the possibility of staying in a retirement home and in sheltered apartments. They can adjust their own home and/or benefit from remote services, home assistance (social care within the public service), and day care centers.[3] The municipal budget finances personal assistance and assistance to the family at home. The cost of living in retirement homes and the cost of living in day care are covered by the elderly themselves; in cases where they cannot do this, the missing part

[3]These are alternative, stationary forms of care for the elderly. In one place, they offer occasional, comprehensive care, and social activities. They provide care for a shorter period (rehabilitation) or regular, a couple of hours a day care [41].

is borne by their relatives. In the case if the relatives cannot pay for the missing part, and in cases where the elderly do not have relatives, the municipality covers the missing part [34].

4. Methods

The purpose of the research was to determine the problems in the real estate area, faced by the younger and older citizens of Slovenia. The study was focused on the research of the younger and the older generation. A research questionnaire was used to distinguish characteristics between the groups. Some of the questions were the same for both groups, since only in this way could they compare certain views on the discussed issues with each other. Each questionnaire contained 26 closed-type questions. The survey was conducted from June 27, 2017, to August 5, 2017, in the whole country. The condition for participating in the survey was the age and place/way of stay. In the younger group, the age limit was between 18 and 35, while the second condition was the non-ownership of the property. In case of the elderly, the conditions were aged over 60 years old and residence in own/leased real estate, that is, not in the institutional form of accommodation. The survey sample included 223 people, of which 115 were younger, aged between 18 and 35, and 108 of individuals in the group over the age of 60. When collecting data for an older group, the snowball method was used. Thus, the young responders who answered the survey related to them, tried through the personal acquaintances to find the elderly to ensure fulfillment of the survey.

5. Results

5.1. Younger

In the first study group were young people aged 18–35. The sample consisted of 115 people, birth year from 1982 to 1999, and the average age was 25 years (year 1992). Most respondents (44%) were students, slightly fewer were employed (31%), and the least were the unemployed (24%). Given the percentages, the students are predominant, which is not surprising, but it could be believed that unemployed could be predominant; given the high level of unemployment, many young people are extending their studies and in such a way the unemployment rate is lower than it would actually be. The fact is that many young people are studying or trying to maintain the status of a student for as long as possible, because the status of a student offers more benefits than unemployment itself.

The results of the survey show that the majority (57%) of young people aged between 18 and 35 live with their parents, some live with their partner (20%), and 17% are tenants in a real estate. Only 3% of respondents answered that they live in a dormitory. It was also offered to respondents the option "other," where four answers have been received: (1) I live in an apartment which is owned by my parents, (2) I live in a mansard apartment at my parents, (3) I live in a weekend house, and (4) I currently reside at my parents, but am in the process of building my own house. To summarize the answers that were obtained under the "other"

option, it could be seen that these 3% also live with parents or are directly linked to them. If these 3% are added to 57% living with parents and 3% living in the dormitory, it can be concluded that almost 63% of the young people, covered by the survey, live with parents or in interdependence with them (parent-owned housing).

Respondents were asked to explain how they finance the property in which they live; mainly the costs of maintaining the property were assumed; to some young people, parents also cover other living expenses. It has been found that for 41% of young people, real estate is financed by their parents, assuming that those are still unemployed or younger young people. Second are those whose real estate is partially financed by them and the other part by their parents (23%); it was assumed that they live with their parents and have their own source of income. In 17% of cases, the property is financed by the interviewee together with a partner; for some of them, their properties are fully funded by a partner (6%), while others finance it completely alone (5%). Only 2% of the respondents financed their property by loan, and none with leasing. Respondents also mentioned other options: they finance the property partly with the resources of the parents and partly with the resources of the grandparents; partly with the resources of the parents and partly with the funds of the brother; partly with own resources, partly with the resources of the parents and the partner; partly with the resources of the parents, partly with the resources of the partner; the partner is the owner of the property and does not have a loan. Based on the obtained answers, it was concluded that the real estate in which young people currently live between 18 and 35 are financed by parents and in some cases by a partner. The vast majority of young people do not have costs for financing of their accommodation (47%) (fully with the parents: 41%, fully partner: 6%) or they share the costs (40%) (partly with own funds, partly from the parents: 23%, partly alone, partly partner: 17%). Only 7% of respondents fully finance their real estate themselves (entirely by their own sources: 5%, with a credit: 2%). Two percent of younger people responded that they financed the property partly with bank loan and partly with the funds of the parents. In this case, bank loan can be rented by parents or respondents. Analyzing the answers, received under the option "other," it was found that grandparents and siblings play an important role in financing. It could be considered that there would be much more such answers, insofar as these two options would be offered in the possible answers.

It was found that to the young, the real estate means primarily independence (34%) and security (29%). Interestingly, real estate does not represent costs to any respondent. If so, the explanation could be found in the formulation of the question. Respondents were asked what a property in general means to them. According to the question, the results obtained are completely justified. Maybe some more answers with the offered option "privacy" were expected. Based on the results, it was found that real estate represents security, independence, and privacy to young people, which is also the basic function of the real estate itself.

Young people intend their future real estate (in the vast majority of this is a house) finance mainly with a loan (37%), some of them partially alone, partly with their partner (25%) and partly with own funds, partly by bank loan (23%). Only the real estate of one respondent will be fully financed with the resources of the parents. Very few young people would decide for a lease (3%). In this case, it is possible that the young people, as well as the general public,

are poorly informed about the conditions, advantages/disadvantages of credit and leasing. It could be considered that in the case of better information, leasing as a form of real estate financing would select more percentages of the respondents. Based on the results, it was found that young people intend to finance their future real estate with debt sources (37%) or with a combination of equity and debt sources (23%) or partly by respondent, partly by a partner (25%). The results show that young people do not expect much help from their parents, which on one hand is surprised, on the other hand it could be concluded that their parents are already indebted to other real estate and movable property which means that they could not contribute with some large amounts to the financing of the property for the children.

Young people were also asked in what cases young people would be willing to pay more for real estate. The results show that they would pay more only if the property would be close to the workplace (44%), and in the second place, they answered in 19% that they would not pay more in any case. It was found that for young people, the location of the property close to their workplace is very important; this is practically the only reason why they are ready to pay more for the property. Under the option "other, three answers have been received. Young people would pay more if they had more money, someone familiar with the forms of stay abroad expressed the desire to be willing to pay more only in the case of a protected reputable neighborhood which are common practice in some other countries, and someone in case if the apartment would be adapted for people with disabilities. On the basis of 19% of the responses who said that they would not pay more for the property in any case, and on the basis of the answer to pay more if they had more money, it could be concluded that a part of the problem that lies in these answers shows the lack of financial resources. It is also interesting to note that only 7% of respondents would pay more for real estate if they were close to their parents. The reason for this could be the fact that the property is not near to their workplace, and in the case of making a decision, they would rather choose the proximity of the workplace. This is also reflected by 44% of the answers that they would pay more only if the property would be close to the workplace. While another reason could also indicate a low percentage of young people who favor an advantage of the family before workplace. But in such case, they are deprived of the care for their children.

The survey included questions about how many young people thought and how much they were actually acquainted with the conditions of buying/renting a non-profit apartment. The results show that 45% of respondents thought about this, while 55% did not think yet about it. A low percentage of young people is acquainted also with the conditions and procedure relating to the purchase/rent of non-profit dwelling, only 33%.

