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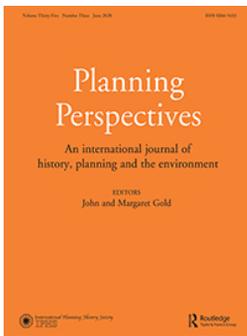
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# Kuy-e Narmak (1952–1958): the growth and change of an urban community in Tehran

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## ABSTRACT

This article examines the growth and change through time of Kuy-e Narmak, a housing neighbourhood developed in the 1950s under the auspices of Mosaddeq's Modernization Program. The project was designed by a group of young-leading European-educated Iranian architects that collaborated with the government to develop affordable housing solutions in Iran. To design this project, these architects advanced solutions that explored a cross-pollination between the principles of the functional city, and references from vernacular architecture. Over the last 6 decades, the number of households living in Narmak increased dramatically, from the initial goal of accommodating 7500 families, to the 90,000 families that currently live there. This article discusses the extent to which the initial design decisions were instrumental to cope with this extraordinary increase in the district's density. We have used typological and morphological analysis, combined with site surveys and interviews to investigate the district's growth and change through time. This article argues that the designer's critical combination of modernist planning concepts with elements borrowed from Iran's vernacular tradition resulted in a socially inclusive urban community. The plan's rigid urban form has become instrumental in defining a neutral background to accommodate the ever-changing social and spatial practices of its inhabitants.

## KEYWORDS

Iran; Tehran; public housing; incremental housing; vernacular modernism; urban density

## Introduction

While Iran's process of modernization started in the mid-1850s, it gained a new momentum in the aftermath of the Second World War. Sharing similar characteristics with the transformation of other non-western countries, in Iran this modernization project accelerated under the Cold War oil-led geopolitics. The period of 'post-war corporatist compact', as Kevan Harris called it, saw the US hegemony infiltrating the region, sponsoring state-led development.<sup>1</sup> In the context of the early Cold War period, the US geopolitics in Iran was driven by a strategy of negotiating favourable alliances to secure access to oil resources.<sup>2</sup> This strategy sponsored a form of 'Socialism' paradoxically supported by a corporatist model of industrialization, which in the late 1960s some scholars described as a form of 'creative modernization'.<sup>3</sup> The social, political and economic transformation of Iran from the early 1950s until the 1979 revolution is a case in point to illustrate this process.

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<sup>1</sup>Harris, "Making and Unmaking," 13.

<sup>2</sup>See: Little, *American Orientalism*.

<sup>3</sup>See: Hanna and Gardner, *Arab Socialism*.

Mohamad Mosaddeq (1882–1967), Iran's first democratically elected prime minister in 1951, played a key role in pushing forward the land reforms and the promotion of public housing that started earlier in the 1940s. Both aspects were, however, further developed after Mosaddeq's overthrowing in 1953, under the second Pahlavi ruler, Mohamad Reza Shah (1919–1980), who ruled Iran until the 1979 revolution.<sup>4</sup>

In what follows, we aim at contributing for the discussion on the evolution of housing paradigms in Iran since 1941. We will look into a particular case of public housing, Kuy-e Narmak, to study the resonances between the modernization of Iran and the transformation of patterns of inhabitation. We will analyse the typological and morphological aspects of the project and combine the results of this study with the outcome of a site survey in the housing district and interviews conducted with some of its current dwellers. This methodological approach aims at expanding current scholarship on Iran's process of urban transformation, which recently has been addressed by a significant number of scholars. Themes such as the politics of mass housing production, the state's housing policies, and domesticity and home culture have been addressed from different angles, triggering a critical understanding of some of the most important events in Iran's process of modernization.

Pamela Karimi has been studying the transformations in Iran's consumer culture and its influence in what she calls Iran's Interior Revolutions of the Modern Era.<sup>5</sup> Karimi has dedicated studies to the urban environment of Abadan, an oil company town in south-west Iran, constructed by the British Petroleum (BP) and based on Ebenezer Howard's Garden City concept. Karimi developed a comparative study of Abadan with some other Iranian cities, such as Tehran and Mash'had, highlighting similarities and differences in the urban structure of these cities. She claimed that Iranian cities experienced a hybrid process of urban modernization. In following studies on the architecture and processes of transformation of individual houses and private apartments in Tehran, Karimi has examined how the government used the domestic space as a locus to introduce and promote Western lifestyles among Iranians. She has shown that the layout of the kitchen and its internal arrangement became the main subject of change in the state's modernization agenda. This shift was connected to the goals of Truman's 'Point IV programme', and developed as a strategy to reorient Iran's home economy towards Western mass-market consumption.

In a study developed by Hamed Khosravi, the architecture of dwelling in Tehran was examined through the lens of the state's policies.<sup>6</sup> Through extensive historical analyses, this study showed how the interior spaces of Iranian houses ceased to be the exclusive domain for individual life and family matters. Housing and land policies became a tool to expand the state's control over the society. Khosravi contends that the government used housing as a tool to colonize the land made available after the demolition of the old city walls, in Tehran, with the aim to neutralize the socio-political structure of old neighbourhoods, constructing mass housing for middle-class families and imposing new urban forms. Moreover, his study illustrates how the development of multi-story apartments became an ideal spatial apparatus to promote certain lifestyles and exert control on the society through mechanisms of government planning.

Rana Habibi has also examined the impact of mass housing development on the urban structure of Tehran.<sup>7</sup> This study showed how mass housing projects in emerging middle-class neighbourhoods of Tehran facilitated the state's project of nation building. Moreover, Habibi argues that the construction of new neighbourhoods was not only a strategy for responding to the housing shortage

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<sup>4</sup>Hooglund, *Land and Revolution*, 7.

<sup>5</sup>See: Karimi, *Domesticity and Consumer Culture*.

<sup>6</sup>Khosravi et al., *Tehran: Life Within Walls*.

<sup>7</sup>Habibi, "Modern Mass Housing in Tehran."

in Iran, but also a tool for promoting 'modern' lifestyles among Iranians. By providing a series of urban analyses, this study showed that the urban modernization of Tehran, after the Second World War, underwent a process of both alternation and localization of imported models at the neighbourhood and city scale. Habibi argues that, while the newly developed areas of Tehran were erected based on the modernist design principles promoted by the CIAM, they all incorporated a main archetype of Iranian architecture and urbanism: the *Chaharbagh* (one of the typical models of the Persian Garden). Finally, this study has illustrated the impact of a garden-grid structure on the form of urban spaces and new neighbourhoods in Tehran.

In a more recent study, Mohamad Reza Shirazi conducted a significant study on 'contemporary architecture and urbanism' in Iran.<sup>8</sup> In his analyses, Shirazi highlighted the relation of tradition and modernity as well as its reflection on the formation of today's Iranian architectural culture. Building upon Paul Ricoeur's classic text of 1961, 'Universal Civilisation and Natural Culture', he showed how in the 1960s and 1970s, Iran faced the challenge of both becoming modern and yet simultaneously returning to its historical sources. Furthermore, Shirazi used Kenneth Frampton's notion of 'Critical Regionalism' to analyse a few works of three leading Iranian architects, including Nader Ardalan, Kamran Diba, and Hossein Amanat. In his examination, he showed how their works represented a place-specific approach to the architecture of modernism. Finally, Shirazi argued that the production of a 'space-in-between' (i.e. an intermediate space between private and public spaces) played an instrumental role in the works of these architects to overcome the strict dichotomy of tradition and modernity with their architecture. In another study, Shirazi also investigated a large-scale housing project in south-west Iran, known as Shoushtar-Nou, designed by Kamran Diba (DAZ Architects, Planners, and Engineers) and partly completed in 1977.<sup>9</sup> In his analysis, Shirazi illustrates an initial gap between the architect's utopian vision for creating a synthesis of modernity and tradition through the architecture of dwelling and the real life of the inhabitants, in this project.

Next to the cases mentioned above, the impact of modernization on the development of architectural pedagogy, urban regulations, urban planning strategies, architectural design, and public amenities in the twentieth century Iran has been also studied and published in English by architectural historians Ali Madanipour, Mohammad Gharipour, Morteza Mirgholami, and Talinn Grigor.<sup>10</sup> There are some important contributions to this debate that have only been published in Persian, by scholars such as Seyed Mohsen Habibi, Eskandar Mokhtari Amir Bani Masoud, and Mostafa Kiani.<sup>11</sup>

Despite a growing wealth of architectural scholarship on Iran's process of modernization, the authors mentioned above have addressed with insightful approaches how the architecture of dwelling has been interwoven with specific social, political and economic circumstances. Most of the research referenced earlier overlooks, however, the agency of the dweller in the transformation through time of her or his housing environment. In other words, there is little research discussing the dynamic process in which the planning and urban design strategies implemented in Iran after 1941 were able to accommodate growth and change through time.

To develop further the remit of the scholarship on Iran's process of (urban) modernization, this article expands the debate on the relation between modernist planning concepts with the

<sup>8</sup>Shirazi, *Contemporary Architecture and Urbanism in Iran*.

<sup>9</sup>See: Shirazi, "From Utopia to Dystopia," 120–36.

<sup>10</sup>Madanipour, *Tehran: The Making of a Metropolis*; Grigor, "The King's White Walls"; Gharipour, *The Historiography of Persian Architecture*, 29; Mirgholami, "Iranian Modernity."

