

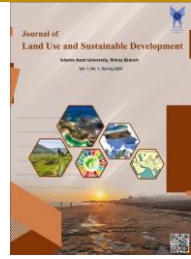


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Original Research Paper

From Tehran to Makoran: Examining the Challenges of Relocating the Capital in Iran from a Spatial Planning Perspective

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Abstract

Relocating a capital city is a complex process that requires a comprehensive assessment of geopolitical, economic, social, environmental, security, and political dimensions. The success of such a relocation hinges on meticulous planning, public participation, and effective management. This action can contribute to the balanced distribution of resources, reduce regional disparities, and foster sustainable development at the national level. In this regard, this article endeavors to identify and categorize the significant challenges associated with relocating the capital from Tehran to the Makoran coast using a structural-interpretive approach. The research methodology is descriptive-analytical. To identify the factors, content analysis was employed. Data was collected through interviews and paired questionnaires. The relationships between key challenges were analyzed holistically using a novel analytical methodology known as Structural Interpretive Modeling (ISM). The findings of this research indicate that a shortage of freshwater with a penetration power of 13, climate change with a penetration power of 12, and a lack of basic infrastructure with a penetration power of 10 are the primary challenges related to relocating the capital from Tehran to the Makoran coast from a land-use planning perspective. These challenges serve as the foundation of the model, and for the relocation of Iran's capital to the Makoran coast, these challenges should be prioritized. Therefore, considering the identified challenges, it can be concluded that a complete relocation of the capital to the Makoran coast does not seem to be the most logical solution. Instead, relocating some of the capital's functions to other cities, along with internal reorganization of Tehran and balanced development of other regions of the country, is a better solution to reduce pressure on Tehran and address its problems.

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Introduction

A capital city is a fundamental element in a country's economic, political, geopolitical, cultural, and social affairs. Various factors shape its structure and administrative system. Beyond these characteristics, cities have held the position of capital for various reasons throughout history, but governments have played a significant role in the selection, development, and construction of capitals, albeit on different scales and with varying features (Motaghi Dastnaei et al., 2014: 137). In other words, a nation's capital represents its heart and embodiment. Consequently, it not only serves as the administrative center of the government but also plays a crucial role in maintaining national unity, symbolizing the nation, preserving its values, culture, and history, and embodying its identity (Perwira et al., 2024).

Iran, an ancient land, has repeatedly changed its seat of government since the Achaemenid era. From Susa to Tehran, the capital has been relocated 39 times, with 30 cities having served as the capital (Kamanroudi et al., 2013: 220). Throughout Iranian history, transferring the capital from one city to another has been a common practice, often coinciding with territorial expansion and shifts in power. In some instances, capitals were chosen in the geographical center of the ruling dynasty to secure its ethnic and political support against internal rivals. In other cases, relocations were driven by strategic reasons, such as proximity to the front lines during conflicts with foreign enemies or distance from potential military attacks. These changes highlight the importance of geographical and security considerations in selecting new capitals in Iranian history. On average, the capital of Iran has been moved every 67 years throughout history. However, Tehran, having served as the capital for over 173 years under three regimes—Qajar, Pahlavi, and the Islamic Republic—is a notable exception. In the past, 13 capital transfers were motivated by security and political concerns. Today, Tehran, as the current capital, faces numerous challenges, including high population density, severe air pollution, uncontrolled urban sprawl, imbalanced development, water scarcity, and

vulnerability to earthquakes (Baferani et al., 2015; Miraei et al., 2016; Rostami et al., 2020). Currently, Tehran's numerous issues have prompted experts to consider relocating the capital. However, Tehran's challenges extend beyond these, and the idea of relocation has resurfaced in the 14th administration of the Islamic Republic of Iran, necessitating a more thorough examination, especially from a land-use planning perspective (Mirheydar, 2002: 144).

