



## Obstacles of Sustainable Planning in Housing Sector of Iran

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Received 27 July 2013;

Revised 23 August 2013;

Accepted 30 August 2013

**ABSTRACT:** Housing has been a major challenge for the rising population of countries during last decades and the provision of affordable standard house for low and middle-income households has always been at the forefront of sustainable development strategies and plans, especially in developing countries. Besides, the need to high-density housing systems due to rising population has become a central issue to most urban design or renewal programs in the late 20th century. Therefore, residential complex has rapidly developed into one of the most important prototype of modern housing in urban and metropolitan areas especially in developing countries leading to unprecedented challenges from the sustainability point of view. On the other hand, despite existence of many sustainable principles of residential architecture in ancient era, diverse housing problems and issues have originated in modern housing patterns of urban areas due to consequences of the process of uncontrolled urbanization and industrialization. It is obvious that in most cases, ancient principles of sustainability which have stood the test of time have been ignored in modern housing strategies and plans leading to obstacles in achievement of sustainability in residential buildings. In this paper, the intention is to introduce and analyze diverse obstacles of achieving sustainability in modern housing strategies, policies and regulations in Iran.

**Keywords:** Housing, Modern, Sustainability, Urbanization.

### INTRODUCTION

According to United Nations Human Settlements Program Global Report on Human Settlements (UNHS 2003) in 2001, 924 million people or 31.6% of the world's urban population lived in slums. The majority of them were in developing regions and 60% of the world's total slum dwellers lived in Asia. The report also suggested the number could increase to 2 billion people live in slums in the next 30 years if no firm and concrete action is taken (Shuid, 2010). Therefore, housing provision is going to be a major challenge for the rising young population of developing countries. Economic fluctuations and high unemployment among the youth have more severe effects in developing countries and add to the complexity of lack of housing. Rising prices of land and houses, makes it more and more difficult for those in low-income and lower-middle income groups to fulfill the dream of having proper accommodation. More over, there is a correlation between poverty and affordable quality of

housing (Pegels, 2011).

A preliminary glance shows that the housing sectors in most countries perform inadequately. More precisely the house prices in most of developing countries are far above the levels that would be expected at their levels of income. For instances, house price to income ratio is close to 10 in Iran, indicating that a middle income family needs to save its annual income for more than 9 years to be able to buy an average housing unit in big cities like Tehran or Tabriz (Baharoglu et al., 2005).

However, housing needs have been defined in general terms as the extent to which the quantity and quality of the existing accommodation falls short of, that required to provide each household or person in the population irrespective of ability to pay, or not having specified minimum required standards (Needleman, 1965, p. 18 & Sheykhi, 2007). Most of the housing strategies and policies in the developing countries were framed and formed to solve public housing problems faced by the lower and medium income groups of the society. Moreover, due to industrialization process, development and urbanization in Iran and the subsequent socio-economic and demographic conditions led to gradual replacement of

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individual houses by residential multifamily complexes and apartments. These new dwellings were largely designed by foreign construction companies or Iranian architects educated abroad, with minimum knowledge and attention of Iranian's living traditions and lifestyles. In the first comprehensive plan of Tehran, which was prepared with the assistance of french companies, it was explained that one storey houses are the consequence of poor construction techniques, and central courtyards are the reflection of old social conventions, and women's freedom will eliminate the need for introverted areas and will add to the prevalence of apartment living. Balconies will substitute courtyards, and elevators will increase the number of building stories (Farmanfarmaian & Gruen, 1968; Mirmoghataee, 2009).

The new type of multi-family dwelling called residential complex which was the most dominant result of mentioned changes not only led to elimination of all residential traditions of Iranian household and society but also introduced new patterns of urban life and from an architectural point of view, most of the early residential complexes built in metropolitan areas of Iran were influenced by western patterns of life and architecture, and therefore, had many common characteristics. The problems related to modern residential pattern in Iran were not only the result of economic issues but also the socio-economic and demographic conditions of the country.