<sup>11</sup>Habibi, *De La Cite a La Ville*; Bani Masoud, *Iranian Contemporary Architecture*; Kiani, *The Architecture of First Pahlavi*; Mokhtari Taleghani, *Iran's Legacy of Modern Architecture*.

transformation of Iran's domestic landscape. This article examines how the design of public housing in Iran was influenced by the structural socio-economic changes introduced in Iran under the oil-led geopolitics of the early Cold War and its impact in the evolution of patterns of inhabitation in Iran's major cities. We will analyse the development of the Kuy-e Narmak housing district, and examine how this pilot project accommodated growth and change over time. This article will unveil the interaction between the static nature of a rigid urban form and the dynamic nature of socio-cultural and spatial practices.

To create a clear backdrop to the context in which this case study was developed, we need to understand the development policies that were in place in the period when Iran suffered two external political offensives, one in 1941 and the other in 1953.

### Development policies in troubled political times

In 1941, England and the USSR, joined by the US, forced Reza Shah (1878–1944) to abdicate in favour of his 22-year-old son, Mohamad Reza, ending the supreme monarch's control of the army, bureaucracy, and court patronage.<sup>12</sup> While the Anglo-Soviet invasion toppled down Reza Shah, it triggered an active involvement of highly educated Iranians in the country's political and economic scenes.<sup>13</sup> The power relations in Iran's political system were heavily shaken in this period, especially between the withdrawal of the Allied forces from Iran in 1945, and the CIA-MI6 engineered coupe of 1953 against Mosaddeq's administration, which restored Mohamad Reza Shah to his full executive power.<sup>14</sup> This political instability, resulted in a negotiated balance of power between the royal family, the governmental cabinet, and the parliament. Indeed, a system of governance envisioned already by the 1906 constitutionalist movement, which aimed to limit the political power of the royal family and to establish an electoral system for the Parliament and the Senate, based on the Belgian constitution.<sup>15</sup> This also led to the engagement of Iranian intellectuals, former political prisoners, and urban masses in socio-political activities.<sup>16</sup> By mobilizing different social strata, the members of the *Hezbe Tudeh* (Party of the Masses – Iran's communist party) and the *Jebhe Meli* (National Front – Iran's nationalist party) formed the majority of members of the parliament. They initiated socio-political reforms, and aimed at abolishing the British control on Iran's oil industry.<sup>17</sup>

This socio-nationalist movement led to the formation in 1951 of a new government led by the Prime Minister Mohamad Mosaddeq, who very soon after nationalized the *Sherkat-e Naft-e Iran va Engelis* (Anglo-Iranian Oil Company).<sup>18</sup> The Iranian oil nationalization process triggered international sanctions to the Iranian economy, mainly imposed by the British government. As a consequence, the Mosaddeq administration was not able to export the crude oil. Then, to cope with the impact of the economic sanctions, the Iranian government launched the 'Economy without Oil' model, between 1951 and 1953.<sup>19</sup> To achieve the intended goals of this campaign, the government commissioned the Ministry of Agriculture with the preparation of a development project. This project was aligned with the country's first economic and social

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<sup>12</sup>Abrahamian, *A History of Modern Iran*, 97.

<sup>13</sup>*Ibid.*, 97–101.

<sup>14</sup>*Ibid.*, 97–122.

<sup>15</sup>*Iran Between Two Revolutions*, 50–102.

<sup>16</sup>Mirsepassi, *Negotiating Modernity in Iran*, 1–14.

<sup>17</sup>Abrahamian, *Iran Between Two Revolutions*, 281–325.

<sup>18</sup>*A History of Modern Iran*, 97–122.

<sup>19</sup>Khame-ie, *Economy Without Oil*, 1–24.

development plan drafted by the *Sazman-e Barnameh va Budjeh* (Finance and Planning Organization, FPO) in 1948.<sup>20</sup>

Similar to the soviet-like five-year industrialization plans, the first development plan (1948–1955) pursued a project for the modernization of the nation. To support the implementation of Mosaddeq's modernizing agenda, the government's economic policy was particularly focused on the development and modernization of agricultural activities and production, instead of oil extraction and exports. Moreover, land reform received a great deal of attention, as part of a programme to develop state-initiated large-scale affordable housing schemes, a key policy in Mosaddeq's agenda.<sup>21</sup> Indeed, the provision of affordable housing for the middle- and low-income families was one of the main promises of the Nationalist party made during the election campaign. To fulfil this promise, the government assigned land located in the periphery of Iran's major cities to the development of public housing.

### Housing politics in post-war Iran

Shortly after the Second World War, the immediate need for massive reconstruction and modernization of the country became a main topic for public debates and architectural discussions in Tehran. In the public debates led by the Tudeh party and some of its affiliated channels such as the popular bi-monthly journal of *Bidari-e Ma* or the bi-weekly newspaper of *Taraqqi*, the path to modernization was mostly depicted as through 'going local' rather than employing imported products and ideas.<sup>22</sup> Moreover, these debates highlighted the importance of public involvement, both men and women, equally and shoulder-to-shoulder, in societal and political activities.<sup>23</sup> In architectural discussions led by the first Iranian architecture magazine, *Arshitekt*, however, this path was imagined as through the application of modernist design principles for developing urban areas and new residential neighbourhoods, mainly in Tehran. For instance, in the first volume of *Arshitekt* and in its first two pages, the manifest of the *Anjoman-e Me'maran-e Irani Diplomeh* (Association of Registered Iranian Architects, ARIA) was published.<sup>24</sup> While this manifest referred to the relevance of the modern movement to the local architecture, it clearly defined ARIA's intention 'to critically review the achievements of Iranian architecture and transcended them through the "modern" approach to architecture'.<sup>25</sup>

During this period, ARIA and the government's role in constructing affordable housing projects gained momentum. Generally speaking, the design and development of low-cost housing schemes were not attractive to many highly educated Iranian architects and private developers; therefore, housing the urban poor became a central concern for the government.<sup>26</sup> This situation was so dramatic that Vartan Hovanesian, an influential member of ARIA, described the housing condition of Iran as a crime, and urged the government to build 'modern' residential neighbourhoods, similar to the models developed by European modernist architects all around the world.<sup>27</sup> He also pointed out that:

In recent years, the breeze of modernism has transformed Iranian social life and has created a spirit of modernity in people, a spirit that is perfectly embedded in architecture. Soon, Iranians will encounter modern problems and their survival is dependent upon the resolution of these problems. This era of the twentieth century has pushed people to make greater efforts, and their impacts will be seen in all aspects

<sup>20</sup>The Finance and Planning Organisation, "Iran's National Development Plans," 37–62.

<sup>21</sup>See: Abdi, Mehdizadegan, and Kordi, *Six Decades Housing Planning*.

<sup>22</sup>See: Karimi, *Domesticity and Consumer Culture*, 84–8.

<sup>23</sup>See: Alavi, "Home and Family," 13.

<sup>24</sup>"The Association's News," 39.

<sup>25</sup>Moshiri, "Our Intention," 1.

<sup>26</sup>Adjdari, "Low-Cost Housing," 125–33.

<sup>27</sup>Hovanesian, "Architectural Issues," 4–9.

of social life. We [the members of ARIA] have a responsibility towards future generations and we should carry out our duties in the best possible way. If we stick to our traditions and constantly fail to take full responsibility, we shall prove to be worthless, meaning that we are unable to take care of progress and excellence and we fail to have adequate understanding of the spirit of the time [for modernity].<sup>28</sup>

Hovanesian's praise of modernity was directly pointed at the members of ARIA, whose expertise in design and realization of mass housing projects would help the Iranian government to pursue their goal of modernizing Iran. Some of the Association's board members, such as Ali Sadegh and Vartan Hovanesian, had been actively involved in initiatives promoted by CIAM.<sup>29</sup> Moreover, this new generation of Iranian architects, who mostly studied in European universities, was particularly well equipped to promote cross-cultural exchanges between the local architectural culture and the Western models of modernization. One of the most compelling examples of this new disciplinary practice was the construction of the so-called *Chaharsad Dastgah*, a residential neighbourhood designed by Ali Sadegh in 1946, to accommodate 400 low-income families in East-Tehran.<sup>30</sup>

At the turn of the 1950s the development of public housing in Iran was threatened by land speculation, and by the lack of institutions capable of taking the responsibility for funding and leading the development of public housing in the country. It was in this context that the Iranian Ministry of Agriculture in collaboration with the Iran Insurance Company established a new organization in 1952, known as *Bank-e Sakhtemani* (Construction Bank).<sup>31</sup> Beside its role in developing new housing complexes, this organization became also responsible for providing mortgage loans with low-rate interests.

Due to land speculation in the urban areas, the Construction Bank asked the government to allow the construction of new houses in undeveloped land, outside the cities. In 1952, the parliament approved a law, named the *Layehe-ye Sabt-e Arazi-e Mavat* (bill of the vacant lands registration), through which the Construction Bank was allowed to acquire unused land, located three kilometres beyond the borders of existing cities.<sup>32</sup> In line with a public desire for active participation in the country's reconstruction process, and with Mosaddeq's agenda for self-determination, this bill became instrumental for the rapid development of housing neighbourhoods in the periphery of the Iran's major cities, and especially on the outskirts of the capital city, Tehran.