Given the high youth unemployment in Slovenia and the already mentioned financial distress, in the survey, young people were asked how many are willing to move abroad because of a better financial situation. It was found out that as many as 63% of respondents were willing to move abroad, while the 37% would stay. Considering the percentage of young people who are willing to move abroad, young people can be quite desperate or open-minded and ready to take risks. The results confirm that young people in Slovenia are in a difficult situation, which is also confirmed by numerous researches carried out by experts. Those who stated that they would not move abroad were asked the reason why they do not want to

move. It was found that they would not move primarily because migration would be a stress and demands good organization (10%), an important reason would be also unknown people and unknown environment (7%), but the language (2%) to young people does not represent major obstacles for migration. It is surprising to find that in second place, with 7%, the answer is "because of unknown people and unknown environment" given that for young people this should not represent a big problem. But the answer for this could be found in a view of the elderly on migration abroad. This is a home-sickness. On the basis of the answers among the elderly, it was found that (also) young people are very much attached to their place; some already have children, and this would make it difficult for them to move, while some are quite unconcerned with the situation of living and working abroad.

Young people were asked whether they would be willing to move to their older relatives with whom they would coexist in order to solve their housing problem in this way. They would take care of relatives, help them with the maintenance of the property, contribute to the cost of the property, and possibly inherit the property. But ǒnly 18% of respondents would decide for this type of accommodation and 82% would not decide for it. The percentages show that young people are not too enthusiastic about coexistence with the elderly, even if in this case they would be relatives. Young people were also asked if they would be willing to offer assistance in exchange for an apartment, in the case where the landlords were not relatives. This means that in return for free accommodation, young people would take care of the elderly, help them to maintain the property, and share costs. It was found that such a way of coexistence would be accepted by 16% of young people, while the other 84% would not. On this issue, the percentage of young people who are willing to stay in this type of accommodation is even smaller. In case of relatives, the percentage is slightly higher due to the fact that the roommates would know each other (relatives). Those who replied that they would not accept the assistance in exchange for an apartment, as a reason, in most (57%) cases stated that in such a form of coexistence, they would feel uncomfortable and interdependent, because they consider that in the context of the coexistence, there will be disagreements between the generations sooner or later (19%). The results show that young people are not excited about coexistence. Based on the results, it was found that young people want autonomy and independence, which they could not have in such a form of living. This is also confirmed by the results of the question as young people pointed out that property means independence (34%) to them. These answers also indicate that young people want independence, and according to the answers, it was considered that such a way of staying for them would require too much responsibility, which they are not ready to accept.

As the most important factor influencing the decision to buy or rent a property among young people, the respondents determined the proximity of the job, school, and other service activities (33%), and also the price (28%) is an important factor. The fact that young people's proximity to the workplace means a lot is what they have already confirmed that 44% of them stated that if they were in the vicinity of the workplace, they would be willing to pay more for the property. The least attention they paid was to the size of the dwelling (1%), the age of the dwelling (2%), the floor in which is the dwelling (2%), and the functional arrangement of the rooms in the apartment (2%). It is a worrying fact that only 8% of respondents perceive the legal status of the property as the most important factor. Let us emphasize that the legal status of the property is of crucial importance; otherwise, it can cause a lot of inconvenience.

As the three most important reasons for buying or renting real estate, the respondents determined the job (37%), independence, that is, leaving parents' home (29%), and higher income (17%). All three reasons are interconnected, since the job represents higher revenues, which in turn leads to independence in this form, so that young people can move away from their parents' home. The opinions of young people about the diversity of accommodation offerings for the younger and older populations in the country were studied. It was found that young people are mostly not satisfied with the situation; 82% of them think that there are fewer opportunities, and only 18% think they are enough. Young people were also asked what they were proposing. They proposed different opinions and suggestions. On the basis of the received proposals and opinions of the respondents, it was found that they see the solution of the situation at the real estate area in the state measures. They think that the state should pay more attention and allocate more resources to young people; they also see the problem in the unemployment of young people and suggest that the state should act in the area of real estate prices.

5.2. Elderly

The second part of the study was focused on older people aged 60 and over. The survey sample included 108 people aged 60 and over. The oldest participant was 87 years old (year 1930) and the youngest 60 years (year 1957). The average age was 71 years (year 1946). Older people were included who live at home in their own or rented real estate and not in institutional forms of living. The average age of respondents is appropriate, as this is the age at which individuals, who in large majority, still live in their own real estate (at home), and they are already thinking about the years to come and what comes with them.

As it has already been stated in Section 1, in the survey, only those older people were included who do not live in institutional forms of living. It was found out that 66% live in their own house, 24% live in their own flat, and 6% are tenants. Other four answers under the offered option "other" were two of them living in the partner's house, one in a nephew's apartment, and one is a part-owner of the house. The survey shows that most elderly people live in their own house. Young respondents also expressed a great desire to live in their own house, but, however, as this and other researches show, the way to get it is difficult. In 44%, the real estate in which old people currently live is financed in part by their own funds and in part by funds of children. Only 18% of the respondents finance their property only with their own funds. Twenty-four percent of respondents answered that they finance the property together with their partner. No one's cost is fully covered by their children or the municipality. There is also no older person with a loan or a lease. There were also three other answers, which show the additional support of children, grandchildren, and siblings. It was found out that the elderly have difficulties with financing of their real estate, and therefore children's resources play an important role.

Considering that respondents do not live in an organized form of living, older people were asked what percentage of income represents the costs of maintaining their property. It was found that for most respondents, the costs are somewhere between 21 and 40%; on average, they are 35.1%. This shows that the elderly have to allocate a large part of their income for

the maintenance of their property. For example, an average household of two-member households with an average of EUR 1000 of income should allocate EUR 350 for monthly costs for a real estate in case of average costs of 35%. Costs in this case represent more than half of the income of one household member. This is confirmed by the fact that one-person (as well as two-member) households are at risk of poverty, and for them it would be difficult without the financial support of their children.

As with the younger population, the survey also in the case of the elderly included the question of whether older people would be willing to accept assistance in exchange for rent in an apartment for free. In this case, it was thought that someone would come to live with older person, a younger or a younger family, who would take care of him/her and help him/her with the maintenance of the property, and in paying the costs in return for free accommodation. It was found that only 11% of respondents would accept this form of assistance, and 89% would not accept the assistance in return for a dwelling. At the younger, this percentage was slightly higher, as 16% of the respondents would choose this option. The results thus show that for older people, this form of coexistence would be even harder to accept than for the younger ones. In the continuation, as in the case of younger people, older people were asked why they would accept this way of living and why not. It was found out that those older would accept assistance (11%); they would mainly do this because they do not want to move in an organized way of living (6%), (only) in 3% because they cannot fully cover current costs or maintain real estate, and in 2% because they need help with personal care. For those who answered that they would not accept such form of accommodation (89%), the main reason (53%) was distrust, because they would not know these people. They also fear being exploited and disregarded in agreements (21%). On the basis of the answers, it was found out that the elderly want autonomy; some of them do not need help at this time, or care is already arranged, and some of the respondents have no space (too small property).

Also, the elderly were asked whether they would be willing to accept a younger relative (together with the family) with whom they would live together. At the same time, the young relative would take care of an old relative, help him/her with the maintenance of the property, and cover the costs. It was found that old respondents are willing to do this in 41%. The share of those elderly who would accept this form of living is significantly higher than at the question if they would accept a younger foreigner. The results show that many older people want to get assistance from known people. The percentage of distrust was on the question whether they would accept the aid/assistance in exchange for an apartment, namely quite higher (53%). If results are compared with the results of the younger group, it could be found that the elderly are much more willing to accept this form of coexistence than the younger ones, as at this question of affirmative answers was only 18%. In addition, the elderly were asked whether they would move to their children or grandchildren if they had this opportunity. The results show that 35% of respondents would accept this option, while 65% would not. The share of positive answers on this question is lower than the previous one when older people were asked whether they would accept a relative. This means that older people would prefer to see someone who moves to them rather than themselves moving somewhere else, because this option is more difficult for them from both organizational and social aspects.