Undoubtedly, resolving Tehran's problems is highly complex, multifaceted, and challenging. Many researchers believe that these problems cannot be solved solely within the city itself. Addressing these issues requires tackling problems at the national level using a land-use planning approach. This approach, focusing on the equitable distribution of resources, facilities, and activities across the country, can alleviate the pressures on Tehran. Effectively addressing Tehran's issues requires a comprehensive perspective that extends beyond the city's boundaries to achieve balanced and sustainable development nationwide (Miraei et al., 2016: 36).

From a land-use planning perspective, relocating the capital can present both opportunities and challenges. On one hand, it can contribute to balanced regional development, job creation, and infrastructure enhancement in less developed areas. On the other hand, challenges such as water scarcity, climate change, environmental degradation, and insufficient infrastructure in the target region complicate the relocation process. Therefore, the relocation of Iran's capital is now a key issue in national planning and land-use planning. Transferring the capital from Tehran to another region, such as the Makoran Coast, is a significant and challenging topic in national and land-use planning. Without careful studies and comprehensive planning, relocating the capital could create new problems rather than solving existing ones. Therefore, research in this area is not only a scientific necessity but also a national imperative.

Therefore, this research seeks to develop a model for addressing the challenges of relocating the capital from Tehran to the Makoran Coast from a land-use planning perspective. Furthermore, in line with this necessity, this article aims to model the challenges of capital relocation in Iran from a

land-use planning perspective using the Interpretive Structural Modeling (ISM) method. This objective is pursued through the formulation and examination of a central research question:

- What is the interpretive structural model of the challenges of relocating the capital in Iran from a land-use planning perspective?

Literature Review

In ancient times, the function of a capital was understood as the location of the royal palace or the king's residence. Kings often established a place in the capital and employed urban design and architecture that symbolized their power. Thus, historically, the capital has been both an administrative center and an instrument for displaying power. Consequently, several ancient empires named their capitals after themselves, such as Rome as the capital of the Roman Empire and Babylon as the capital of the Babylonian Empire (Shevryev, 2003). Accordingly, some experts define the capital as a place that represents the government or power. Sheriyev described the capital as the face and heart of the country (Perwira et al., 2024). According to Shmuel Eisenstadt and Shachar, a capital is a kind of screen upon which nations project images of their identity (Eisenstadt & Shachar, 1987). Furthermore, Thomas Hobbes described the importance of a capital to a country as if the entire territory of the country were a human body—if the capital is the head, the other cities are the body. Consequently, the capital must be able to function as the center of all governmental affairs, including government, politics, economy, education, etc. (Roche, 2000).

Moreover, the understanding that the king is the center of state sovereignty has gradually diminished in the modern state concept, giving way to popular sovereignty, as stated in the preambles of many constitutions: "We the People," as in the United States Constitution. This indicates that the king is no longer the all-encompassing figure of a country, but has yielded to the people (Papekaj, 2020). With the evolution of the modern state, the function of the capital has also changed. The first change is seen in the capital's role as an administrative center. Some modern countries no longer locate their administrative center in their capital, such as the Netherlands, where the capital is Amsterdam but the administrative center is in The Hague, and Malaysia, where the capital is

Kuala Lumpur but the administrative center is in Putrajaya (Rossman, 2017). The second advancement is in the function of displaying power or symbolizing. The symbols and architecture of the capital were used to display the king's power; therefore, the symbols of the capital were often associated with the royal palace. When modern countries adopted the concept of the nation-state, this symbolic function changed and influenced the capital's display function, so that national identity was displayed instead of the king's power. The role of the capital in modern countries, especially nation-states, has grown as an instrument for unifying the nation or a cohesive function (Almond, 2008). A nation is a group that strives to unite around a common destiny, and modern nation-states often include elements such as ethnicity, religion, race, and language, each of which has its own sub-national identity (Eller, 1997). With these sub-national identities, the capital can act as a unifying force or a source of conflict. Several factors influence whether the capital functions as a unifying function or a source of conflict: the location of the capital, the architectural design, and the construction process of the capital (Perwira et al., 2024).