The Bank appointed ARIA to design a series of housing schemes in Iran. To be sure, many residential neighbourhoods built in Teheran during the 1950s and 1960s resulted from this collaboration. Some of the most notable cases were Kuy-e Narmak (1952–1958), Kuy-e Nazi-Abad (1953–1958), and Kuy-e Tehran-Pars (1960–1964). The Construction Bank planned the first of these schemes, Kuy-e Narmak, in the North-Eastern part of Tehran, near the former airport, as a pilot project to provide affordable housing for 'ordinary' Iranians.<sup>33</sup> For its scale and innovative character, Kuy-e Narmak played a fundamental role in Iran as a catalyst for the emergence of new patterns of urban life and housing practices among the general public.

## Kuy-e Narmak

The project for the new housing neighbourhood was realized close to the village of Narmak, a place known for its fertile pomegranate gardens, situated in the foothills between the *Lavizan* and *Sorkh-e*

<sup>28</sup>*Ibid.*, 7.

<sup>29</sup>Marefat, "Building to Power," 192.

<sup>30</sup>See: Khoursand, "The Low-Cost Housing of Chaharsad-Dastgah," 135.

<sup>31</sup>Editorial, "The Establishment of the Construction Bank," 10.

<sup>32</sup>Badie, "The Bill of the Barren Lands," 19–20.

<sup>33</sup>Khodayar, "How Kuy-E Narmak Was Created," 6–10.

*Hesar* forest.<sup>34</sup> Containing rich underground water reservoirs, this location was an ideal place to develop new housing schemes, considering the lack of proper water supply systems in the city. This location was 3.5 kilometres away from the old city centre, as required by the bill of the vacant lands. For the implementation of the plan, the Construction Bank dedicated an area of 506 hectares to the project, and intended to provide housing units for approximately 25,000 inhabitants.<sup>35</sup>

In 1952, the Construction Bank asked ARIA to design the urban plan for Narmak. This plan was eventually designed by a team coordinated by Naser Badie and Abbas Adjdari, two important figures in Iran's architecture and planning scene in the early 1950s. Between 1932 and 1939, Naser Badie studied town planning at the Institute d'Urbanism de l'Université de Paris, and for many years, he was the technical general director of the Municipality of Tehran. In 1952, he became the head of planning in the Construction Bank, and from 1956, he acted as the deputy general manager of the Construction Bank. Abbas Adjdari was a founding member of ARIA, studied architecture at École des Beaux-Arts Paris, who had a great interest in developing large-scale housing projects with prefabricated systems, in Iran.

For both Badie and Adjdari, collaborating in the development of public housing projects was indeed an excellent opportunity to implement the modern ideology cherished by many of its fellow colleagues at ARIA, and to diffuse the notion of modern living among the general public. To do so, they took advantage of this opportunity to design 'a modern city outside the borders of Tehran that would follow the latest planning principles and modern regulations of urbanism'.<sup>36</sup>

Badie and Adjdari's plan for Narmak, which started being designed in 1952, integrated some of the ideas presented and discussed in international venues such as the UIA congresses and the CIAM.<sup>37</sup> For example, the Narmak plan was based on a grid of streets defining a rigid functional zoning, organized in neighbourhood units. The plan for Narmak defined 110 urban blocks organized around a central core, located at the intersection of the central north-south and west-east boulevards, where the designers placed a large square surrounded by the main public buildings of the neighbourhood. These were three administrative towers, a municipal building, a hospital, and several commercial buildings. Additionally, along the other main streets, there were a series of small public facilities and amenities, such as shops, schools, restaurants, and teahouses. Finally, as an exceptional element in the plan's rigid urban layout, they designed a large park located on the west side of Narmak, where iconic buildings such as the Museum of Modern Art, a cinema, and a sports hall were placed. The four components of the functional city – living, working, recreation, circulation – were thus perfectly defined (Figure 1).

Similar to the general urban layout, each neighbourhood of Kuy-e Narmak was designed based on a zoning principle. In the middle of each urban block, a large public space, a square, was included. From each square, up to six cul-de-sacs, following an east-west direction, were created, with the aim of dividing the blocks into smaller urban fragments to form the housing sectors. These sectors were then divided into lots, with an area varying from 200 to 650 square metres, which in total could accommodate a total number of 7500 single-family detached houses.

For the construction of these houses, the designers proposed a French prefabricated building system named *KALAD*.<sup>38</sup> In fact, next to the integration of modernist urban models, the designers of Narmak were also interested in introducing modern building techniques and materials imported

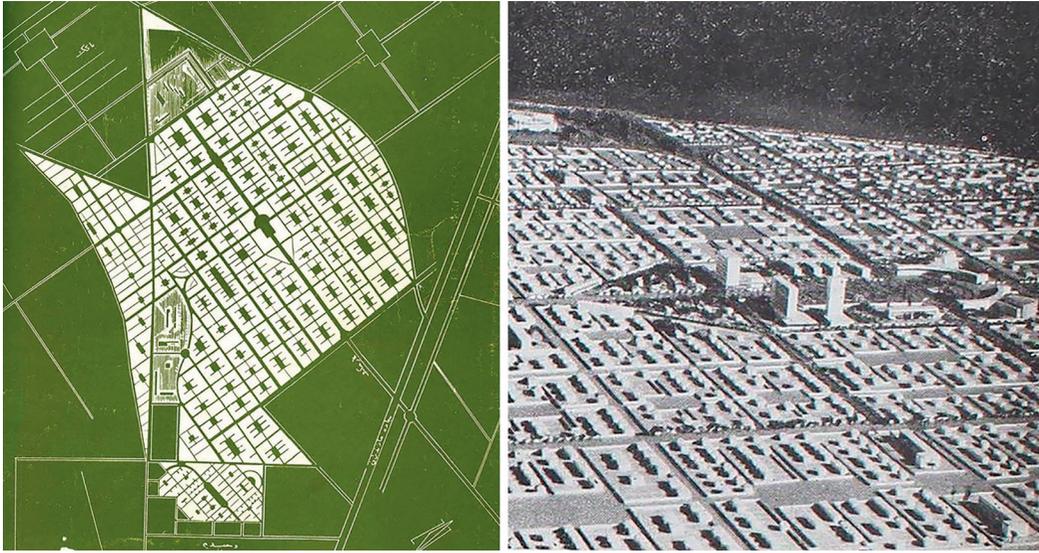
<sup>34</sup>Nariman, *Tehran in the Past and Future*, 12–35.

<sup>35</sup>Deldam, "The Narmak Neighbourhood."

<sup>36</sup>Khodayar, "How Kuy-E Narmak Was Created," 3–5.

<sup>37</sup>See: Moshiri, "Our Intention," 1–2.

<sup>38</sup>Khodayar, "The Construction of Kalad," 28–33.



**Figure 1.** The left image is the urban layout of Narmak, designed by the ARIA. The right image represents a physical model of Narmak made by the Construction Bank. This model shows main public amenities/building are located around the central square. Source: *Journal of Bank-e Sakhtemani* 1, no. 2 (1955): cover pictures.

from the industrialized West. The first application of the KALAD prefabrication system took place in the port city of Bari, in Italy, where the city dealt with seismic hazards, similar to Tehran.<sup>39</sup> Curiously enough, despite the noticeable climatic differences between Bari (a humid Mediterranean climate) and Tehran (a dry, semi-arid climate), the designers initially planned to use the original KALAD system without modifications. This system had the capacity to produce one house per day. However, due to Iran's limited access to advanced construction materials, such as iron bars for producing reinforced concrete panels, the load-bearing structure of the KALAD system could only be used to build one-story house types.<sup>40</sup> Considering this limitation, the architects proposed one-story homes with a private yard in Narmak, comprising dwelling units with two, three, and four rooms (Figure 2).

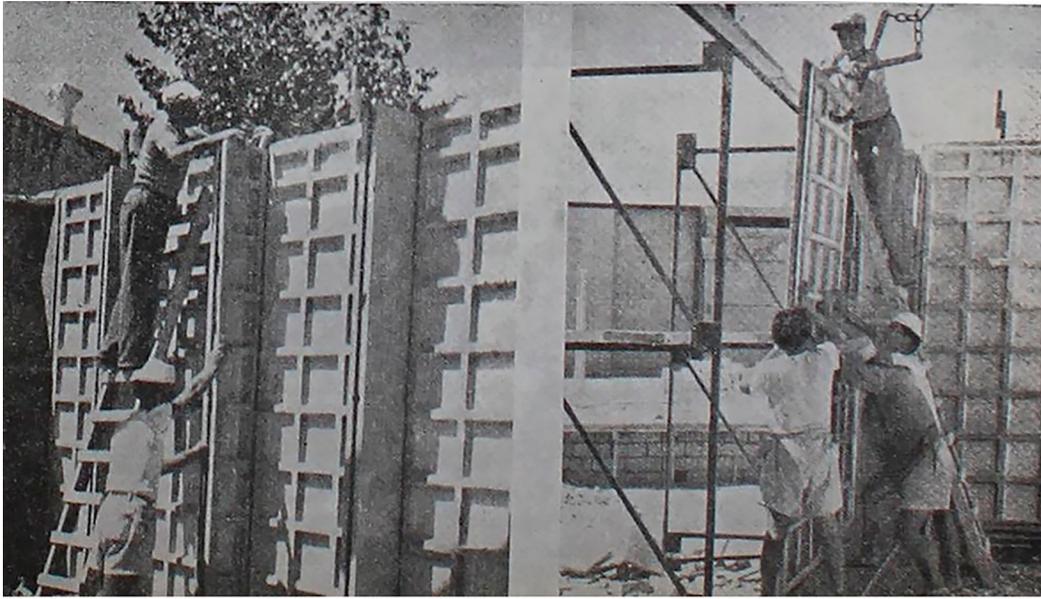
Narmak was thus a vast expanse of low-rise single-family houses, with relatively low density. While the initial plan incorporated some principles of modernist architecture and urbanism, this typological approach suggests that it was more geared to cater for Iran's traditional family structures, rather than for a new form of social and spatial organization. However, through time, this would change. Narmak would become a good illustration of how the ideology of modernist architecture and planning can accommodate specific qualities of Iranian social and spatial practices. In the following section, we will examine some details of this integration and how it led to a unique process of 'vernacularization'.