Older people were asked also about the readiness to relocate from the current accommodation. It was found that only 19% of the respondents would move, and 81% would like to stay. The results show that older people do not want to leave their dwellings. It was found that for the elderly, it would be difficult to move out from the current property due to a feeling of attachment to it (46%), and moving out would also be stressful (29%). Only a few respondents would see their move from the dwelling as a move to expand their circle of acquaintances (4%) and solve their financial concerns (11%). In the event that they must leave their current accommodation, as the most important reason for this, they see a disease or an inability to take care of themselves (53%). The reason for this could be also higher costs (10%). They also highlighted concerns related to illness, higher costs, and family relationships. In the case that older people would be forced to move, 45% of the respondents would move from their own property to a retirement home. Some would move from the house to the apartment (22%), and the least would choose a rented apartment for the elderly (4%). Based on the results, it could be concluded that the elderly want to stay in their own real estate for a long time and intend to leave it only in case of illness, and they intend to go to the retirement home where staff would take care of them. The fact is that the elderly in 45% certainly do not want to move into a retirement home, but they see this as the best possible solution when they get helpless. It was assumed that many people would rather move from a house to an apartment or in a sheltered apartment (i.e., any form of living, but not institutional), but at the same time, they are aware that finances would not allow them to do this and also that they would need an assistance in the form, which could only be obtained at the retirement home.

Same as the younger, also the elderly were asked if they would be willing to move abroad (e.g., the neighboring country Croatia) if this would be financially more favorable for them. This means that there are cheaper care services in retirement homes. It was found that the elderly are not ready to move abroad, as only 9% of them would move, and 91% would not do this. At the younger ones, the percentages were completely different; in 63% of them, they would be willing to move abroad, while 37% would not like it. Those who answered that they would not move abroad (91%) were asked about the reason. It was found that the main reason is unknown people and unknown environment (49%), and the second reason is that the migration would be a stressful and a demanding organizational process (17%). The younger people, for example, did not specifically expose any of the answers for the same question. It was expected that in a slightly higher percentage, the elderly would expose the difficult of arrival of their friends and relatives for a visit. But they did not mention this. Some additional responses (nine) were gathered about reasons why old people did not like to move. All of them expose the age and attachment to the place of living. The results show that the elderly would find it difficult to leave their accommodation; they are attached to it, as well as on their homeland. If they would need to move, they would do this in a familiar environment and do not want to be surrounded by unknown people. The language for the elderly would not be the main reason for not moving (2%); the reason for this could be that Croatia as an option was mentioned in a survey as one of the possibilities of relocation (Slovenia and Croatia have similar languages).

As said, the elderly are not ready to move from the current accommodation (81%), but anyway they were also asked whether they even thought about moving in a retirement home. It

was found that 42% of respondents thought about this, and 58% of them did not think about it yet. Respondents also thought about possibilities of renting/buying a sheltered apartment than moving into a retirement home, but share of those was low; the results show that only 16% of respondents thought about this, and 84% of them did not think about it yet. Such a low percentage can be attributed to the poor information among the elderly about the sheltered apartments, or if they are familiar with this, they only know that it is a somewhat more expensive form of accommodation and, in the case of low incomes, they do not even think about it. The problem could also be the rarity of this form of accommodation, because sheltered apartments are not in every larger city. Thirty-three percent of respondents are familiar with the possibilities of solving a housing problem with moving to a retirement home or a sheltered home, but 67% are unaware of this. The results indicate a relatively low level of knowledge of this area, and this may be one of the reasons why older people have such a strong resistance to different forms of living. It was believed that greater and better information of the elderly would change their view of different forms of living and make it easier for them to make a decision or go to one of these accommodations.

It was also found that for the elderly, their property primarily means security (40%) and an important life achievement (19%), and, consequently, they are very strongly attached to it, as shown by the results on the question of where to move if they would be forced to move from the current accommodation (46% answered that it would be hard to move away from the current property due to a sense of attachment to it), the elderly perceive their property as a legacy to their descendants. In this question, for example, the younger people pointed out the fact that for them property means primarily independence (34%), but in the second place, they have also chosen security (29%). On the basis of the obtained results, it could be concluded that both generations assign great importance to a real estate.

The elderly were also asked whether they had been urging/persuading/intimidating/threatening (verbally, non-verbally) that they should leave the current accommodation for the purpose of moving away, for example, to a retirement home, a sheltered apartment, and that after their departure, they obtain the property right on the real estate or right to manage with it to some other person. It was found that this occurred in two cases (2%), and others did not have this experience (98%) or maybe they did not want to tell about it.

In the end, as well as younger people, also the elderly were asked for an opinion on whether if there is enough variety of accommodation in the country for the younger and the elderly as one of vulnerable groups with low incomes. The results show that 92% of them think that there are not enough options, and 8% think that there are enough. The elderly, in particular, want more measures from the state (e.g., higher incomes, cheaper care services in retirement homes, financial assistance to those who would like to stay at home and adjust their housing accordingly).

6. Discussion

Based on the interpretation of the results, two profiles of individuals representing a typical representative in each study group were formed. A typical representative of young people

is a 25-year-old individual who still has the status of a student, lives with his/her parents, in a household with three additional members whose average monthly income is around EUR 2000. Given that he/she still lives with his/her parents, his/her real estate is fully financed by his/her parents, which represents the cost of maintaining the property and other living expenses. Owning a property represents an independence, once in the future he/she wants to become the owner of a real estate, expressed is the desire to live in a house, which he/she intends to finance with a loan, or he/she will share this cost with his/her partner. For his/her property, he/she is willing to pay from EUR 100.001 to EUR 150.000. In order to afford it, he/she intends to save on personal consumption or holidays. For the property he/she would be willing to pay more only if it is close to the workplace, otherwise not. He/she has not yet considered the possibilities for renting or buying a non-profit apartment, he/she is also not familiar with the conditions in this area. He/she is ready to move abroad to improve the current situation. In order to become independent, he/she is not ready to move to older relatives or strangers, as he/she would feel uncomfortable and interdependent in such an accommodation. As the most important factor that would influence the purchase or renting of real estate, he/she sees the vicinity of the job, school, and other service activities, and he/she will also pay attention to the price. As a reason that would lead to purchasing or renting of a real estate, he/she mentions the job, independence (leaving the home of parents), and higher incomes. He/she is critical toward the variety of offers concerning various accommodation options for the younger and older populations as the vulnerable low-income groups. He/she thinks that the state should give more attention and resources to young people, to take action in the area of youth unemployment and real estate prices. He/she does not save for a safe and comfortable old age.

A typical representative of the elderly is a 71-year-old individual who lives in his/her own home alone or together with his/her partner. The average monthly income of a household varies between EUR 1000 and EUR 1500. His/her accommodation is financed partly by his/her own funds, partly with the funds of his/her children or together with a partner, and in some cases only with his/her own funds. The costs of maintaining the property represent between 21 and 40% of the monthly income of the household. He/she solved his/her first housing problem between the ages of 20 and 30, partly by his/her own funds, partly by bank funds. Currently, he/she does not need assistance with personal care. He/she was not persuaded or threatened in any way that he/she should leave the current accommodation for the purpose of moving out, for example, to a retirement home, a sheltered apartment, in order to acquire the property right or the right to manage it to someone else after he/she leaves the property. Because of distrust to foreigners, he/she is not too enthusiastic about moving to a younger person or a family with whom he/she would live. He/she would be much more happier if a relative would relocate to him/her. He/she is even more prepared to do this than to move to his/her own children or grandchildren. He/she is not ready to move out of the current accommodation, especially because he/she is very attached to it. For the elderly person, the property signifies primarily security, a home in the true sense of the word. He/she is not ready to move away, mainly because of his/her age, unknown people, and unknown environment. In case if he/she had to leave the current accommodation, it would be a disease, and he/she would move to a retirement home. He/she has not considered accommodation in retirement home, even less sheltered apartments, and he/she is not familiar with the conditions in this area. He/

she is critical toward the variety of offers concerning various accommodation options for the younger and older populations as the vulnerable low-income groups. Mostly, he/she wants the measures and assistance from the state, such as higher incomes, cheaper care services in retirement homes or assistance in accommodating the dwelling for those who would like to stay at home.