Despite extensive efforts by the Iranian government in recent years, there are various architectural and environmental issues related to modern housing patterns that have undermined the success of housing achievement at national level for the past 30 years. A major reason for this failure is that despite existence of several sustainable principles in ancient residential architecture which can be applied in contemporary or so-called modern housing pattern to provide the most suitable and comfortable residential space for the occupants, most of housing development approaches follow standardized techniques of design and construction. In this paper the aim is to discuss and analyze the dynamics of these issues in Iran, focusing on plans for housing provision (PHP) in Iran as well as challenges of contemporary era of modern housing from a sustainable perspective.

## **RESEARCH BACKGROUND AND METHODOLOGY**

Different groups of empirical studies have shown that the housing issues can affect all aspects of human life especially in urban areas. These studies raised

question among the policy makers and scholars about the effectiveness of low cost housing allocation system. Most studies in the past tend to be focused on the issues related to housing policy, development and construction in developing countries (see examples in Pugh 2001; Jenkins et al., 2007) But there are still lack of studies on how the traditional principles of sustainability can be applied in modern housing, the role played by the state in the sustainable housing distribution and allocation process (Shuid, 2010).

Some authors have suggested that specific aspects of housing design may impact on wellbeing or mental health (Evans et al., 2003); factors such as dwelling type and street layout may impact on mental health via psychosocial processes linking the external environment to effective outcomes. Evans (2003) hypothesizes that living in high-rise or multi-unit dwellings (that is housing units occupied by a number of separate households), may impact negatively on mental health through the processes of personal control and social support. For example, lacking the ability to exert territorial control over shared spaces may result in diminished informal social control, and lack of shared space that provides opportunities for social interaction may lead to decreased social support. Cross-sectional studies provide evidence of association between such factors and mental health outcomes, although this is moderated by other factors such as area characteristics and respondents' SES (Evans et al., 2003; Weich et al., 2002). However, there have been few studies which have attempted to identify such psychosocial processes, or to investigate mechanisms linking housing and mental health (Wells & Harris, 2007). Similarly, few studies concerning the effects of relocating to new homes provide information on the dwelling types involved (Thomson et al., 2001; Gibson et al., 2011).

Discussions of recent developments in housing policy in different countries have tended to be dominated by two perspectives. The first, looking back, refers to the significance of past decisions and legacies or to path dependency (see e.g. Harloe, 1985). Policy does not operate on a blank canvas but works and is, to varying extents, shaped by the legacies of past investment, institutional and organizational arrangements and cultures and practices. The same changes introduced in countries with different past practices and traditions may have very different outcomes. The second, looking forward, refers to the dominance of neoliberal ideas in shaping future policy direction and reform. Different countries have adopted approaches that reduce the direct role of the state and state regulation and increase reliance on market processes in the production, consumption and exchange



of housing—although the timing, pace and impact of neo-liberal policy developments has varied between and within societies (Forrest & Hirayama, 2009; Groves et al., 2007; Van Kempen & Murie, 2009; Ping Wang, 2012).

There is less discussion of outputs housing policies on market which has affected investment and ownership of housing and changed patterns of residence. As time passes from the introduction of reforms so it is reasonable to demand a more critical and differentiated amount of research focusing on operation and impacts of modern housing patterns and discussing how far generally similar residential projects generate various outcomes, especially given their distinctive pathways and legacies. This paper begins to fill this gap in the literature by considering the experience of Iran in the period since advent of modernism and mass housing policy reforms were introduced and especially how the housing system operated during last 30 years when financial crisis was followed by war and house price inflation and finally by the global credit crunch. The research techniques used in this paper to find specific facts was documentary. Books and scientific papers as major sources of evidence were used as primary source materials.