### Negotiating modernity with tradition

Since the mid-1940s, many leading Iranian architects and intellectuals published articles in popular and professional journals, such as the *Namey-e Farangestan*, *Arshitekt*, and *Bank-e Rahni* aiming to discuss new ideas regarding urbanism and architecture. In these articles, they acknowledged the

<sup>39</sup>Khodayar, "Cheguneh Kuy-E Narmak," 3–5.

<sup>40</sup>See: Badie, "Public Housing in Iran," 11–16.



دو منظره از ساختمانهای کوی کالاد در نارمک



**Figure 2.** The KALAD house typologies, proposed by the Bank. Source: *Journal of Bank-e Sakhtemani* 1, no. 6 (1956): 57.

relevance of modernism for the urban development of Iranian cities and for the emergence of new architectural projects. More importantly, they emphasized that through this process, architects should address the local culture and critically integrate the qualities of vernacular architecture into their new works.<sup>41</sup> In one of those influential texts, Hossein Behzad, a well-known Iranian miniature-painter and philosopher, criticized the replication of modernist architectural models in Iran,

<sup>41</sup>See Seyhoun, "Housing and the National Architectural Styles," 6–12.

and urged Iranian architects to construct a local image of modernity embedded with elements of Iranian culture.<sup>42</sup> Behzad argued:

Why are not we able to find the newness [architectural modernity] from our own novel culture? Why should we renew our architecture based on the other [Western] architectural styles? We need to study and learn from the cultural progress and architectural evolutions taking place in Europe and the US. Simultaneously, we have to modernize ourselves [our architectural practices] through the understanding of how our predecessors renewed our architectural culture and timeless vernacular elements, over time. We ought to rely on our assets, and on what we have.<sup>43</sup>

Behzad's call for a negotiation between modernity and the local tradition took a distinctive path in Narmak, particularly when the architects' agenda was challenged by the limitations of the KALAD system, which was projected to be used in mass housing production. In fact, due to the high construction costs and lack of access to the materials and techniques for mass production, only 310 houses were constructed in Narmak using this system (Figure 3). Eventually, to replace the KALAD system, the architects resorted to the use of local materials and building techniques. The technological shortcomings in the application of the KALAD system in Narmak triggered a redefinition of the basic dwelling type. While the technological shortcomings were the key reason for the emergence of an alternative architectural approach, some other changes to the initial plan were prompted by a deliberate drive to adapt the formal and typological qualities of the KALAD prototype to the Iranian context.

This process illustrates how the architects of Narmak used their design expertise to move with apparent ease from modernist ideas such as mass production to the situated qualities of local architecture. In doing so, the designers of Narmak implemented an eclectic process, which, as the sociologist Randolph S. David puts it, aims at consciously and selectively adapting vernacular and indigenous elements from the local culture in order to lend a touch of familiarity to something foreign.<sup>44</sup> While this conscious adaptation is very visible in the transformation of the KALAD house prototype, it is also noticeable in the urban composition of the whole district. For example, the functionalist gridiron system was perfectly blended with the integration of archetypal elements of the Iranian urban culture such as the Chaharbagh. In Narmak, the negotiation and integration of references with such different cultural kinships gave rise to what Rana Habibi and Bruno De Meulder called a new urban form.<sup>45</sup>

The Chaharbagh was not the only vernacular urban reference integrated in the plan for Narmak. The designers also placed a small square (*Meydan*) in the middle of each urban block, embedding a garden within it. The Meydans were firstly used as a place for storing the drinkable water in each urban block. Later, after supplying water through urban plumbing, the Construction Bank in collaboration with the inhabitants planted seeds in the Meydans, enhancing the liveability of the gardens. This created a place where children could safely play outside, and people could gather and meet (Figure 4).<sup>46</sup> This emphasis on gardens as a key feature for the design of the plan was strongly connected with its status as a symbol of Iran's urban and domestic culture, where the boundaries between the public space and the private realm are key elements. As Mohamad Beheshti, an Iranian philosopher and landscape designer, put it, the life inside the garden is the most representative

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<sup>42</sup>Behzad, "We Have Everything," 9–13.

<sup>43</sup>Ibid., 12.

<sup>44</sup>David, "Multiple Modernisms and Modernities," 181–8.

<sup>45</sup>Habibi and De Meulder, "Architects and Architecture," 29–40.

<sup>46</sup>Khodayar, "How Kuy-E Narmak Was Created," 7.



**Figure 3.** A sub-neighbourhood of Narmak constructed out of 310 houses with KALAD system. Source: *Iran Housing Organisation Report* (Tehran: Offset Press, 1972), 126.

characteristic of the Persian garden, since the garden creates a place for joy, happiness, and encounter among its dwellers.<sup>47</sup>

For the designers of Narmak, integrating the cultural heritage of the Persian garden in the project's urban fabric and thus in the everyday life of its inhabitants was a clear attempt to accommodate aspects of the local culture and society. Furthermore, for the architects of Narmak the initial goal of designing the single-family houses with the KALAD prefabrication system shows that catering for the preservation of local identity was compatible with the use of modern techniques and building systems. This ambiguity pervaded the whole project, and was part and parcel of the whole construction process. The role played in this process by traditional builders, known as *Mi'mars*, is central to understand how Narmak can be seen as a reference for the emergence of a new domestic landscape in Tehran.

### The emergence of a new culture of domesticity in Tehran

Before the early 1950s, most ordinary people built their homes in the form of introverted courtyard typologies.<sup>48</sup> To do so, they hired traditional builders, known as *Mi'mars* who used local materials and techniques for constructing houses, usually through a combination of load-bearing brick walls with wooden beams.<sup>49</sup> While from the mid-1940s, modernist Iranian architects began to employ

<sup>47</sup>Beheshti, "The Persian Garden," 7–15.

<sup>48</sup>See: Kateb, *Memari Khane-Haye Irani*; Karimi, *Domesticity and Consumer Culture*.

<sup>49</sup>Memarian, *Knowing Iranian Housing*.



**Figure 4.** A typical Meydan (no.100) in Narmak: the picture in the top was taken in 1986. Source: National Cartographic Centre, Tehran. Accessed December 2015. The bottom picture was taken from the same place in 2016. Source: The authors.

new house types and advanced construction techniques to introduce a new domestic culture among Iranians, these attempts only paved the way for the transformation of the everyday life of upper-class families.<sup>50</sup> Therefore, the use of a detached house type with a prefabricated construction technique in

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<sup>50</sup>See: Khorsand, "The Low Cost Houses," 125–38.

Narmak was more than a strategy to build houses quicker or more affordably. Indeed, it was also part of the designers' modernizing ambitions, which had clear social and political overtones. The detached house was meant to be 'representative of the beautiful and affordable modern house', as the architects themselves put it.<sup>51</sup> However, limited access to vital resources, as mentioned previously, changed the process of housing production.

The production of houses in Narmak underwent a process of development with two main steps. In the first step, as mentioned above, the architects of ARIA used a prototype constructed with the KALAD prefabrication system to build the one-story detached houses. Eventually, considering the technological limitations but also the climate conditions of Tehran, the architects of Narmak eliminated the pitched roof from the imported model, and proposed a new house type with five variations. To guarantee some degree of privacy for the dwellers of these houses, the designers of Narmak proposed a two-metre high wall around each lot, forming a *Hayat* (a yard with small garden) which was comparable with traditional Iranian courtyard houses. Furthermore, all houses were to be placed on the northern part of the plot, and preserve a minimum distance of three metres from the limits of the property. Moreover, all openings should only be provided on the north and south facades of each house.

The second step of the typological modifications coincided with the application of local materials for the structure of the houses. To speed up the process of construction, the architects realized test samples of these houses with a mix of load-bearing brick walls and steel skeleton. These pilot projects helped the architects to fine-tune the adaptation of the KALAD prototype to the local conditions. While the KALAD prefabrication system allowed the construction of rooms with large spans, the adaptation to a system of I-shaped steel beams with the barrel vault as infill limited the span to six metres. For this reason, a few load-bearing walls were added to the house layout, dividing large spaces into smaller rooms (Figure 5). In the new proposal, the front door of the houses was placed on the west façade, allowing more sunlight to penetrate in the main rooms from the south-facing windows. Some elements of the traditional courtyard houses such as a reflecting pool and a small garden were also added to the general layout of the houses.

Eventually, the adapted version of the KALAD system became one of the two options with which the future inhabitants could choose to build their houses.<sup>52</sup> They could either order one of the five variations of the new basic type from the Construction Bank, or build their own house with the Bank's technical supervision.<sup>53</sup> While some selected the first option, the majority of the people preferred building their own houses. However, as many of the new inhabitants did not have the skills to self-build their homes, they hired *Mi'mars* to do it. To build single-family houses, *Mi'mars* typically used the principles of the traditional courtyard houses adapting them to the different plot shapes and sizes.