At the beginning of the study, two hypotheses were set, the first one referring to the younger, the second to the older population. The third hypothesis has been broken down into two subhypotheses that relate to both populations simultaneously. After reviewing, examining literature, and analyzing our own research, we will try to support or reject them.

Hypothesis 1: *For the younger population, the problem represents economic and administrative reasons, since it makes it difficult for them to leave their parents' home into their first independent (own or rented) real estate.*

The condition for the independence of young people is economic independence. A large percentage of young people in Slovenia are unemployed. In July 2017, there were 84,674 registered unemployed persons in Slovenia. Of those 35,011 or 41.3% of registered unemployed persons were (young) persons [42] who were aged 15–39 years old. The vast majority of those who are employed occupy lower income brackets. Depending on this, they are quite dependent on parents and supported by the public system. Ref. [43] also found that economic reasons are the problem in youth independence, because only those who have regular employment are mostly interested in buying real estate. Similarly, Ref. [44] draws attention to the fact that young people who have a job and are convinced that they are secure in it are ready to make a decision on buying a property. The study in this reference also examined the reasons why young people still live with their parents, and came to the conclusion that because there have been insufficient financial resources and because there are more financially advantages if they live with their parents. Also, the results of our research, carried out on the sample of 115 young people aged between 18 and 35, show the importance of economic reasons, because on the way to independence young people must have employment (37%) and higher income (17%). All three factors (independence, employment, and income) are interdependent and do not work without one another. The second obstacle on the way to independence is also the relatively inaccessible conditions that young people must fulfill if they want to succeed in a call for purchasing or renting of non-profit dwelling. There are few non-profit rental apartments available in Slovenia, and rents are high for them. Because of a housing policy that prefers young families, young people who are single practically do not have the possibility of renting a public apartment with non-profit rent, which leads to the problem of independence. According to the survey, Ref. [45] claims that administrative reasons are a problem in young people's emancipation, adding that a four-member family may be waiting for 4 years or more, but the waiting period still increasing depends on the frequency of the publication of the call. It is also noticed that landlords of market dwellings often reject young families and couples, that is, young people in general, which makes it even more difficult for them to leave their parents' home.

Based on the findings, the first hypothesis was fully confirmed.

Hypothesis 2: *The elderly would move out of the current accommodation only in the event of excessive maintenance costs or reduced autonomy in housework and personal care.*

We completely confirmed also this hypothesis because the study, which was carried out on a sample of 108 elderly people aged 60 and over, shows that the elderly would move out from the current accommodation primarily in case of illness or inability to take care of themselves (53%); the other reasons are higher costs (10%). We also received four individual responses, which also include illnesses, higher costs, and family relationships. The literature we have studied also supports the findings of our research. Ref. [32] notes that only 6% of the elderly move to a retirement home because of inadequate living conditions in their own homes, and 60–70% for health reasons, but only in cases if it is absolutely essential. The same reference also warns that when health problems arise or when unpaid bills begin to accumulate and the elderly finds out that this cannot go on anymore, it would be maybe too late to find other possibilities of living. Also, Ref. [46], in research on housing and quality of life of the elderly, points out that too high operating costs are seen as a problem. Another survey was conducted in 2014 on the basis of an analysis of residents' homes for the elderly [47]. The average age of respondents was 79 years in that study. It was found that among those who live in the retirement home, 74% of respondents decided to move in because of the care, as they could no longer take care of themselves. Research studied also the residents of sheltered apartments. The average age of respondents was 75 years. The results showed that residents of sheltered apartments decided for this form of living because they considered that this is the best alternative to retirement homes (38%). In addition, they were so independent that they could take care of themselves. The reason for leaving former owner-occupied apartment was also the costs of maintaining their own real estate (30%), especially when their relatives left.

Based on the findings, the second hypothesis was fully confirmed.

Hypothesis 3.1: *The younger population takes a quicker decision to move/abandon (sell) the current real estate (place of residence) due to relocation into a financially/cost-effective variant/form of residence than the older population.*

We completely confirmed this hypothesis, because on the basis of the findings of a survey conducted on 108 elderly people aged 60 and over, we found that older people are not ready to move from the current accommodation (81%). For older people, relocation would be very stressful (29%), and most would hardly move out because of a feeling of attachment to their living environment (46%). The willingness of elderly to migrate abroad is also low; only 9% would move (91% would not do this). It was found that the main reason for this are unknown people and unknown environment (49%), and the migration abroad would be a stressful and a demanding organizational process (17%). Also, nine individual responses were received, which, as a reason why older people do not like to move, emphasize age and attachment to place. The results show that the elderly would hardly leave their accommodation, they are attached to it, and also on their own country they want to move only in a familiar environment and do not want to be surrounded by unknown people. The results of our research were also confirmed by the study on the housing needs of pensioners and other elderly people presented in Ref. [36]. On the basis of the obtained results, the study concluded that the vast majority of elderly live in their own real estate; in the house 63% of old people and 30% in the dwelling. Only 18% of respondents thought about relocation. The same study also showed that about 13% of the elderly thought about moving to dwellings for the elderly, including retirement homes, renting dwellings for the elderly, or sheltered dwellings. Also, research [34] noted that the elderly were not impressed with the relocation. According to that study, the

financial position of the elderly is also worse because of unsuitable living conditions in which they live. Many older people live in large (older) dwellings that require high maintenance costs. The solution for them would be to move to a smaller apartment that would be more economical. For this step, the elderly do not decide until they absolutely have to, because they are emotionally attached to their own real estate, and it represents a life achievement for them. The same study also noted that few respondents were ready to sell the property in exchange for a better life (64.8%), and only 18.7% of the respondents would do that.

Much sooner, the decisions for relocation are taken by young people. Our survey conducted on 115 respondents between the ages of 18 and 35 showed that as many as 63% of respondents were prepared to move abroad (37% would remain in their homeland). The young people's readiness to move abroad is relatively high, which also confirms the study on youth mobility presented in Ref. [22]. The share of young people who would be willing to move abroad to improve living conditions ranges between 56% when moving to another European country and 35% for moving to another continent. Similarly, Ref. [48] is noted, which on the basis of demographic changes and generational cooperation lists data for the period 1995–2006. That study concluded that the majority of young people from 25 to 29 move abroad, followed by a group of 30–34 years, then aged 20–24 years. The main reason for the emigration of young people was the search for a higher standard. In the research presented in Ref. [49], it was found that almost 70% of respondents do not intend to move or improve the current accommodation in the next 5 years. However, improvements are more often planned than migration. The same study also confirmed that the level of mobility in Slovenia is low, it is 2.4% annually. Depending on the age, findings in that study indicated that 45% of young people aged up to 34 are planning to move and only 2.5% of people older than 65 years. In terms of work activity, 73% of employees decided for migration, 7.6% of unemployed, 11.9% of students, and (only) 6.3% of pensioners.

Hypothesis 3.1 was confirmed on the basis of the results of the research and study literature.

Hypothesis 3.2: *Both the younger and the older populations do not want a common residence in the same real estate.*

The findings of researchers are sometimes contradictory in the area of coexistence between the younger and the older. Ref. [50] in the case of young people in Germany notes that in the past young people stayed in the home of their parents largely involuntarily, staying at home was only an emergency exit, while the situation is reversed today. These are the circumstances in which the property of the parents is large enough to enable coexistence for several generations. Mentioned study also states that relations between the generations have changed; there has been a surprising recognition that now parents are the ones who feel uncomfortable in the apartment with adult children and want them to move out [51]. Ref. [21] claims that the coexistence of different generations does not necessarily mean that this is the best way, which can often be described as being trapped or forced into such a form of existence. The study assumed that such a way is more acceptable for the younger generation than for their parents. American research carried out in the 1980s suggested that such a way of coexisting for parents is stressful. It was found that after leaving children between the ages of 20 and 30, relationships

between partners are improving and, in the event that children maintain contact with them, they increase their general life satisfaction. In Slovenia, the situation is completely different; in Slovenian environment, there is very common "an empty nest syndrome," because parents pay all their attention to the children, and once they leave, the emptiness is created. In Slovenia, a survey was conducted on a sample of the student population, presented in Ref. [21]. The study found that most of the students do not want to live with their parents or partners' partners in the period from 25 to 30 years, but they want to live alone or with partner in their own household in 86.2%, but at the same time, they believe that they will not succeed and for that reason will live with their parents (38.9%). Based on the results, it is clear that adult life with their parents is a very likely situation, but not the most desirable for them. Thus, in Slovenia, the LAT phase (living together and at the same time apart) is more a must than a personal choice.