## SUSTAINABILITY AND HOUSING

After World War II, the low energy costs and the hidden environmental costs resulted a golden era for the world economy, which was followed after with severe environmental and energy crisis. In the 1970s, people began to pay attention to how long-term development could be achieved with limited resource availability (Meadows et al., 1972; Commoner, 1971; Huang & Du, 2010). Brown's (1981) *Building a Sustainable Society* made systematic elaboration for the first time on the idea of sustainable development with an analysis of a series of habitat and environmental issues encountered in economic development, and proposed three major ways of sustainable development - to control population growth, to protect natural environment, and to develop renewable resources. In 1987, the World Commission on Environment and Development wrote to United Nations a report *Our Common Future*, in which sustainable development is defined and elaborated in detail, advocating for a balance between resource use and economic growth for future generations (WCED, 1987) and later, other literatures

also provided analyses for upgrading urban sustainability through various means such as optimizing urban spatial layout or improving roads and infrastructures, and thus putting forward exemplary planning modes and methods for sustainable urban development (Barton et al., 1995; Huang & Du, 2010).

Therefore, over the past recent years, a desire for sustainability of human settlements and tackling against the environmental threats has become a matter of global concern. Sustainability in architecture may be characterized in many different ways. Here, however, we would expect such architecture to be efficient, that is, capable of providing occupant comfort at lowest carbon emission; and, expressive, that is to reflect the architectural program and its context in terms of climate, site and culture (Maeiyat et al., 2009). On the other hand, spatial developments over the past decades indicate a trend towards a more diffuse settlement pattern usually defined as urban sprawl. In a number of countries national policies were set out to explicitly counter sprawl, but in most, sprawl has become pervasive (Bruinsma et al., 2010; Majedi et al., 2012).

Moreover, the educational environments created in higher education systems should enable students of architecture to better understand their physical and social environment; to develop a more positive and constructive attitude towards cultural and environmental diversity, as well as fundamental ecological processes; and to use their scientific knowledge and attitude in a way that is responsible, from an architectural point of view, with respect to the well-being of all users of architectural space in their own society, other societies and even all over the planet as a whole.

Most of the internationally oriented educational programs of sustainable architecture aim to develop the knowledge and skills of students enabling them from a humanist perspective, to contribute with advanced design skills related to built environment; and initiate and implement architectural spaces and environments that stay sustainable in the long term. In a general view, aims and scopes of educational programs of sustainable architecture which can be applicable in housing sector and can pave the way for achievement of an acceptable level of sustainable architecture in housing plans can be summarized in table 1 including theoretical and practical aspects.



**Table 1. Theoretical and Practical Fundamentals of Sustainability for Architects**

Knowledge and Theoretical Understanding	Skills and Abilities
<ul style="list-style-type: none"> <li>• Demonstration of knowledge and understanding of the role of architecture in the long-term development of a sustainable society</li> <li>• Demonstration of in-depth methodological knowledge with regard to architectural design processes</li> <li>• Demonstration of a significant insight into international research and development in architecture</li> <li>• Demonstration of the ability to make decisions in the field of architectural design informed by relevant scientific, social and ethical aspects</li> <li>• Demonstration of an awareness about crucial effect of architecture on humans' living environments and of the ethical aspects of research and development in architecture</li> <li>• Demonstration of the ability to identify the need for further knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration of the ability to critically and systematically integrate knowledge of long-term sustainability in complex design and planning processes of architecture.</li> <li>• Demonstration of the ability to identify, analyze, assess and handle complex architectural issues independently, critically, and creatively and to formulate relevant strategies for change.</li> <li>• Demonstration of the ability to plan and, using appropriate methods, undertake advanced design tasks within a given time period.</li> <li>• Demonstration of the ability in speech, writing and visual presentations in both academic and professional contexts, to clearly report and discuss.</li> <li>• Demonstration of the ability to plan and design architectural structures at different strategic scales.</li> <li>• Demonstration of the skills required for participation in research and development in the field of architectural design and construction.</li> </ul>

Generally, in spite of large differences in professional structures, economic conditions, geographical limitations, cultural, political and historical backgrounds, education of sustainable architecture in achievement of suitable residential space in most developing countries face similar challenges.