According to John Taylor, a national capital should be managed based on the principle of "an open system, accessible to all, rather than a hierarchical and closed system" (Taylor, 1986). Therefore, the national capital is also a bridge between the regional and cultural divisions of a country (Vale, 2008). Consequently, the importance of the capital for a country has led many countries to include the concept of the capital in their constitutions. According to research by Ran Hirschl, there are currently 119 countries whose constitutions contain provisions relating to the capital. These provisions vary. Some constitutions directly designate the capital. For example, Article 18 of the Brazilian Constitution states: "The Federal Capital is Brasília," and Article 20 of the Belarusian Constitution declares that "The capital of the Republic of Belarus is Minsk." Article 154, Section 1 of the Malaysian Constitution stipulates: "Until Parliament otherwise provides, the Municipality of Kuala Lumpur shall be the Federal Capital" (Hirschl & Citation, 2020).

Relocating a national capital in a developing country, especially from a land-use planning perspective, is very challenging. This process requires attention to lessons learned from

previous relocation projects, as the structures and functions of a national capital have specific complexities. Winter (2005), Neilson et al. (1972), and Ghalib et al. (2021) emphasize that the capital is significantly different from other cities. The capital is considered a global city due to the presence of international diplomatic missions, government institutions, and diverse economic opportunities in the public sector. Therefore, the national capital, as the center of a country's power, plays a key role in balancing and achieving balanced territorial development. Other characteristics of the capital include a cohesive and integrated national identity, which is formed through special infrastructures and functions such as service centers, government policymaking, and a high level of security (Syaban & Appiah-Opoku, 2023).

From a land-use planning perspective, the reasons for establishing new capitals in some developing countries include confronting colonial legacies, achieving equitable spatial development, reducing intergroup rivalries and jealousies, as well as symbolizing national power and pride. Salau (in Potts, 1985), Ghalib et al. (2021), and Moser (2010) believe that the transfer of a new capital often revolves around effectiveness and efficiency in the development process. For example, the choice of the capital's location in cases such as Abuja (Nigeria), Brasília (Brazil), Astana (Kazakhstan), and Cairo (Egypt) has been made with the aim of achieving balanced and equitable development.

As an example, Abuja was chosen as the capital of Nigeria in 1991 and today, with a population of over three million, continues to grow due to attracting people seeking better job opportunities. Dodoma in Tanzania, which replaced Dar es Salaam, has been prepared as the capital since 1976 and now has a population of over 300,000. Gaborone in Botswana was chosen due to its natural water resources, sufficient land, and strategic location at the intersection of railways and land transport. Also, Lilongwe in Malawi was chosen as the capital with the aim of promoting balanced and equitable development.

From a land-use planning perspective, the main challenges of capital relocation include financing the construction of new cities, excessive attention to Howard's garden city principles, which focus more on the physical appearance than socio-economic issues, a top-down approach, and insufficient community participation in the planning process (Abubakar & Doan, 2017). For example, the lack of public participation is clearly observed in the failures of capital relocation in Naypyidaw (Myanmar), Putrajaya (Malaysia), and Sejong (South Korea). These cases show that planning for capital relocation should be accompanied by a comprehensive view of social, economic, and environmental dimensions in order to contribute to sustainable and balanced territorial development (Table 1).

Table 1. Achievements and Challenges of Capital Relocation from a Land-Use Planning Perspective