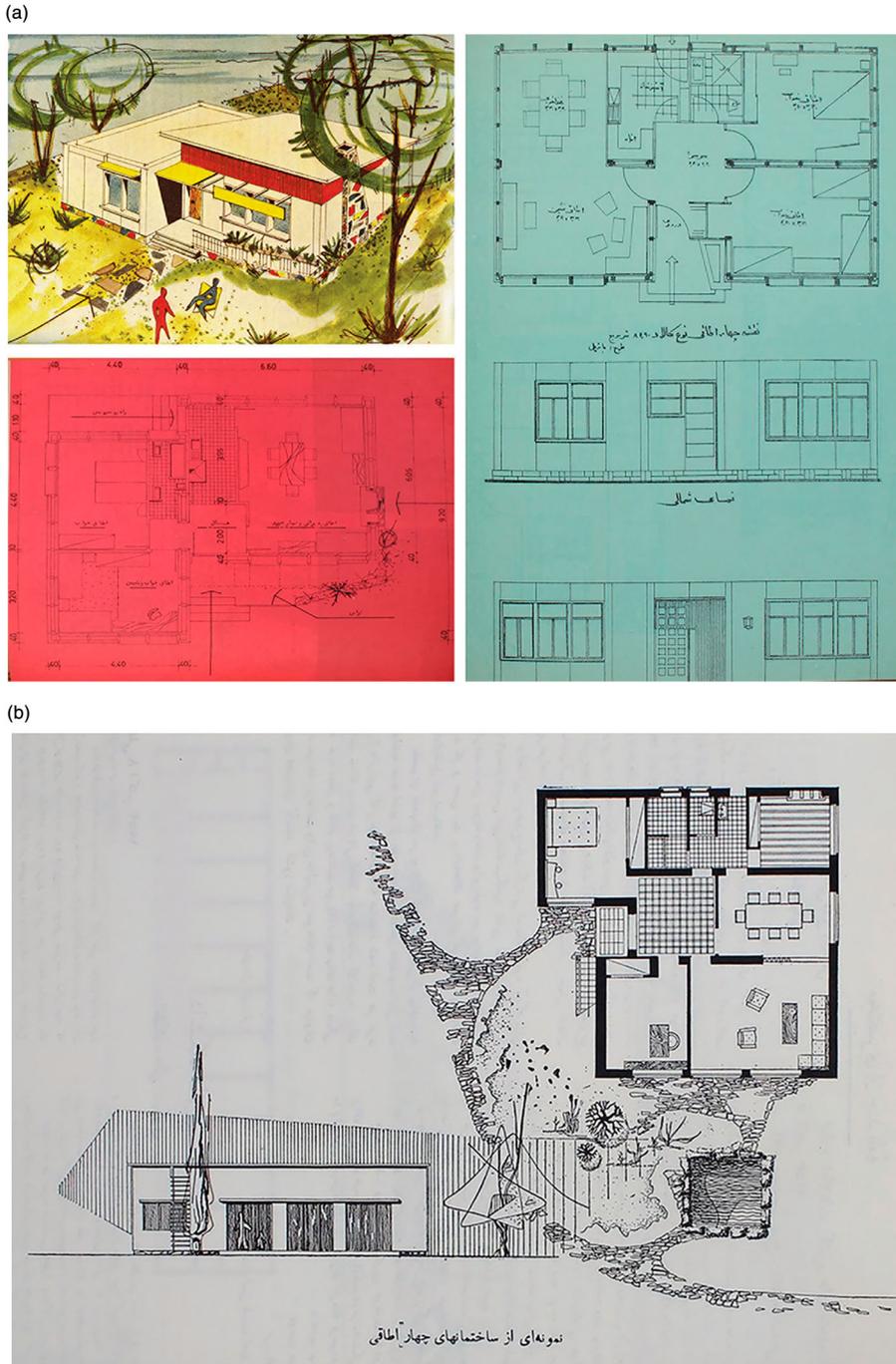
The construction of a new house was thus a slow process, based on the use of traditional building techniques and contingent to the availability of building materials and expertise. In Narmak, however, for the first time, the *Mi'mars* had to cope with the challenge of building many houses in a short period. This changed their traditional organization system. To deal with the unusual demand and time pressure, *Mi'mars* formed informal agencies together with the immigrants who came to Tehran to work in the construction sector.<sup>54</sup> After visiting the sample models and in consultation with landowners, they offered one or two-story houses with a small front and backyard, within the walled plot.

<sup>51</sup>Ma'arefi, "What Do You Know," 12.

<sup>52</sup>Badie, "Taghsim-E Zamin," 21–3.

<sup>53</sup>Ibid., 31–4.

<sup>54</sup>Habibi and De Meulder, "Architects and Architecture," 29–40.



**Figure 5.** (a) The left images illustrate the original design with KALAD system in Bari, Italy. Source: *Journal of Bank-e Sakhtemani* 1, no. 6 (1956): 13–14. The right images demonstrate changes implemented by ARIA based on the number of habitable rooms. Source: *Journal of Bank-e Sakhtemani* 1, no. 6 (1956): 19–20. (b) The modification of KALAD house layout based on available local materials. Source: *Journal of Bank-e Sakhtemani* 1, no. 2 (1955): 33.

There was also an important change in the houses proposed by the Mi'mars. While the houses designed by the architects labelled each room in the house, assigning each space with specific functions such as living room and sleeping room, the Mi'mars neutralized these specific functions by constructing generic rooms that embodied Iran's traditional multi-functional use of spaces. While these adaptations were made, the Mi'mars kept the white unadorned facades, rectangular outlines, wide openings, and flat roofs as it was proposed by the original design.

The transformation of Narmak's urban atmosphere through time was chiefly influenced by the co-existence of these two initial models of housing production. Both the houses, built after the design proposed by the architects of ARIA as well as the typical house built by the Mi'mars, would be part of a dynamic process of densification and transformation through time. To understand the implications of the initial design decisions in Narmak's growth and change, in the following section this article will examine the transformation of a typical plot of Narmak throughout its life span, over the last 60 years.

### Narmak's growth and change

The vernacularization of Narmak formed a basis for the active involvement of the general public in the construction process. This is testified by the initiatives formed by ordinary people in collaboration with Mi'mars to build their houses in Narmak. While contributing individually or in small groups to the construction of single-family houses in Narmak, overall they created a great impact on Narmak's built landscape. To illustrate and document the transformation of Narmak, we have interviewed in the fall of 2017 some of the owners of a typical construction lot (24 by 17 metres), in Narmak. The connection with the selected interviewees was established through a group of the authors' colleagues who have been serving as building contractors in Narmak, since the early 1990s. The interviewees (Mr M.N, Mr R.Z, Mr M.T, and Mr Gh.K), whose names were anonymised for the sake of privacy, were asked to reconstruct their experience as residents of Narmak over the last 60 years, as to explain the factors that underpinned the transformations they have made to their living environment over this period.

After the completion of land division and main roads in 1958, the Construction Bank announced the realization of Kuy-e Narmak, in the Iranian press, *Ettela'at*. The announcement also opened a call for registration, by which the general public was able to purchase divided lands and build their houses, under the supervision of the Bank. This was the moment when the friendship between Mr M.N (a former employee of the Mortgage Bank), Mr R.Z (a former employee of the Ministry of Finance and Economy), Mr M.T (a retired technician who worked for an Iranian construction company known as SET), and Mr Gh.K (a former employee of the Iranian Army) started; the year was 1961.

Since they could not afford to buy individually a plot, they were put in a waiting list for future projects or possible smaller plots in Narmak. Upon their return to a branch of the Construction Bank that operated as the sales office for the Narmak project, they coincidentally met one another, and shortly after this, they decided to buy a plot together. In 1961, immediately after securing the allocation of the plot and the bank loan, they challenged the rules imposed by the Construction Bank and divided the land into four equal pieces of 6 by 17 metres.<sup>55</sup>

Soon each one begun to construct their individual houses. One year later, four distinctive houses were constructed, noticeably different from the initial house type proposed by the Bank (Figure 6). Mr M.T and Mr Gh.K chose to build a one-story house with a basement, for their families. Mr M.N

<sup>55</sup>About the land division, see: Khodayar, "The Division of the Land," 21–33.

built a two-story house to use the upper-floor for himself and rent the lower-floor. Mr R.Z constructed a duplex house. While each house was unique, there were common characteristics to all of them. The two main examples are the placement of a wide loggia in the south façade, similar to traditional Iranian houses, and the construction of a small back yard for providing daylight in the north façade.<sup>56</sup> Furthermore, except for R.Z's house, the position of bedrooms and service areas followed a conventional layout (Figure 7).

With the exception of small modifications (e.g. painting, replacement of finishing materials, or decoration elements), the internal organization of these houses remained intact for several years. Nevertheless, major changes started to occur in the configuration of these houses, when Mr M.T's youngest son decided to get married. In 1988, he constructed a new story atop of his house, and few months later, Mr M.N and Mr Gh.K added loggias to their houses. Then, in 2006, Mr Gh.K, who had moved to another sub-neighbourhood of Narmak five years before, sold his house to a local developer. Two years, after, in 2008, a new four-story apartment building replaced the old single-family house. The whole division of property ownership in the original cluster of four houses changed further when Mr M.N bought Mr R.Z's house to expand his house and cater for the needs of his growing family.