In the context of housing, several researchers indicated that housing policies based on sustainability criteria – meeting basic housing needs – must be viewed as a necessary. As stated by Currie (1980), housing is a human right and a basic need and must have priority. As a result, housing policies and programs are developed and implemented to increase the homeownership rate in most countries, particularly the low-income group. Governments often perceive housing solely as a welfare issue (Arku, 2006; Tan, 2011), In fact, housing is a productivity activity that can form an important and integral part of either developed or developing countries. Researchers justified the role that housing could play in the economic development. Studies that focused on the role of housing in economic development included those of Burns and Tjioe (1967), Strassman (1985, 1987), Tu (1999), Phang (2001) and Arku (2006). These studies focus on employment and income effects, labor productivity, and growth effects of housing provision (Tan, 2011). Some other studies have focused on sole environmental and climatic aspects of housing.

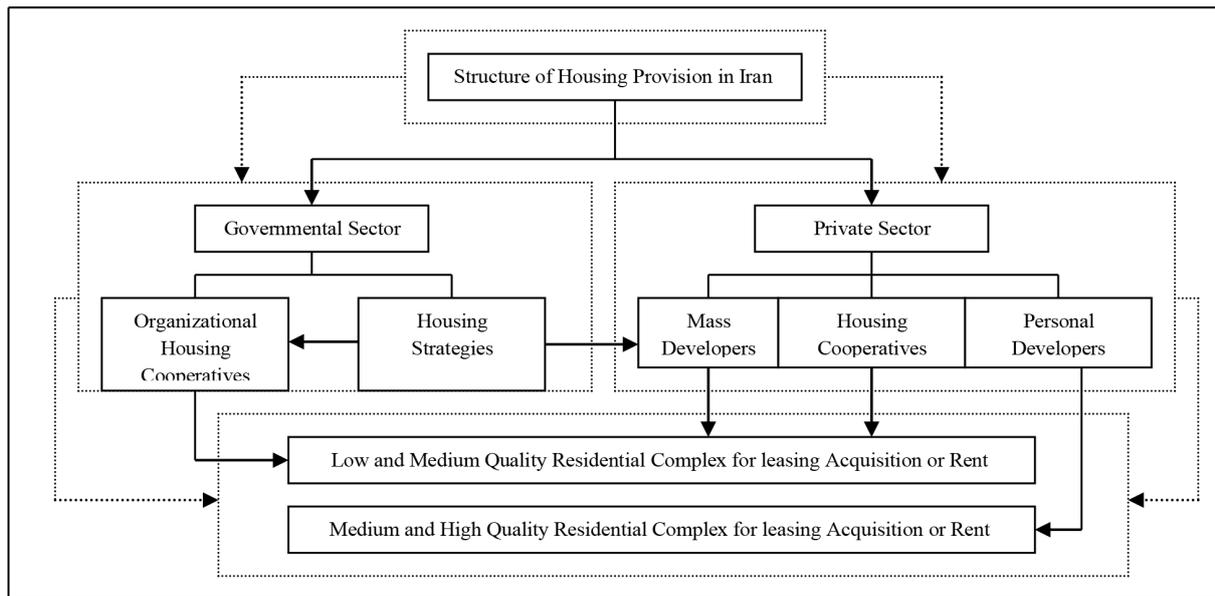
**SUSTAINABILITY VS. MODERNITY IN CONTEMPORARY HOUSING PATTERN; RESIDENTIAL COMPLEX**