The study presented in research [51] explored the reasons why young people stay with their parents longer and longer. It analyzed their wishes, expectations, and purposes for moving to their own apartment. The study was carried out on 203 young families aged 20–39 years. The majority of families were aged 25–29 years (40.4%). The results showed that the main reason for staying with parents is the lack of finances and good interpersonal relationships. They found that young people want to move out of their parents' home regardless of the good relations with their parents, while expecting more help from the state. Also, research has been done in Slovenia, Serbia, and Japan about what impacts prolongs stay of young people in their parents' home [52]. The criteria for selecting countries were different economic development and strategic position. The survey involved 1006 Slovenian participants, 385 Serbian, and 264 Japanese, aged 20–40 years. The research showed that young people, despite having good relationships with their parents, want to create their own household.

Certainly, we cannot overlook the fact that there are also young people who care for their parents and they are aware that leaving their home will cause emotional tension. Because they do not want to affect their parents in this way, they are unlikely to leave home. As part of our research, we were interested in whether young people would be willing to relocate to older relatives with whom they would live together in order to solve their housing problem. They would take care of relatives, help them with the maintenance of the property, contribute to the cost of the property, and possibly inherit the property. We found that only 18% of young respondents would decide for this, and 82% would not decide for this type of accommodation. We also asked them if they would be willing to accept assistance in exchange for an apartment in case that the landlords would not be relatives. Young people would, in return for free accommodation, take care of the elderly, help them with maintaining the property, and share costs. We found that such a way of coexistence would be accepted by 16% of young people, and for another 84% would not. In the continuation, young people were asked a subquestion of why this way of living would be accepted and why not. Among the reasons why young people would accept assistance of the elderly in exchange for an apartment (16%), they answered that they used to work with the elderly (7%) and that they could save some money in such case (4%). Those who answered that they would not accept the assistance in exchange for an apartment, as a reason, in most (57%) stated that in such a form of coexisting, they would feel uncomfortable and interdependent. In second place is the answer "because I think

that due to the coexistence of different generations, there would be disagreements sooner or later" (19%). The findings of our survey, conducted on 115 young people between the ages of 18 and 35, also show that young people do not want coexistence in the same real estate. Even older people do not want coexisting with the younger ones. This is confirmed by the results of a survey conducted on 108 elderly people aged 60 and over. As at the younger population, we were also interested in the elderly, whether they would be willing to accept aid/assistance in exchange for an apartment. In this, we thought that someone would come to live with them, a younger or a younger family who would take care of them and help them with the maintenance of the property, and in paying the costs in return for free accommodation. We found that only 11% of the respondents would accept this form of assistance, and 89% of them would not have accepted this in return for housing. As the main reason, why older people do not want coexisting with younger people, they have expressed mistrust, because they would not know these people (53%). They also fear being exploited and disregarded in agreements (21%). Even in case of the elderly, we were interested in whether they would be willing to accept a younger relative (together with the family) with whom they would live together. The relative would also take care of them, help them with the maintenance of the property, and contribute with the costs. We found that they are willing to do this in 41%, and 59% would not do so. In addition, we were also interested in whether the elderly would relocate to their children or grandchildren if they had this opportunity. We found that 35% of respondents would accept this option, while 65% would not. We can conclude that the results of the survey, both for the younger and for the elderly, show that no one wants to coexist in the same real estate. Young people, in particular, hinder the fact that there is no privacy, while older people are mistrustful of unknown people and fears that exploitation and failure to comply with the agreements would occur. Old people are somehow more open to cohabitation with relatives, children, and grandchildren, but their affirmative answers in all cases are below 50%.

Hypothesis 3.2 was confirmed on the basis of the results of the research and study literature.

7. Conclusion

Thanks to all the respondents, we have come up with useful findings that could help to change the current situation in the country, insofar as this result would come to those who create strategies in the real estate area. The research gave us some insights into the problems and suggestions of the changes of two studied populations. We have found that young and old have some common points, and in some areas, they are diverging. In the group of young people between the ages of 18 and 35 who were studying, most individuals still live with their parents. Their accommodation is mostly financed by parents, and a smaller percentage of young people also contribute to the household budget. Young people who do not have yet their own property want it very much. For most, the path to independence is ending with insufficient financial resources that are needed for this. Low income also presents the problem to older people at the age of 60 or more, as it is difficult to cover high prices of care services in institutional forms of living. We find that young people and the elderly help each other with the financing of real estate. We note that the most important role is played by the middle generation, who must financially assist both, their children in their independence and

their parents, whose low pensions are not enough to cover the costs of maintaining property or care services in institutional accommodation. Any further mid-generation research could contribute to an even clearer picture of the problem.

We have come to the realization that all introduced hypotheses were confirmed. Thus, we find that the young people leaving from the parents' home are hampered by low or zero incomes, while those who ask for a non-profit apartment are met by difficult criteria. In this way, young people are pinning in a vicious circle, which does not seem to be a way out. For the elderly group, we realized that they would move out from the current accommodation only in case of too high maintenance costs or reduced autonomy in housework and personal care. We found that older people in Slovenia have little choice of accommodation, and they are also very expensive.

We realized that both studied groups have attached great importance to real estate; it means them security, they all want privacy and independence. We found that both the younger and older do not want a common coexistence. Young people who are willing to move out and have not resolved housing problem do not want to move to the elderly' dwellings in order to coexist with them; older people who are also not ready to move out do not want that the younger move to them and help them with the maintenance of property, costs, and assistance. We found that young people do not want to do this primarily because they feel cramped and interdependent, and they think that there could be disagreements between them and the host. At the elderly, the main factors are mistrust and suspicion of exploitation of accommodation. We must emphasize that old people are much more favorable for coexisting of different generations than the younger people, but only in the case they know them. We also found a low level of familiarity with solving the housing problem in the form of non-profit apartments for the younger and with the possibility of accommodation in retirement homes or sheltered apartments in case of the elderly. It should be emphasized that the municipalities, as well as the state, should pay more attention to informing the society of the existing institutional and other possible forms of living. In this way, the elderly can overcome the fear they have about placement in retirement homes. Similarly, for those older people who want to stay at home for as long as possible, this should be enabled, for example, by financial assistance or by adjusting their dwellings to their needs.

The basis for a successful housing policy for young people and the elderly is seen as a task of the state/government in the planning of a national strategy for the development of new forms of accommodation, and the Housing Fund of the Republic of Slovenia also plays a significant role. Based on the study literature and findings of the research, we found that in Slovenia, the question of housing remains an open issue for both young and old people.

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Chapter 8

Understanding Adaptive Mainstream Users' Values in Housing Transformation towards Sustainable Housing Development

Abubakar Danladi Isah

Additional information is available at the end of the chapter

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Abstract

The emergent trend on the influence of western housing built forms and patterns in traditional cities with culturally inclined historical values have been on the rise. However, there is a corresponding resistivity in morphological outcomes as users transform their houses to reflect lifelong values. Vividly, a growing concept of indigenous urban architectural character evolves in these settlements due to fulfilment of values as reflected in the configuration over time. In this chapter, the research argues on the need to harness the benefits and design indices that lies in users' instigated changes to original house forms and configurations towards attaining users' satisfaction and desired needs. Beyond this, it further emphasised the need for a socio-cultural paradigm in thinking housing as a significant trend in ensuring housing sustainability. Thereafter, mainstream values that relate design solutions through spatial patterns and indices are expressed using the case study strategy to illustrate instances of sustainable housing themes.