Country	New Capital	Reasons for Relocation	Achievements (From a Land-Use Planning Perspective)	Challenges (From a Land-Use Planning Perspective)
Brazil	Brasília	Traffic congestion, land limitations for development, social and economic inequalities	Created regional balance by reducing pressure on Rio de Janeiro, developed modern infrastructure, and increased GDP per capita as a symbol of national progress.	Economic inequalities between Brasília and surrounding regions, environmental concerns such as deforestation, and geographical isolation that created political and cultural issues for residents.
Kazakhstan	Astana	Structural conditions, low population density, and high cultural diversity	Created ethnic balance and reduced ethnic tensions by focusing on balanced development and strengthening national identity.	High development costs, harsh climate, need for cultural and social adaptation, and urban planning challenges alongside geopolitical consequences related to countering Russian influence.
Nigeria	Abuja	Traffic congestion, overpopulation, economic inequality	Created stability in relations between ethnic groups and promoted balanced regional development by focusing on the new capital.	Heavy financial burden, land rights disputes resulting from the displacement of local residents, rapid and unbalanced growth, and unforeseen security issues despite the city's central location.
Myanmar	Naypyidaw	Symbol of national grandeur, safety from storms, and strategic location	Centralized government, increased security, created modern infrastructure, and promoted regional economic	Lack of commercial and educational facilities, which reduced the city's attractiveness for businesses and families, hindering balanced development.

Country	New Capital	Reasons for Relocation	Achievements (From a Land-Use Planning Perspective)	Challenges (From a Land-Use Planning Perspective)
			growth as part of balanced territorial development.	
Malaysia	Putrajaya	Balancing population and basic economic activities	Reduced traffic congestion in Kuala Lumpur, promoted balanced regional development, and attracted tourists with modern architecture as part of land-use planning.	Resistance from government employees to relocate from Kuala Lumpur to Putrajaya due to daily commuting challenges and costs, and disruption of established lifestyles, which created problems for land-use planning.
South Korea	Sejong	Focus on government administrative activities	Reduced traffic congestion in Seoul, created balanced regional growth, and strengthened the economies of less developed regions as part of land-use planning.	Low willingness of government employees to relocate from Seoul to Sejong due to commuting challenges between the two cities, which are about 120 kilometers apart. This disrupted work-life balance in addition to physical and financial burdens, hindering land-use planning.

Source: Author's Library Research, 2025

As a result, the transfer of the capital is one of the important and complex decisions in the domain of national planning and land arrangement (or land-use planning) which is under the influence of numerous geopolitical, economic, social, environmental and security factors. This action is not only a physical change in the place of the center of government, but also is indicative of deep transformations in the political, economic and social structure of a country.

Motaghi Dastnaei et al. (2013), in an article, examined the political geography dimensions of capital location and relocation in Iran. The findings of this research indicate that capital relocation in Iran is a complex process requiring a comprehensive examination of geographical, political, economic, and social factors. This research shows that factors such as strategic location, access to communication routes, environmental conditions, and cultural and spiritual values play a fundamental role in choosing a new capital location. Also, the intense population and economic concentration in Tehran and its location on an earthquake fault are among the main reasons for the demand for capital relocation. For the success of this project, careful planning and management of security, environmental, and economic challenges are essential. Ultimately, capital relocation can contribute to balanced regional development and reduce pressure on Tehran, but it requires public participation and a national approach.

Mousavi and Bagheri Koshkouli (2015), in an article, analyzed the geographical consequences of the socio-economic impact of capital relocation in Iran. Their research results

indicated that in the event of capital relocation, economic concentration, due to the accumulation of capital in Tehran, would not be achieved in the new location, and the trend of population growth and environmental crises would also intensify. In contrast, the transfer of some functions has significant direct (0.73) and indirect (0.40) effects on the organization of the city of Tehran. In such a way that the transfer of these functions causes a reduction in population concentration, traffic, capital, etc., in Tehran.

Miraei et al. (2016), in an article, examined and determined the priorities for organizing the capital in Iran. The results of this research show that internal organization of the city of Tehran and decentralization were recognized as the main priorities in improving the capital's situation. Solutions such as capital relocation, despite being implemented in some countries, were not very justifiable from the experts' point of view and often faced similar problems as the previous capital. Therefore, it is suggested that managers and policymakers focus on improving infrastructure, managing traffic, and distributing facilities fairly across the country instead of focusing on capital relocation. This approach can contribute to balanced development and reduce pressure on Tehran.