The last changes, observed in the survey of this typical plot in Narmak, took place when Mr M.N and Mr M.T combined their plots, replacing their old single-family houses with a new residential block. This decision was chiefly influenced by the opportunity to generate a significant profit from the operation. Indeed, Iran's rapid economic growth in the first decade of the twenty-first century, as well as a sharp increase in the urban population density, made the real-estate sector a safe market for investment.<sup>57</sup> Furthermore, there was an additional advantage in the aggregation of the individual plots owned by Mr M.N and Mr M.T. According to the Act of Property Aggregation, they could now build an extra floor on the top of the initial permitted building volume.<sup>58</sup> In 2014, they hired a local developer, and in two years time, they built a residential building, 6 stories high and with 12 apartment units.

This is at the same time a particular story, but also a typical one. As shown in Figure 7, multiple transformations happened to the initial constructions built in 1958 on this plot. This phenomenon was pervasive all over Narmak (Figure 8). Similar to this typical plot, over time, the original houses placed in Narmak's rigid gridiron layout were completely replaced by new constructions with clearly different typological and morphological characteristics (Figure 9). While, this process of 'vernacularization' of modernist urban principles and the adaptation of initial house types, combining modern techniques, local materials, traditional crafts, and local and migrant labour, formed a basis for the involvement of local residents in the process of housing production, it created perplexity in some foreign visitors.

Upon completion of the project, Western experts such as Edward Welz, the chief of the Social Affairs section in the US Intelligence Service, Marcel de Buer, a French architect, or Jop Benou, a French professor at Hanoi University, visited Narmak. Eventually they produced remarkable comments and comparisons.<sup>59</sup> Jop Benou, for example, visited Narmak as early as 1955 and compared it with Chandigarh and a worker-housing project in Karachi. He recognized in the design of Narmak a considerable attempt to meet the new needs of urban life, while accommodating the Iranian lifestyle.<sup>60</sup> Another review came from Rossanne, a French architect who visited Narmak

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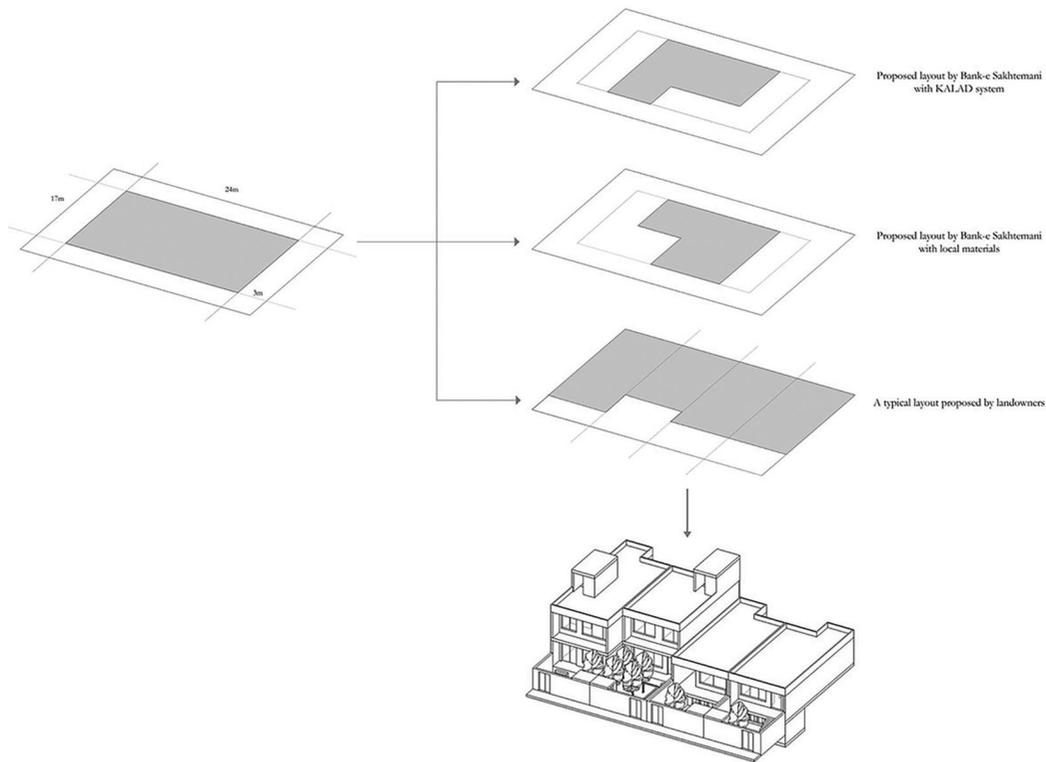
<sup>56</sup>See: Memarian and Brown, "The Shared Characteristics," 21–30.

<sup>57</sup>Ramezani, "Why Iran's Property Market."

<sup>58</sup>See: The Municipality of Tehran, "Zavabet Va Moghararat-E Tarh-E Tafzili Jadid Shahr-E Tehran."

<sup>59</sup>Badie, "Summary of Some Letters," 37.

<sup>60</sup>Ibid.



**Figure 6.** Different types of land division in Narmak and the construction of a typical plot. Source: The authors.

in 1956 and published his impressions in the *Journal of Bank-e Sakhtemani*. Rossanne's expectations were clearly frustrated. 'Unfortunately', he argued, 'this new town was not completely constructed based on the proposed master plan, and the building permit was granted to people without supervision'.<sup>61</sup> He further contended that this lack of control and supervision could destroy the beauty of the project, and lead to a terrible disaster in the future.

Over time, the neighbourhood grew at an unexpected rate. While the initial plan was designed to accommodate 7500 families, currently this number increased more than tenfold. According to recent census, there are 90,000 families currently living in Narmak.<sup>62</sup> However, this does not mean that Rosanne's prophecy was fulfilled. In fact, Narmak evolved in such a way that it can be hardly considered a 'disaster'. Instead, the neighbourhood is described by many observers and scholars as a success story. Recent studies conducted by Mohamad Mehdi Azizi, a well-known Iranian scholar, as well as by Morteza Mirgholami and Sidh Sintusingha, considered Narmak a 'sustainable neighbourhood' and an 'urban community with a strong social-bond', respectively.<sup>63</sup> The evolution of Narmak through time testifies to a dynamic process where the fundamental components of the plan remained, but the buildings conspicuously changed (Figure 10). The ability to accommodate the transformations that happened at the scale of the

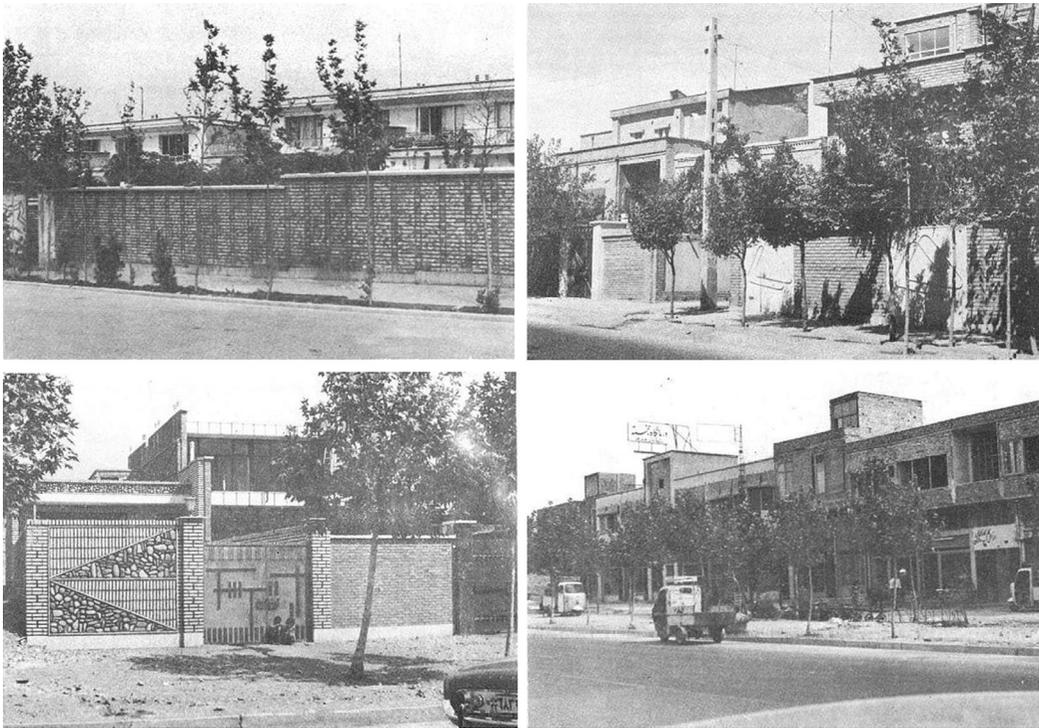
<sup>61</sup>Adjdari, "The Points Taken into Consideration," 22.

<sup>62</sup>See the result of recent census in: Habibi and Hourcade, *Atlas of Tehran Metropolis*.

<sup>63</sup>See: Azizi, "A Sustainable Neighborhood," 38–46; and Mirgholami and Sintusingha, "From Traditional Mahallehs to Modern Neighbourhoods," 214–37.

A Typical Plot	Floorplan	Section	Isometric drawing
The original plan 1952-53			
First modification before 1970			
Second Modification before 1985			
Third Modification before 2000			
Last modification before 2015			

**Figure 7.** The evolution of an identical construction plot through time in Narmak. Source: The authors.



**Figure 8.** Different house types constructed by the inhabitants of Narmak. Source: *The Comprehensive Plan of Tehran: Review and Evaluation*. Tehran: The Planning and Finance Organisation, 1970, 3.15–3.16.