Keywords: adaptive values, cultured settlements, housing satisfaction, house transformation, sustainable housing

1. Introduction

Widespread expansion of cities due to rapid population increase has overstretched urban facilities particularly housing. As a result, cityscapes now assume cosmopolitan dimension with old and new settlements side by side, urban and sub-urban habitations as well as city centres and fringes accommodating people of varied background. Despite huge investments by private developers and governments in the cities of developing nations towards production

and provision of sustainable housing particularly for the middle- and low-income group, it remains unachievable. Correspondingly, culture inclusive designs manifest from housing transformations as tangible benefits even though it is overlooked. This is often associated with sub-standard developments due to unguided transformation activities by individual residents. Meanwhile, stakeholders particularly development control agencies usually focus on the distortions made to cities' master plan and disregard for planning laws rather than paying attention to considerations given to the reasons behind their actions and the value of the final product, thus concentrating on the phenomenon of interest rather than considering the subject matter adequately from the overall model. This led to researchers' interest in spatial behaviour of inhabitants' space transaction in order to attain growing need for sustainable housing provision.

Meanwhile, architecture indeed has accommodated and as well constrains behaviour, thus the growing interest in architectural design and behavioural sciences. Yet gaps exist between the architects and behavioural scientists in comprehending inhabitants' interactions with space. This is aggravated with the complexity of behaviour as it includes observed activity pattern, cognition, and perception.

But, spatial patterns and cultural determinants significantly describe the indigenous urban architectural character in cultured communities. These features characterise sustainable housing growth where inhabitants transact with their habitation and achieve satisfaction because they are able to realise desired values.

These desired values as expressed and seen in housing characteristics are key determinants for housing efficiency and satisfaction towards the realisation of social inclusion goals as promoted by United Nations (UN) in its sustainable development goals (SDGs). Therefore, this chapter focuses on inquiry of typical ordinary group, showcasing their in-depth expression and attachment to neglected values with information-rich sample cases. Case study research such as this one commonly focuses on people or structure, perspective or world view, geography, activity, and usually time bound. Thus, purposeful sampling with illustrative strategy was adopted for this qualitative research.

2. Inhabitants' mainstream values within the function of the built environment

Cognitive scientists have argued that 'relation attention', which implies how people collectively think together, is a social reasoning phenomenon developed from observations and concepts derived from interdisciplinary studies [1]. As such, human cognition is found in the duo of cultural and societal environments. I found this assertion reliable and useful in describing the significant origin and attachment of inhabitants to their mainstream societal values. Environment tends to generate events that are time series bound and shapes the cognitive insight of its inhabitants. Therefore, the evidence forms the assertion that inhabitants' societal values shape their perception of the environment and as well determine their transaction with the environment.

Further still, cross-cultural research usually discloses a range of attributes that are mostly beyond those found in one research. Meanwhile, some of these attributes are common to specific environment and defines their values and behaviour. Therefore, it is also important to understand contextual environmental behaviours in order to distinguish culture-specific and culture-common concepts (emic [specific to given cultures] and etic [found in all cultures]). Often, culture-specific values are misconstrued as it communicates less to a researcher who does not belong to the culture. His attributions are assumed on the relative meaning of confounding variables. It then becomes difficult to connect with inhabitants' behaviour as they relate to their habitation, hence do not appreciate the value that lies therein.

In addition, it is noteworthy that even though culture-specific concepts are not found in all societies but in specific ones, they sometimes determine to a great extent the existence of settlements. They can exist as additional variants to culture-common concepts or a culture's unique adaptations to the cultural landscape (geography and architecture). Apparently, perception and familiarity with culture-specific values ignite sustainability, as they are ingrained in human mind and tend to reflect as a process in behavioural interactions with space.

Meanwhile, most times it is assumed that a combination of the emic and etic ideals is thought to provide solutions to human behavioural issues in cross-cultural examinations. But appreciably, mainstream values sometimes override the common attributes and become a concern towards developing lasting solutions to environmental issues even in the intangible form. In this situation, it becomes important to adopt indigenous approach in examining exclusive emic concerns. Thus, attempt should be made towards understanding observed behaviours, why people behave as they do and the significance of these behaviours in the built environment. It is only then that these values are well interpreted from the inhabitants' viewpoint. Scholars agree that insiders' view of houses affords more genuine and valid information than the outsiders' view [2]. As a result, it is desirable to understand individuals and the environments they cohabit, and also recognise the components of these environments and their relationships [3]. In the meantime, cultural core has been predicted as central underlying attributes to changes in domestic space.

3. Housing transformation design activities: specific dimensions, unwritten architectural ideas and building as a cultural product

Several studies on house, form, and culture are specific to socio-cultural contexts. This results from the distinctive quality of human cultural traits. Morphologically, housing should distinguish between spaces that are adaptive to accommodating several functions, more so that sometimes activities performed particularly in the modern domestic space settings are irreconcilable. The morphology usually defines the distribution of family activities in a house setting. In this case, analysing the spatial configuration is less significant when compared to analysing the spatial pattern of activities. The later demonstrates the morphology of the domestic experience that also includes activities done not only outside the house but also around the surroundings of the dwellings. Thus, in cultured settings, activity patterns define the domestic experience rather than the spatial arrangement.

Similarly, flexible and multipurpose space uses are usually time bound. For instance, courtyards provide activity space for different functions across the day. Also, this is important in relating and integrating values in space utilisation. Thus, conflicting activities are assigned to a space but separated by time of performance in order to clarify the inconsistency [4]. Thus, social, private, and service spaces with some overlaps are found in flexible dwelling space ordering. The routine interaction with the spaces shows that despite the complexity in space use, conflicts of activity performance do not exist; rather mainstream values are exhibited in the use of space with optimum satisfaction exhibited by the inhabitants across the day.

Truly, in more western-influenced and traditionally conceived housing set-up, inhabitants' lifestyle distinguishes the arrangement of objects and activities in the home [2]. While flexibility of planning is seen in the later, inflexibility is associated with space design of the former as functions are rigidly assigned to spaces. Thus, housing transformational activities are carried out to adjust the form and functional spaces in order to accommodate flexible functional activities.

Even till today, globally vernacular design decisions have remained significant as though it relates basic human relationships, social habits, and cultural traits [5]. Both in tangible and intangible forms, it echoes typical building culture in the traditional and informal communal settings. And even though they may differ in their mainstream values, commonalities in their principles that are ingrained in the patterned building culture form a generic understanding of the roots of overall building culture. Indeed, even as they exist in varieties, the functional configurations depict similar situation hence rooted to the communal values. Therefore, the assertion confirms buildings as cultural products with traced link to the root. Thus, grasping the essential feature of the inhabitants' lifestyle becomes necessary in providing sustainable designs. Indeed, even though some architects are still linked to their cultural roots, it is understandable to note that the paradigm underlying design now seems to exhibit invariance usually associated with traditional and vernacular homes [6].

Incessantly, individuals' action on buildings and the built environment remains constantly a steady transformation of the built world. Invariably, actions taken on building systems are outcomes of a multifarious structure of human experience and knowledge attained through long historical evolution and consisting of specific configurations of knowledge, institutions, rules, and built results—a building culture (Howard Davis) [7]. Thus, origins of settlements are traced back to the revealed distinctive identity of their building cultures as they handle issues in similar pattern but differ in the mode of operation. Moreover, the knowledge of building is widely communicated as skills among community inhabitants across generations. Consequently, revealing the existing linkage between inhabitants on the one hand, their mainstream values and the built environment on the other hand. As these express deep meaning, aspirations and socio-cultural order of the inhabitants' culture.