Rostami et al. (2020), in an article, analyzed the obstacles to capital relocation in Iran and presented optimal solutions in this regard. The results of this research showed that various security factors such as: "the occurrence of political disputes over the delegation of power and authority and the distribution of ministries in different cities"; "the failure of other capital relocations in other parts of the world";

"resistance from people, factions, and political groups for reasons such as fear of unemployment, loss of benefits, etc."; and "intense political cronyism in assignments (authorities and resources)" etc. were the most influential components of defensive obstacles. "The suitable geographical location of the current capital in terms of centrality and accessibility"; "the high concentration of defense and security forces in the capital and sufficient knowledge of the capital's weaknesses and strengths in the event of a threat"; "high political awareness of the capital's residents and appropriate reaction against enemy sedition (domestic and foreign)"; "fast transportation system (metro) for emergency relocation and the existence of a suitable and safe shelter if necessary" etc. had the greatest effect in this component, respectively. Therefore, the most important suggestion and solution of the authors is the political organization of space for decentralization from Tehran, dispersing ministries, departments, and unnecessary centers throughout the country to prevent overcrowding in Tehran.

The article "Indonesia's Capital Relocation: A Public Policy Analysis and Its Implications for Regional Development" by Wibowo and Hadi et al. was published in 2024. This article examines the geopolitical, economic, social, and environmental factors influencing the Indonesian government's decision to relocate the capital from Jakarta to a new region. Using a multidisciplinary approach, the authors analyzed the consequences of this policy on national development, the distribution of political power, and people's welfare. The results show that this action can help reduce regional inequalities and promote balanced development, but challenges such as environmental and economic issues require careful planning. The success of this project depends on inter-organizational coordination and local community participation.

The article "Capital Relocation in Indonesia: Failure of Compromise and Potential Dysfunction" by Indra Perwira et al. was published in 2024. This article examines the relocation of the Indonesian capital from Jakarta to Nusantara in East Kalimantan, a plan proposed to create development equity and national unity. The authors point out that the rapid decision-making process (only 43 days)

and lack of public participation have raised concerns about the democratic nature of this project. Historical examples from countries such as the United States and Australia show that a democratic approach to determining the capital can contribute to the project's success, while the lack of democratic compromise and space may jeopardize the goals of capital relocation. This study emphasizes that public participation and a democratic approach are essential to maintaining the integrative, symbolic, and cultural roles of a capital.

Previous research in the field of capital relocation, including studies by Motaghi Dastnaei et al. (2013), Mousavi and Bagheri Koshkouli (2015), Miraei et al. (2016), and Rostami et al. (2020), has focused more on the geographical-political, economic, and social dimensions of capital relocation. However, there are significant theoretical gaps. First, many of these studies have not comprehensively addressed land-use planning dimensions, such as the balanced distribution of population, resources, and economic activities at the national level. Second, comparative analysis of other countries' experiences in capital relocation and the lessons learned from them has received less attention. Third, the role of public participation and democratic processes in decision-making and implementation of capital relocation, especially in the Iranian context, has not been sufficiently examined. Also, the environmental challenges and the effects of capital relocation on natural ecosystems have not been looked at more deeply. Finally, spatial planning models and new land-use planning tools have not been systematically used to manage capital relocation. These gaps indicate that there is a need for more research in this area for capital relocation to be successfully implemented as a national project.

The Area under Study

The Makoran Coast is located in Sistan and Baluchestan Province and is home to the country's only oceanic port, Chabahar. The Makoran Coast has unique characteristics from various aspects that make it an attractive option for capital relocation. From a geopolitical perspective, this region is of high importance in regional and international affairs due to its strategic location near the Strait of Hormuz and access to open waters. Proximity to Pakistan

and India also strengthens the region's position as a communication bridge between Central Asia, South Asia, and the Middle East. From a geographical and maritime perspective, the Makoran Coast has a long coastline along the Gulf of Oman, which provides opportunities for the development of ports and maritime activities. Chabahar Port, as one of the most important ports in the region, plays a key role

in maritime trade and Iran's access to open waters. From a demographic perspective, this region has a relatively low population density but faces challenges such as a lack of social and economic infrastructure. However, the region's tourism potential, mineral resources, and economic capacities can contribute to sustainable and balanced development (Fig. 1).