The past three decades have witnessed the extraordinary growth of Iran's urban areas. Rapid expansion of cities in Iran has been caused by many factors including regional conflicts, industrialization, uneven distribution of health, education and infrastructure services in the country and many other palpable and hidden factors (Nadim et al., 2009; Majedi et al., 2012). Iran is facing tremendous challenges: in the last 30 years, the country's population has doubled up to 73 million inhabitants in 2009. The median age is 23.5 years and in 2005, 25 % of Iran's population was in the age group of 15 to 24 years. Besides this natural demographic development, a massive rural-urban migration has led to an explosive urbanization since the 1960s, which is expected to continue in the next years (Roudi-Fahimi, 2007; Seelig, 2009). These processes have placed immense pressure on the cities to deliver infrastructure, services, jobs and - at top priority - housing facilities. The Ministry of Housing and Urban Development estimates an ascertained need of about 1.5 million new accommodation units per year for at least the next five years on the formal housing market alone. The main arena of these drastic challenges is the Tehran Metropolitan Region being one of the



most rapidly growing agglomerations in West Asia and the Middle East. In 2006, approximately 13.4 million inhabitants were residing in the Metropolitan Region (i.e. Tehran Province; Statistical Center of Iran, 2006), converting Tehran into the political, economic, cultural and social centre of the country (Seelig, 2009). Therefore, during the last several decades, provision of standard and suitable housing for low and middle-income households of urban areas has always been at the forefront of national

development plans in Iran. In order to move towards this goal, the government has speculated on various policies, strategies, programs and projects and therefore, different approaches to housing strategy and policy has been formulated and evolved throughout the decades which can be summarized in following diagram. But in all these strategies and plans, little attention has been paid to historic principles of residential sustainability.



**Fig. 1. Structure of Housing Provision in Iran**

In Iran, the role of the Ministry of Housing and Urban Development (now converted to Ministry of Roads and Urban Development) was planning and provision of houses for the lower-income group of the society. These actions of planning and provision have always been fulfilled without consideration to local and cultural context of mass-housing projects, leading to demise of local and vernacular capabilities of architecture.

For the time being, the Ministry's role has shifted from housing provision for the poor to formulating and establishing housing development through standardized techniques of design and construction. Through this goal, the Ministry, while trying to work in harmony with other ministries and governmental organizations as well as private sector, seeks to effectively develop and manage design and construction criteria and procedures with highly technical approaches. Among the various initiatives undertaken by the government of Iran over

the years, Mehr Housing Project is considered to be an innovation. But this so-called national plan of housing has not been able to provide the necessary shelter for the poor since the demand for housing has consistently outweighed the supply, resulting in a large housing deficit, especially among low and mid-income class of society.

Major strategic objective of housing planning and provision in Iran remains problematic in provision of suitable housing and therefore, a comprehensive framework is necessary to guide and facilitate the sustainable approach towards provision of shelter all over the country. General obstacles of achievement of sustainability regarding housing provision during last two decades in Iran can be summed under following categories.

- The introduction and implementation of national mass-housing regulations has failed to achieve the planned goals in most cases, especially for



low and medium income households living in metropolitan areas.

- Most part of the planned affordable housing includes uniform and minimalistic apartments which are not suitable for cultural needs of low and medium income families leading to social and cultural problems.
- The price of the houses constructed by private developers is relatively high and the number of the affordable houses is limited compared to the high demand in society.
- The size or the physical condition of the mass construction houses is not suitable for a crowded household which leads to psychological problems.
- Most of the mass constructed houses are apartment blocks which lack climatic and environmental characteristics of traditional houses. Lack of climatic approach leads to higher energy consumption and uncomfortable interior spaces.

However, like other developing countries, modern housing pattern in Iran is also a victim of rapid increase in urban population as a result of very fast rise in its population – contributing to housing challenges extremely among the increasing young cohorts. Iran, in the past few decades has rapidly changed from a more traditional society into a modern society and from extended family system to nuclear family system in which the housing of the youth has become more acute and problematic (Sheykhi, 2007). In Iran, like other developing countries, the pressure on housing is enormous particularly among the low income and mid income population of metropolises. More people are demanding better quality of life and housing in line with rising income but at the same time thousands still live in poor conditions or squatter settlements or small rental houses throughout the country. The social and economic changes of urban life in the country necessitate improvement in the housing condition or urban population over the years.