However, contemporary building culture trends that grew through industrialisation and technological advancement are characterised with bureaucratic laws and management principles. Authorities are strict with regard to quality and standards, safety rules, performance, and operation. Explicit scientific knowledge evolved to replace traditionally shared communal methods and knowledge ideals. Most cities in their quest for such development in the built environment enforce these knowledge ideals irrespective of the users' socio-cultural values.

Meanwhile, a great deal of buildings across the world are continuously remodelled or renovated by the owners without the involvement of architects or even engineers. In such circumstances, people derive their ideas from previous experiences and unprofessional comprehension of the built environment but mostly from relevant understanding of building culture as reflected in space and activities' transaction.

4. Sustainable housing: architectural themes related to socio-cultural design framework

Often architectural problems are vague as the scopes of these problems are seldom clear as it sometimes emerges from cultural issues. Also sometimes, it is difficult to ascertain the aspects that professionally concern the architect. Thus, architects often face challenges that are not architectural in origin and by nature, but must be resolved in order to ensure effectiveness of design. Most often, these are accompanied by contradictions in physiological, activity pattern, psychological, and technological requirements [8].

Meanwhile, the design process targets provision of a building product that supports psychological mindset, maintains needed physiological state of inhabitants, and also permits people to receive chances to exhibit specific pattern of behaviour. Therefore, in order to ensure that people attain their goals, then designing for human behaviour becomes essential.

In this regard, inclusive rather than exclusive design approach becomes essential. Architectural concepts of housing should dynamically express the socio-cultural tenets of its inhabitants [9]. In most Nigerian cities, for instance, houses are acquired mainly through self-developed initiatives from income savings. Other sources include purchasing of government housing estates [10], which are usually based on owner occupier schemes with gradual payment from income, loan schemes from mortgage banks, and institutional-based co-operative development schemes. Some categories of citizen access housing by renting from private developers or available government quarters. In all, only the first category exerts power of ownership and thus subjects their dwelling to transformation from time to time, thus expressing sustainable values in the dwelling. Usually, socio-cultural tenets are missing in the initial configurations. Some of these tenets are thus illustrated with examples in the succeeding sections of this chapter.

4.1. Mixed-use buildings and home enterprises

The concept of mixed-use building planning has steadily faded and replaced by neighbourhood zoning in most emerging and advanced cities of the world. This results from the growing complexities in these cities and changing lifestyle of the inhabitants. This operation has redefined the building culture in the contemporary world. Undoubtedly, single buildings now accommodate residences alongside commercial outfits, offices and civic functions, healthcare, and educational functions in both vertical and horizontal configured buildings.

Similarly, small family businesses have always determined the shop house of the early twentieth century in America and Europe [11]. Thereafter, home enterprise has become a common

function in the dwelling configuration. Accordingly, the need to improve family income, women's (sometimes housewives) participation in commercial ventures, and high costs of property rent are often reasons that lead house owners into introducing spaces for home-based business ventures. In the developing world, home-based enterprise has since become part of their lifestyles and cherished values. This connotes a shared desire for self-determination in spatial transactions. In most cities of cultured communities, such places are desired for sustainable liveability particularly for the low- and medium-income earners.

In Nigeria, for instance, the trend is common and not limited to the low-income earners. It is usually practiced even among the middle- and sometimes high-income earners as these configurations are also found in the medium- and high-income housing layouts. The fact that these actions started as dwelling transformations and later incorporated into initial designs by prospective client makes it a tangible value derived from the users' dwelling transformation process and desired for sustainable housing design (**Figures 1–3**).

The introduction of shops along the streets in these residences appears to present an architectural pattern in houses' front views across the streets in the urban neighbourhoods of Nigeria. Therefore, initiating a hybrid architectural character that tends to be unnoticed and redefining the urban architecture in cultured communities. Although unrecognised, it is fast reshaping cities' inner-city, fringes, and sub-urban environments in cultured communities.

4.2. Lounge (living room)

Living rooms are multipurpose activity spaces in dwellings across cultured communities. It hosts activities such as guest reception, family relaxation and leisure time out, dining, worship, and meetings. Aside from ensuring that the flexibility potential is achieved in its design, in order to accommodate these activities, the configuration pattern and location are necessary for consideration. For instance, the Tiv community of central Nigeria considers the *Ate*-(living room) as a significant space in the dwelling configuration. As such in order to ensure maximum performance, it is often made of circular shape and centrally located within a typical traditional compound setting with several openings around the form that enables access from all parts of the compound. Elites that originated from that ethnic background have replicated this design concept in their self-built dwellings, thus acknowledging its significance as a design

Figure 1. Streets with shops attached to self-built houses in medium-income districts of Katsina and Minna, Nigeria.

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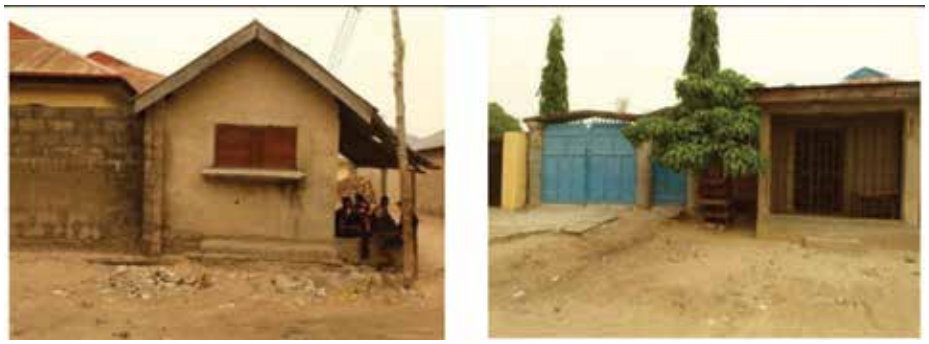

Figure 2. Shops attached to self-built residences in a low-income neighbourhood of Minna, Nigeria.

Figure 3. Shops attached to self-built residences in a high-income neighbourhood of Makurdi, Nigeria.

indices and an element for sustainable housing production in that community. As a result of value attachment and link to the root, several Tiv citizens have opted for this concept in building designs and also replicated the form in their contemporary houses (**Figures 4** and **5**).

4.3. Kitchen location and design

Cooking space is another significant place in the design of a house. This place is usually arranged alongside other spaces under the same roof in a network of functional arrangement in contemporary designs. Meanwhile, in traditional settings of some cultured communities

Figure 4. Typical *Ate* in traditional compound settings found at the fringes of Makurdi, Nigeria.

Figure 5. Typical *Ate* innovatively replicated in self-built houses in Makurdi, Nigeria.

like those found in Northern Nigeria, this function is usually detached from the main building. The type of fuel (usually charcoal or firewood) used for cooking might be thought to have accounted for the detachment. However, the climatic factors also play a significant role as most parts of Nigeria are within the tropical region and the heat generated usually increases the total heat gain within the building, hence making the building interior uncomfortable particularly during the summer season. Surprisingly, this action of detaching the kitchen has overtime become a norm and applied even when other sources of fuel (kerosene and gas) are used for cooking. Thus, a sustainable design would tangibly consider detaching the kitchen from the main building in cultured communities like Northern Nigeria (**Figures 6–9**).

4.4. Open spaces

Open spaces within and around the dwellings are intangible activity spaces that are significant in ensuring sustainable housing provision in cultured communities such as those found in Nigeria. In Nigeria, courtyards are main features in dwellings and are most times centralised within the built form. They could also be located at the back of the building or

Figure 6. Typical outdoor cooking in a traditional dwelling in Katsina, Nigeria.

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Figure 7. A detached kitchen located at the rear courtyard of a modern house in Minna, Nigeria.