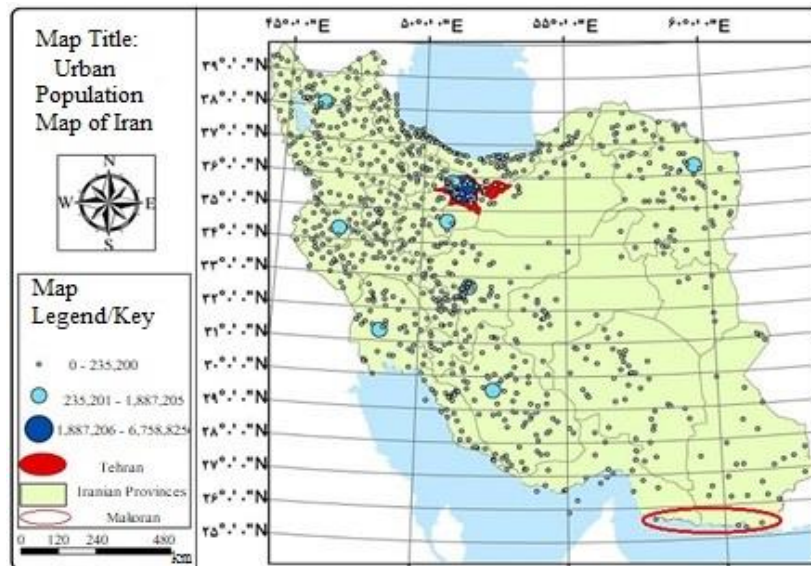


Figure 1. Study Area and Population Distribution of Cities in Iran

Methodology

The aim of this research is to identify the challenges affecting the relocation of the capital from Tehran to the Makoran Coast and to design the relationships between these issues. The research method in this article is descriptive-analytical and, in terms of results, applied. To identify the challenges affecting the relocation of the capital from Tehran to the Makoran Coast, content analysis was used. In the interpretive structural modeling section, the opinions of academic experts in the field of land-use planning were used through the Delphi method. In this research, the data collection tools are interviews and paired comparison questionnaires, and face validity criteria were used to assess and evaluate the validity of the questionnaire or any assessment tool. Interpretive Structural Modeling (ISM) is a systematic and structured method for establishing relationships and understanding the relationships between the elements of a complex system, introduced by Warfield in 1974. ISM is an interactive process in which a set of different and related elements are structured in a comprehensive systematic

model. This method examines the complex relationships between the elements of a system; in other words, it is a tool by which a group can overcome the complexity between elements (Akbari et al., 2020: 197). This methodological framework helps to create and direct the complex relationships between the elements of a system. The main idea of interpretive structural modeling is to decompose a complex system into several subsystems, using practical experience and expert knowledge to build a multi-level structural model.

Sampling Method: The Delphi method and the Interpretive Structural Modeling method require that information be received and analyzed from experts and specialists. For selecting the Delphi group and the ISM group, since the goal is not to generalize the results, purposive sampling was used. The criteria for selecting experts are theoretical mastery, practical experience, willingness and ability to participate in the research, and accessibility. A notable point in determining the number of experts is ensuring the comprehensiveness of different viewpoints in the research. The number of experts participating in ISM in the

reviewed articles is usually chosen between 14 and 20 people (Akbari et al., 2020: 198). According to the above criteria, finally, 20 experts and specialists in the field of land-use planning were selected to participate and cooperate in the research process.