Increase of urban population in Iran has led to rapid increase in number of houses necessary for them. Since this rapid growth of urbanization was not coincided with the necessary growth of production in housing sector as well as the necessary structural reforms to provide comfortable residential units, it caused many problems due to this lagging resulting in informal and slum settlement phenomenon. According to different surveys, almost half of the increase in urban population during the last two decades was the direct result of factors like migration of rural population to the cities. The rapid

and unplanned growth of urban population and its centralization in large cities caused disorders in housing planning and resulted in disproportionate provision of urban housing, residential facilities and investment opportunities for housing provision. All these factors led to rapid adoption of multi unit residential living style and residential complex rapidly developed into one of the most important building types in urban construction over the last 30 years. With increasing population in urban centers the need to densify houses became central to most urban design or renewal projects in Iran.

In fact, precedence of multi unit residential building typology, like much of modern architecture, can be traced back to Le Corbusier. The precedent for large multi unit dwellings was set at Le Corbusier's "Unite d' Habitation" in Marseilles (1947-1952), which was one of the century's most influential buildings which would later be mirrored across America for apartment style housing. The giant, twelve-story apartment block for 1,600 people is the late modern counterpart of the mass housing schemes of the 1920s, similarly built to alleviate a severe postwar housing shortage. Its influence on subsequent developments in city planning is clear - notably on post-war reconstruction in Europe and public housing in the United States (Bouliane, 2010).



**Fig. 2. Unite De Habitation, An Influential Residential Complex**

For Le Corbusier, the production of housing was similar to the production of automobiles. According to him, the house was "a machine for living" (Le Corbusier, 1923/1997, p. 226). He also reexamined the technical problem of production and streamlined construction procedures, creating easy-to-assemble structures that could be completed quickly using efficient tools and



non-professional workers, allowing the builder to create more houses faster (Hsu & Shih, 2006). He adopted a mechanical analogy with the intention of making housing design and production more accurate and efficient for mass production. In other words, Le Corbusier's goal was not solely to create a new housing type, but rather to create a new method of housing design, one which transformed the housing type into a prototype used in industrial production (Moneo, 1978). His influence on subsequent developments in city planning is clear - notably on post-war reconstruction in Europe and public housing in the United States. Jumping thirty odd years ahead to Chicago, the devastation of the modular building typology is evident as you leave the downtown core of the city (Bouliane, 2010).

Early examples of residential complex in Iran were built in Tehran and other big cities such as Tabriz, Mashhad and Isfahan. Most of these complexes were designed and constructed by foreign companies for accommodation of their staff. Later the second group of residential complexes was constructed for accommodation of Iranian citizens. To achieve the required floor area, density, modularity and individuality within this new typology, the economy, materiality and method of construction became of the foremost importance and had to be thought throughout the design process of these residential complexes. Beside other achievements of that time, new advances in pre-cast concrete construction over the past decades had further paved the way for these parameters to be achieved. This turned residential complex into major symbol of modern housing in Iran.

The technology of prefabrication had become applicable to housing projects since the 1970's making pre-cast modules and forms available for an abundance of uses, which was adopted for construction of mass-housing projects all over the globe. In Iran too, most of the early residential complexes were constructed utilizing precast and prefabricated elements.