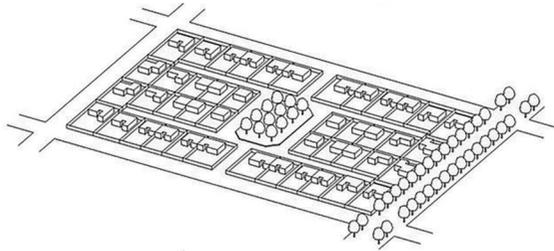
individual plot, as described above, demonstrates how the plan for Narmak was able to facilitate growth and cope with changes. Over the last six decades, Narmak has progressively gained a reputation as one of the best residential neighbourhoods in Tehran.<sup>64</sup> The residents' level of satisfaction is high and there is a strong local identity and sense of belonging among its inhabitants.<sup>65</sup>

Consequently, the spatial characteristics of the original, characterized by a relatively low, dense, and monotonous sequence of similar constructions, gave way to lively and dense alleys, streets, boulevards, and squares (Figure 11). The urban expression associated with the modernistic qualities of the neighbourhood, which could be observed in the late 1950s and early 1960s, underwent a process of vernacularization. This process was instrumental for the development of Narmak and it formed a basis for the expansion of a new urban life style and the development of new dwelling practices among ordinary Iranians. While the morpho-typological characteristics of the plan played an important role in the process, the vernacularization of Narmak is strongly indebted to the relation between landownership and housing finance that were implemented under the auspices of the oil-independent developmental model introduced by the Mosaddeq's administration. The following section will examine in more detail how these two factors (land and finance) influenced the design decision-making process, and contributed to shape the production of housing and urban spaces and make Narmak an example of an inclusive urban community.

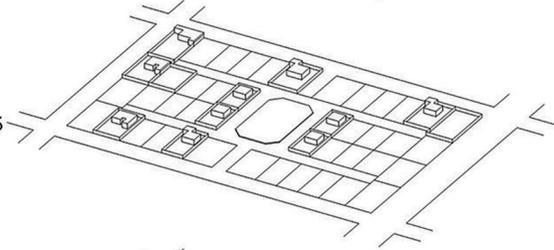
<sup>64</sup>See: Azizi, "A Sustainable Neighborhood," 38–46.

<sup>65</sup>Deldam, "The Narmak Neighbourhood."

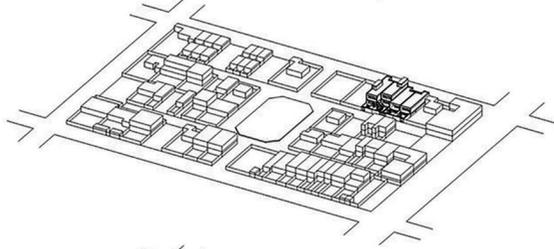
The design proposal 1952-53



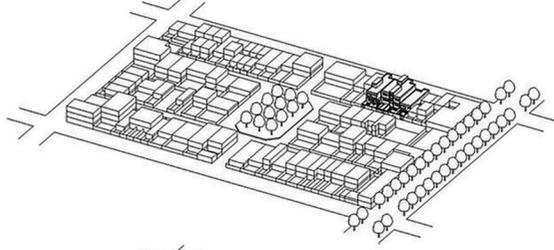
The first construction phase by Bank-e Sakhtemani 1955



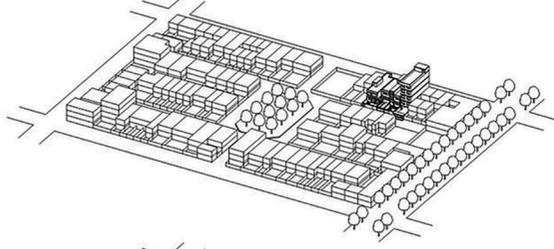
The first transformation phase, before 1970



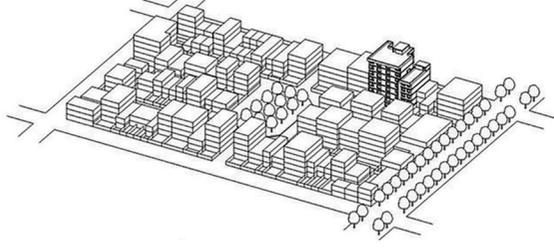
The second transformation phase, before 1985



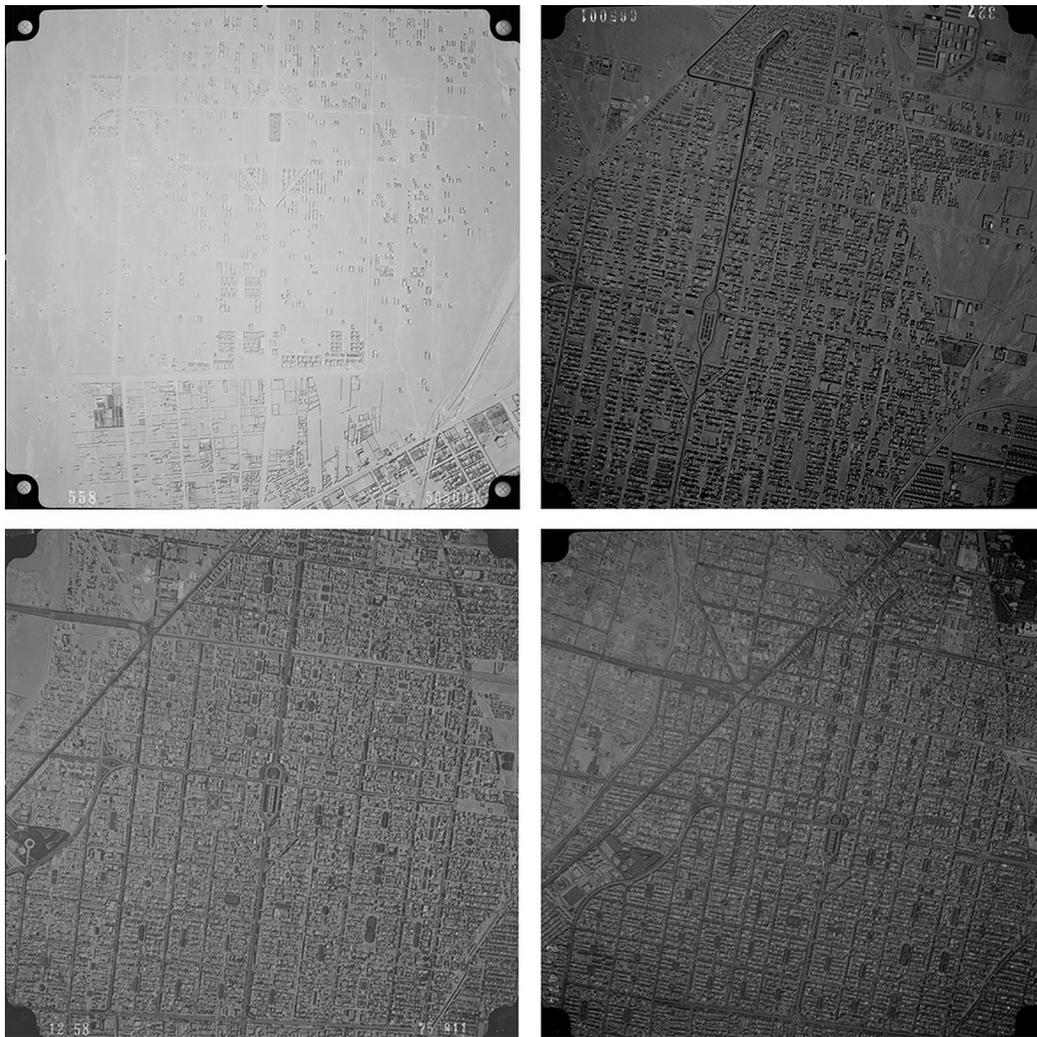
The third transformation phase, before 2000



The last transformation phase, before 2015



**Figure 9.** Transformation of low-rise individual houses to mid-rise multi-family apartments and its implication on the neighbourhood structure. Source: The authors.

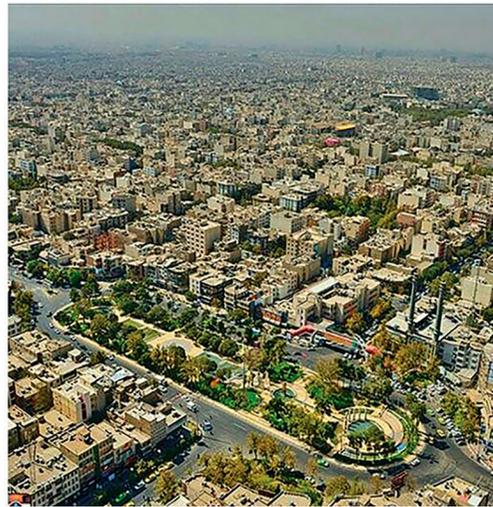


**Figure 10.** The evaluation of Narmak during the last 50 years: The left-up image shows Narmak in 1956. The right-up image shows Narmak in 1965. The left-bottom image shows Narmak in 1979. And the right-bottom image shows Narmak in 1988. Source: National Cartographic Centre, Tehran. Accessed December 2015.