Content Validity: Using content analysis, the challenges affecting the relocation of the capital from Tehran to the Makoran Coast were identified, and Interpretive Structural Modeling (ISM) was performed to interpret the relationships between those dimensions and factors; because this model is a suitable establishment method for identifying and analyzing the relationships between dimensions and factors. The content validity of the questionnaire in this research refers to the extent to which an instrument reflects the specific content intended. Based on the Lawshe method, to establish content validity in the questionnaire, first, by reviewing the literature in the field of study, the content domain and the items of the questionnaire structure are compiled, then the members of the content panel are asked to answer the suitability of each item by selecting one of the three options: "essential," "useful but not essential," or "not necessary." Accordingly, with the help of formula number one, the content validity ratio is calculated, and according to the required level for statistical significance ($p < 0.05$), a minimum of 0.75 is obtained for each stage for its acceptance. For example, the content

validity ratio for the challenges affecting the relocation of the capital from Tehran to the Makoran Coast is 0.8.

Reliability: The test-retest method was used to assess the reliability of the ISM questionnaire. Accordingly, the questionnaire was sent again to 3 experts and specialists who were available again. Finally, the total correlation of the responses announced by the experts for both stages was calculated to be 0.789. This index confirms that the questionnaire has acceptable reliability.

Results and Discussion

Initial Challenges Affecting Capital Relocation from Tehran to the Makoran Coast

In this research, content analysis was used to identify the challenges of relocating the capital to the Makoran Coast. Subsequently, 14 important challenges related to the relocation of Iran's capital to the Makoran Coast from a land-use planning perspective were identified and enumerated. These challenges have been categorized into three dimensions—environmental sustainability, economic sustainability, and social sustainability—based on the scientific and theoretical gaps identified in the research background. Each challenge is summarized and defined operationally in Table 2 to provide a clear understanding of the obstacles and opportunities facing this national project (Table 2).

Table 2. Identified Challenges Affecting Capital Relocation on the Makoran Coast

Row	Challenge	Operational Definition	Environmental Sustainability	Economic Sustainability	Social Sustainability
1	Scarcity of Fresh Water Resources	Limitation of fresh water resources and increasing demand for water.	Reduction of groundwater reserves and drying up of rivers.	Increased costs of water extraction and transfer.	Social tensions due to water scarcity and inequality in distribution.
2	Climate Change	The impact of rising temperatures, reduced rainfall, and rising sea levels on the region.	Increased risk of drought, reduced water resources, and ecosystem degradation.	Increased costs of providing water and energy.	Reduced quality of life and increased environmental migration.
3	Lack of Basic Infrastructure	Lack of transportation, energy, and communication infrastructure in the region.	Increased pressure on natural resources for infrastructure construction.	Need for large-scale investment for infrastructure development.	Delays in regional development and reduced welfare of local residents.
4	Environmental Degradation	Loss of natural habitats and biodiversity.	Destruction of mangrove forests, marine pollution, and coastal erosion.	Reduction in tourism and fishing revenues.	Loss of environment-dependent jobs and reduced welfare of the local community.