Figure 8. A detached kitchen opening to the central courtyard of a transformed public housing dwelling in Minna, Nigeria.

as a fore courtyard in front of the compound. In achieving the rear and fore courtyards, the compound is usually bordered by a wall fence screening it from outside view. The functions of the courtyards include aerating the building, drying of food crops, and micro-home farming such as rearing of poultry and they also serve as indoor relaxation area. Usually, most dwellings have outdoor areas behind the dwelling (rear courtyard) where domestic chores are carried out. Most times, the detached kitchen is located here. This space is usually defined by the building serving as boundary on one side and wall fencing on the other sides. Similarly, in front of the building, a fore courtyard exists bounded by the building and wall fencing. The fore courtyard and rear courtyard are usually linked with an exit and a route thus providing additional access, which is sometimes gender preferred (**Figures 10–13**).

The results indicate the features identifiable through adaptive dimensions derived from dwelling transformation. It also shows that inhabitants give priority to activity performance than

Figure 9. Typical detached kitchen located at the rear courtyard of a contemporary housing estate in Minna, Nigeria.

Figure 10. Typical fore courtyard with side exit leading to the rear courtyard created in a housing estate in Sokoto, Nigeria.

Figure 11. Typical fore courtyard created in a housing estate in Minna, Nigeria.

Figure 12. A modern house facing a wall-bounded fore courtyard in Minna, Nigeria.

Figure 13. A central courtyard in a modern transformed dwelling in Minna, Nigeria.

the space that host the activity. In the long run, transaction with spaces over time by users creates design indices; thus, cultural order determines adaptive character of sustainable housing.

5. Emerging design paradigm: socialist, culturalists and regionalist socio-cultural order

Understandably the architects' probable problem is the fact that buildings are expected to have long life with anticipated relevance and usefulness through time [12]. Thus, design and configuration of spaces is expected to take that dimension. Hence, there is need for designers to envisage future maintenance, alterations, expansions, additions, and if need be reconfiguration of dwelling spaces.

Cities must, therefore, provide balanced skilled minds that can shape the spatial developmental tract of the built environment. These experts must be closely familiar with regional and local problems in order to express both etic and emic goals of architectural design in housing

production. They should be able to harness from transformation experience of home owners in building creative and innovative spaces that accommodates users' mainstream values.

Human realities shaped the built world, thus architect and designers have to respect these ideals. Only then can we appreciate the values that lie in users' transactions and transformations to the built environment, which initially would seem odd. The complexities of urban-built environment has consistently respected ordinary daily living ideals, and whenever this is missing or ignored, inhabitants recreate the situation.

6. Implicit finding: adaptive sustainable housing

Adaptive housing features in cultured communities are evident in the reflective appearances of transformed dwellings layouts. The underlying determinants imply that users' prioritise the ability to perform activity more than the host space. As such, dwelling spaces are valued based on their ability to accommodate inhabitants' activities. Usually, these stems from users' acquired experiences with space through transactions over a period of time. It usually reshapes urban housing architecture through the influence of cultural order. Invariably, it shows a synthesised model that combines root values and modern design ideals making the product-culture responsive housing design.

Consistently, features of the overall emerging pattern reflect housing procedure that is grounded on evidences from users' experiences and initiatives achieved during transformation of dwellings. Together, they form the critical features required for sustainable housing. Spaces in dwellings are gauged by their ability to accommodate multiple functions. These functions are most times repetitive and are time based. Socially dwelling spaces are inclined to gender, age range, and privacy level. Irrespective of the technological influence, spaces are ordered and arranged with family structure in consideration. Usually, household's lifecycle shows changes in family structure, which provides the need for transformation.

Meanwhile, the arrangement includes a core and a flexible main that usually evolve overtime in phases from the core. The core is the initial configuration at occupation, while the flexible main are additions and adjustments made to accommodate changing family structure. This conforms that houses that grow with users' behavioural character shown in their transactions as the growth determinant is usually preferred in cultured communities. The climax of major transformation activities marks the apex of adaptive sustainability in the configuration of houses. These houses become a model for derivation of design indices and a research platform for regional and local sustainable houses.

Furthermore, features of adaptive sustainable housing blends with the mixed-use space concept of the space utilisation common with households in cultured communities. For example, it is not uncommon to have spaces such as study rooms, library, consulting rooms for doctors and lawyers, and studios for architects incorporated in their dwelling arrangements in modern houses. Similarly, shops are common spaces attached to residential buildings in most urban communities of developing countries [13] aimed at boosting the family income. In this regard, home-based businesses are on the increase in cities.

Beneficially, these features are usually derived from the evaluation of transformed houses and the basic space needs differ across regions and communities. Flexibility in space-use pattern remains consistent and enhances livelihood and inhabitants' liveability. In addition, tangible and intangible indoor and outdoor spaces are crucial in adaptive sustainable housing provision. Such houses are seen to be occupied for longer period with inhabitants developing a sense of place attachment and a choice to remain rather than change dwelling overtime.

The architectural paradigm presented in this chapter is targeted at creating the need for stakeholders to harness benefit of housing transformations, and then use it towards improving housing design and ensuring sustainability of emerging configurations. While implementation is expected to project adaptive sustainability principles in housing design, it will require further advancement of specific attributes and patterns peculiar to environments. In the long run, values are respected and integrated, while resources and expertise are introduced to standardise transformation benefits towards ensuring sustainable housing.

Housing transformation benefits have posed clear values of long history. The use of digitalised building culture to override the values of inhabitants in building production across cultured settlements is usually confronted with resistance. But rather efforts should be focused on innovatively reshaping the existing cultures towards opening greater possibilities. These would eliminate the perception of undermining local content, attachment to place despite environmental pervasiveness, factoring the inhabitants' lifestyle. Thus, several city dwellers that like to live a local lifestyle in a global world with dwellings that fit into their values are tolerated.

7. Conclusion

The research has established that socio-cultural tenets are significant considerations in adaptive sustainable urban housing for the low- and middle-income groups in cultured communities. In such habitation, housing configuration is delineated based on communal activity patterns determined by cumulative domestic experience, which triggers housing transformation of spatial arrangement in contemporary dwellings. As a product, users' experiences are upheld in transformed housing buildings.

Culture-specific values determine sustainable housing as it connects inhabitants' activities with spaces in the built environment. The persistent action of dwelling transformation indicates that these values lead to housing satisfaction and are ingrained in the human mind, which should be recognised in sustainable housing provision. Since human behavioural issues in space transactions are linked to their values, adaptive elements that emerge from their housing transformation activities are best regarded as critical adaptive design elements in cultured communities.

The adaptive concept relays spatial distribution of activities—it consists of evidence-based design solutions with space flexibility features that accommodate multifunctional domestic activities moderated by time, gender, and season. The emergent building culture is a dynamic indigenous and adaptive dimension of sustainable housing in cultured communities. It is theoretically influenced by the inhabitants' cultural order tangibly and intangibly. For instance, this is illustrated in the home enterprise inclusion in dwelling configuration, living room, kitchen, and open spaces' design in Nigerian cultured communities. Finally,

the integrated developmental plans that guide housing and urban developments at building level must respect these ideals supported by the cultural order. Through these challenges of housing sustainability in unplanned cities with uncontrolled spatial growth, increased sprawl settlements would be minimised.

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This book is proposed as both a general reading of the discipline for students in architecture and urban planning, and offers a variety of materials for professionals of local and international organizations. It brings together studies with new perspectives and relevant subjects from different geographical areas. The book gathers the contributions of international researchers and experts. It is divided into three parts and eight chapters:

Part I, "Introduction to Housing Affairs," includes a chapter that discusses a general reading of housing as meaning and action in social, economic, and environmental city life.

Part II, "Case Studies Upon Housing Policies," includes four chapters. It consists of many examples from different geographical areas and domains.

Part III, "Housing Quality and Affordability," includes three chapters; housing quality, sustainability, and development are the main subjects for this part.

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