**Fig. 3. Ekbatan Residential Complex, Tehran, an Early Example of Modern Residential Complex Influenced By Thoughts of Le Corbusier**

According to Madanipoor (2003), houses can be seen as distinctive spaces in which individuals come together in intimate relationship, claiming the control of these spaces for privacy and comfort. These individuals, even though small in number, form an interpersonal forum that is less private than their own private worlds, creating a combination of private, semi private, and at time even semi public spaces, therefore the relationship between them takes various forms and subsequently, the space they use for these relationship takes various degrees of privacy. In the light of the above, recent architectural thought has also been preoccupied with privacy and private space. Nevertheless, the various studies and approaches concerning privacy have often included the contrast between the term and another entity; that of public space. Their consideration as two opposite worlds has resulted in polarization and analogous consequences for the design process (Shabani et al., 2011). In most of residential complexes all over the world, privacy has been diminished to the minimum. This issue has led to some cultural problems in Iran.

It is clear that, the spatial characteristics of traditional Iranian houses reflected natural, geographical, and cultural needs. An important aspect of the traditional Iranian house was its adaptation to the harsh climate of the central parts of the country. Notable climatic problems are harsh sunlight and temperature in the summer; diurnal fluctuations of temperature; low humidity; limited water supplies; and dusty, sandy winds. In areas of Iran with a hot and arid climate, special traditional designs found solutions to these problems (Fig. 2). Therefore, the urban design and architectural style show evidence of these solutions (Tavassoli, 2002; Mirmoghtadaee, 2009).



The majorities of traditional houses are introverted, or look inwards. All the spaces were arranged around an open, rectangular courtyard that formed the link between different areas of the house. The arrangement follows certain geometrical rules. According to Haji-Qassemi, this geometry not only defines the general body of ensemble and gives shape to its every single detail, but also imposes a hierarchy to its different areas, which determine their locations and relationships in accordance with their character and importance. While harmoniously connected to each other in the design, the areas of the house enjoy complete independence and are always separated from the others by intermediary areas (Haji-Qassemi, 2003; Mirmoghtadaee, 2009).

These changes have created a situation which makes housing in the urban centers of Iran pretty comparable to other countries with all the amenities of Europe, US

and Canada. With the free availability of modern luxuries urban life in cities such as Tehran is similar to European cities such as London, Berlin and Paris and any item you wish to buy is available. The vast majority of the urban population in Iran live in modern apartments, most of which are designed due to major principles of modern residential complexes.

The physical, social, economic as well as cultural conditions of a life in residential complexes of Iran, in the midst of what is called modern life, have led to both positive and negative consequences revealing strengths and weaknesses of these complexes. Table 1 contains some of major positive and negative characteristics of residential complexes. Most of these positive and negative aspects can be generalized to almost all residential complexes which have been constructed in major cities of Iran.

**Table 2. Strengths and Weaknesses of Modern Residential Complexes from an Architectural Point of View**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Diversity of size and layout of units from an architectural point of view</li> <li>• Provision of necessary urban infrastructures and services</li> <li>• Adjacency to airport, terminal, freeway network and urban circulation facilities</li> <li>• Provision of enough open spaces for vehicular circulation and parking</li> <li>• Visual integrity of masses and forms, and high harmony of geometrical composition of blocks</li> <li>• Recognition of the complex as a known and distinct urban neighborhood in Tehran</li> <li>• Acceptable per capita of open and green space</li> <li>• Existence of commercial, recreational and educational facilities inside the complex</li> <li>• Open view from units to the surrounding area</li> <li>• Continuous windows allowing for penetration of natural light to residential areas</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient residential space per capita in medium and small-sized units</li> <li>• Insufficient natural lighting in some parts of blocks including corridors and indoor parking areas</li> <li>• Equal spatial hierarchy for different units regardless of social, cultural and economic level and requirements of occupants</li> <li>• Lack of private, enclosed or even predefined yards for private activities of households</li> <li>• Lack of privacy for family members in outdoor spaces</li> <li>• Uniformity and simplicity of Facades as well as interior spaces</li> <li>• Incompatibility to climatic characteristics of the region</li> <li>• Lack of visual relations to traditional and historic patterns of architecture</li> </ul>