### The formation of an inclusive community

Since the 1909 discovery of oil in Iran, the government was largely dependent on the oil revenues to fund various urban modernization projects.<sup>66</sup> In 1951, however, international sanctions on Iran's oil industry forced the government to rely on other kind of resources, such as agricultural activities, to generate income. In this context, land policies became a key issue for the government, who initiated a land reform programme, and changed the traditional landownership system, in Iran. One of the most important land reforms in this sector was the so-called 'bill of the vacant lands'. Until the early 1950s, the person who occupied and revitalized *Arazi-e Mavat* (barren lands) could claim

<sup>66</sup>See: Hein and Sedighi, "Iran's Global Petroleumscape," 349–74.



**Figure 11.** Densification and development of urban structure in Narmak. The picture in the top was taken in 1968. Source: *Iran Housing Organization Report* (Tehran: Offset Press, 1972), 127. The pictures in the bottom were taken in 2014. Source: Archive of the Municipality of Tehran. Accessed July 2017.

the ownership of the land. However, in 1952, the bill of the vacant lands registration brought an end to this regime. Moreover, the new law became a powerful instrument for Mosaddeq's government to control the real-estate sector in general, and the housing sector in particular. It enabled the government to regulate issues related to land use, urban planning, determination, and adjustment of the land price. The law secured a wider and more controlled utilization of land for the provision of public housing, mainly for middle and low-income civil servants.

While the new land policy was a key factor to enable the expansion of cities to the outskirts and develop affordable new neighbourhoods, the access to soft loan was instrumental to enable the middle-class access to housing. The creation of the Construction Bank under the auspices of the government's modernization project played a central role in this process, as it was instrumental to provide mortgage loans for the construction of new houses. The Bank used a simple formula: the loans for land purchases were only granted to those who could afford the down payment. As the government was the owner of the land, the cost of the plots was relatively low. The value was calculated by the Bank to support the development costs of Narmak's infrastructure, without adding any other exchange value. Hence, based on the size of each plot, the Bank could define the land value. Furthermore, based on the proposed house types (typologies of two, three, four, and five rooms), the Construction Bank was able to estimate the construction costs. These were the two crucial factors used by the Bank to calculate the mortgage loan and the amount of down payment for each applicant. This amount was usually one-fourth of the land value and the construction costs.

With the amount gathered through the down payments, the Bank was able to carry out the infrastructural development in Narmak and grant mortgage loans with low interest in 10 years reimbursement.<sup>67</sup> This financial model gave the Bank independence to develop the project without the interference of other external investors, as aimed by Mosaddeq's 'Economy without Oil' model. The policy of the Construction Bank was based on giving loans to individuals and lower income families to buy plots and to build their houses.<sup>68</sup> However, for some families the financial burden was still quite heavy. Many landowners, like the case of the four neighbours discussed above, sought further financial support to realize their houses. The most common strategy to generate extra income was subdividing their land into two, three, or four lots, keeping one for them and selling the rest. This process would enable a social mix, bringing together families belonging to different income brackets.

In effect, the sub-division of the original housing plots into smaller segments varying from 200 to 650 square metres provided a variety of possible options and attracted different social groups. This variety enabled a wide range of middle-income governmental employees and low-income families to afford a dwelling plot in Narmak.<sup>69</sup> Legally, this subdivision was possible under the private ownership law, established in 1906 during the Iranian Constitutional Revolution.<sup>70</sup> While enabling the expansion of the family's financial resources, the private ownership law provided the legal shelter under which people could organize, control, adapt and change their living environment by themselves. In Narmak, the self-organization encouraged by this law played a fundamental role, promoting a relentless process of plot subdivision and densification. This process was instrumental in the creation of communities with a strong identity and sense of belonging to the place.

The sense of community that surfaced in Narmak preserved some of the Iranian traditions, but introduced some new aspects of urban life. In Iran, in the early twentieth century the residential neighbourhoods were somewhat socially uniform, constructed as autonomous districts based on ethnic or religious segregation, where juridical regulations defined their pattern.<sup>71</sup> On the contrary, in Narmak the social tissue included a mixture of groups, such as the government officials and teachers, small landowners, and non-bazaar merchants with various religious and ethnic backgrounds, representing a socially inclusive middle-class neighbourhood.<sup>72</sup> The main responsible body for the

<sup>67</sup>Moeenfar, "Controversy of Houses," 31–4.

<sup>68</sup>See: Khodayar, "The Division of the Land," 21–3.

<sup>69</sup>Sarrafián, "An Overview of Housing," 16–33.

<sup>70</sup>See: Habibi, *De La Cite a La Ville*.

<sup>71</sup>Falahat and Shirazi, "New Urban Developments," 611–24.

<sup>72</sup>Abrahamian, *A History of Modern Iran*, 120.

development of Narmak, the Construction Bank, clearly defined the limits where the control over the transformation of the neighbourhood should be exerted. While the Bank itself focused on the realization of public spaces such as the Chaharbagh-like streets, Meydans, and small alleys, the responsibility of building the houses was left to the inhabitants of Narmak.<sup>73</sup> This triggered the emergence of an urban landscape where the houses were built according to each family's own needs and material possibilities. This customization also expanded to the public space surrounding the house, where residents appropriated the sidewalks in front of their houses. In this way, they negotiated limits and boundaries with their neighbours, creating new ways of civic participation in the neighbourhood.

The landownership system in Narmak triggered the emergence of a particular social identity based on the construction of the image of private property. This created a sense of freedom to build, as John Turner would put it, in which the inhabitants participated with their own spatial agency in the transformation of the state-initiated development programme.<sup>74</sup> In addition, in Narmak, the landownership system stimulated subjective transformations and adaptations of the neighbourhood, triggered by self-organization, while the urban structure of the neighbourhood remained intact and absorbed those changes. In other words, the typo-morphological characteristics of Narmak were instrumental to enable the emergence of an inclusive urban community where top-down design decisions, inspired by modernist planning approaches, co-existed with a bottom-up initiatives that developed the private houses incrementally through time. The design principles of Narmak's plan, in particular, the predominance of the detached house type on relatively large plots and the hierarchy of public spaces such as squares, soon became a reference for the development of new residential neighbourhoods in Tehran.<sup>75</sup>

## Conclusion

The development of Narmak shows that its urban form could absorb and accommodate changes while preserving its core attributes, a capacity to integrate self-organization in the system, and the capability for constant learning and adaptation through time. Over the last six decades, this urban form, as a system, was able to absorb and cope with changes, despite the unstable political and economic conditions in Iran, the rapid demographic growth in Tehran, the considerable increase in building density, and the radical transformation of Narmak's skyline (Figure 12).

In this article, we have demonstrated the extent to which the 'vernacularization' of Narmak resulted from the entwined relation of three factors: design decisions, a financial model and a particular system of landownership. From an architectural point of view, the designers of the master plan created an eclectic combination of modernist features with vernacular references, which allowed the integration of archetypical elements such as the Chaharbagh, Meydan, and Hayat in a gridiron urban structure. In combination, these elements constituted a framework within which change could be accommodated. In the absence of strict by-laws or regulations, the residents of Narmak, supported by the expertise of the traditional builders, known as *Mi'mars*, built their houses based on the *habitus*, as Pierre Bourdieu would put it.<sup>76</sup>

Next to the plan's morphological characteristics, Narmak's transformation over time was triggered by the support of self-organization processes. The ability for self-organization was particularly

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<sup>73</sup>Khodayar, "How Kuy-E Narmak Was Created," 5.

<sup>74</sup>See: Turner and Fichter, *Freedom to Build*.

<sup>75</sup>For example, see: Eshragh, "The Housing Projects of the Mortgage Bank," 109–24.

<sup>76</sup>See: Bourdieu, *The Logic of Practice*, 53.



**Figure 12.** The current situation of Narmak in 2016, containing a dynamic skyline and representing a high-density built environment. Source: The authors.

stimulated by the financial model introduced by the Construction Bank. In this model, the mortgage was calculated and provided based on the size of the plots and of the proposed house types, enabling the Bank to define a variety of ranges for the down payment. In so doing, not only middle-income governmental employees were able to purchase a house in Narmak, but also low-income families could afford a dwelling plot, in groups or individually.

This financial model became more meaningful in combination with the new system of landownership regulated by the State. The legalization of private property and individual land-use empowered people to organize, control, adapt and change their living environment by themselves. Accordingly, the top-down development of Narmak was underpinned by bottom-up initiatives where the participation of the inhabitants was essential for the construction of the new houses and neighbourhoods. Rather than marginalizing unprivileged, the system of landownership in Narmak involved people from different social backgrounds and income groups in the co-creation of space, a model that contributed to secure the right of everyone to the city, as Henri Lefebvre termed it.<sup>77</sup>

Using local materials and building traditions, the houses were transformed through time in response to the new needs of the inhabitants and the evolution of their life style. In Narmak, the dwellers became active agents of spatial transformation, indeed key references to understand the urban transformation of Tehran over the last half-century. On the one hand, the pervasive transformation of individual houses into residential apartments in Narmak, illustrates how self-reliance played an important role to cope with the Tehran's rapid demographic and resulting increasing in the affordable housing backlog. On the other hand, Narmak's capacity to accommodate a dramatic

<sup>77</sup>See: Lefebvre, "Right to the City."

increase in its density without jeopardising the liveability of the housing complex demonstrates the importance of the design decisions that established the structure of public space as a combination of modernist features with references from the vernacular tradition.

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No potential conflict of interest was reported by the authors.

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