Modernization in Iran has led to many social, cultural, and physical transformations. However, these changes concentrated on the physical or external aspects of life, leaving unchanged cultural norms and values that constitute living habits. New apartment buildings, which are the most commonly used residential pattern in big cities, are completely different from older traditional houses. Contemporary dwellings are much smaller than the traditional ones; thus, semi-public and private spaces could not be separated physically. However, Iranians are

still following traditional rules of biruni and andaruni: guest rooms are decorated with beautiful Persian rugs and other ornaments to accept guests respectfully, while private areas, hidden from sight even with a separating door, are very simple. New apartment houses are extroverted and have windows opening to the streets. However, as Iranians are accustomed to hiding their living spaces from the view of outsiders, windows are always covered with thick curtains. Similarly, balconies are used as storage spaces or combined with the adjacent



interior rooms. Modern facilities played a great role in changing living habits. For example, the use of electrical cooking equipment and ready-made meals has become more common. Therefore, the kitchen is now losing its traditional importance and becoming a place for warming foods and washing dishes. Women are more active in social and economic activities, and spend less time on housework and taking care of children. Facilities such as nursery schools and ready-made food simplify their lives and facilitate a more active social life

## CONCLUSION

The paper has examined how the pattern of residential buildings (socio-spatial) in cities of Iran changed during the industrialization period and how and why that pattern has changed since the transformation to a market economy began. The theoretical aim of this work was to contribute to studies and discussions on matters influencing residential differentiation, particularly the effects of housing policies on residential differentiation and change in planning systems as well as the change in spatial character and composition of residential units. The empirical aim has been to provide a study of factors impacting residential differentiation in Iran, including determining what kinds of residential spaces are designed and constructed, how their populations differ in terms of their socio-economic standing, what the historical background of formation of the new socio-spatial pattern is, how it is changing now, and what the role played by housing policies and urban planning system in the current change is.

From the sustainability point of view, it shall be mentioned that an analysis to the traditional principles of architecture in Iran through different periods of history reveals that Iranian traditional architecture corresponded to local environmental and climatic conditions, and the employed methods provided an appropriate solution to the needs of occupants. This means that the traditional buildings, especially residential ones were completely environmental and corresponded to principles of sustainability. Historical documents indicate that sustainable approach to residential architecture has been reinforced after introduction of Islam into Iran.

On the other hand, an analysis of contemporary architecture of Iran, however, shows that during the last two decades, architecture has drawn away from vernacular compatibility with environment. Especially in modern residential buildings or apartment blocks climate control concerns have essentially been overlooked. Therefore, new constructed houses are missing a proper

amount of daylight, sunshine, airflow, air change and view. Those principles of sustainable architecture which are understood from vernacular architecture of ancient cities in Iran indicate that old cities can be considered as manifestations of a culture of sustainability.

In the mid-1990s, the technology of prefabrication had become applicable to housing projects in Iran, which further led to spatial strangeness in residential projects and paved the way for extinction of vernacular architectural ideas and techniques. This tendency to industrialization and prefabrication in housing is always considered as one of major obstacles of achieving sustainability in residential architecture of Iran. In most cases, this type of residential construction has been promoted by governmental institutions and organizations leading to further separation from vernacular techniques of traditional architecture.

Exploitation of current building technology to achieve contemporary goals is essential. Precast construction technology became a method to achieve realistic goals both in timing and economic situations in construction of residential complexes. The need for standardized and prefabrication in the field of multi-unit dwellings is essential in an environment where housing cannot keep up with demands or cost can not allow for reinterpretation. Within this context, the architect must remain current to the environment around him/her and accommodate the user's need for diverseness and individualized spaces. The building itself should react to its physical environment and surroundings as well as question old typologies at all times, study various types and alter if necessary. From looking at the precedents of multi unit typologies, a new initiative and ambition has been developed for contemporary living in an ever-changing environment.



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