Row	Challenge	Operational Definition	Environmental Sustainability	Economic Sustainability	Social Sustainability
5	Housing and Accommodation Provision	The need to build housing for the new population and its impact on the environment.	Destruction of natural lands for housing construction.	Increased construction and housing provision costs.	Creation of slums and inequality in access to housing.
6	Energy Security	Dependence on external and unstable energy sources.	Increased pollution from the use of fossil fuels.	Increased costs of providing sustainable energy.	Dependence on imported energy and reduced national security.
7	Environmental Pollution	Increased air, water, and soil pollution due to urban and industrial development.	Reduced air and water quality, increased environmental diseases.	Increased health and environmental cleanup costs.	Reduced quality of life and increased social dissatisfaction.
8	Unbalanced Regional Development	Concentration of development on the Makoran Coast and neglect of other regions.	Excessive pressure on the region's natural resources.	Increased economic inequality between regions.	Increased migration to the region and the creation of slums.
9	National Security and Defense	Security challenges arising from the region's geographical location.	The impact of military activities on the environment.	Increased security and defense costs.	Security concerns and reduced sense of security in society.
10	Transportation and Accessibility	Challenges related to the movement of people and goods in a remote region.	Increased pollution from transportation and fuel consumption.	Increased logistics and transportation costs.	Reduced access to essential services and increased regional inequality.
11	Job Creation and Income	The challenge of creating sustainable jobs for the new and local population.	Pressure on natural resources to create environment-dependent jobs.	Need for investment in new economic sectors.	Increased unemployment and social dissatisfaction if sustainable jobs are not created.
12	Waste and Wastewater Management	Lack of waste and wastewater management systems in the region.	Soil and groundwater pollution.	Increased costs of waste management and wastewater treatment.	Increased pollution-related diseases and reduced quality of life.
13	Attracting Domestic and Foreign Investors	Creating suitable conditions to attract private and public sector participation in financing development projects.	Reducing pressure on natural resources through investment in green technologies.	Increased investment in infrastructure and creation of economic opportunities.	Increased investment in infrastructure and creation of economic opportunities.
14	Natural Resource Management	Planning and implementing measures for the conservation and sustainable use of natural resources such as water and soil.	Preventing the destruction of natural resources and reducing pollution.	Reducing the costs of environmental degradation.	Increased welfare of the local community through the conservation of natural resources.

Source: Motaghi Dastnaei et al., 2013; Mousavi and Bagheri Koshkouli, 2015; Miraei et al., 2016; and authors' library research, 2025

Structural Self-Interaction Matrix (SSIM)

After identifying the challenges affecting the relocation of the capital from Tehran to the Makoran Coast, these challenges were entered into the Structural Self-Interaction Matrix (SSIM). Interpretive Structural Modeling suggests using expert opinions based on various management techniques, including

brainstorming, nominal group technique, etc., in developing the contextual relationships between factors. Therefore, this matrix was formed using four types of conceptual relationships and was completed by experts. The resulting information was summarized based on the Interpretive Structural Modeling method, and the final Structural Self-

Interaction Matrix was formed. The symbols and states used in this conceptual relationship are (Table 3).

Table 3. Structural Self-Interaction Matrix

I \ j	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
C1	-	V	V	X	V	V	V	V	V	X	V	V	V	V
C2		-	X	V	V	V	V	V	X	V	V	V	V	V
C3			-	A	X	V	A	V	X	X	V	X	X	O
C4				-	V	V	A	X	A	A	X	V	V	X
C5					-		V	V	O	A	V	V	X	X
C6						-	A	V	A	A	A	V	A	O
C7							-	X	A	A	O	V	A	X
C8								-	A	X	A	V	V	X
C9									-	X	A	V	O	V
C10										-	X	V	O	V
C11											-	A	O	X
C12												-	X	A
C13													-	O
C14														-

Source: Research Findings, 2025

Initial Reachability Matrix

The initial reachability matrix is obtained by converting the Structural Self-Interaction Matrix into a binary (zero-one) matrix. To extract the reachability matrix, in each row, the number one must replace the symbols V and X, and the number zero must replace the symbols

A and O in the initial reachability matrix. After converting all rows, the result is called the initial reachability matrix. Then, the secondary relationships between dimensions/indicators were checked. A secondary relationship is such that if dimension J leads to dimension I, and dimension K leads to J, then dimension J will lead to dimension (Table 4).

Table 4. Initial Reachability Matrix

j I	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
C1	-	1	1	1	1	1	1	1	1	1	1	1	1	1
C2	0	-	1	1	1	1	1	1	1	1	1	1	1	1
C3	0	1	-	0	1	1	1	1	1	1	1	1	1	0
C4	1	0	1	-	1	1	1	1	0	0	1	1	1	1
C5	0	0	1	0	-	1	1	1	0	0	1	1	1	1
C6	0	0	0	0	0	-	1	1	0	0	0	1	0	0
C7	0	0	1	1	0	1	-	1	0	0	0	1	0	1
C8	0	0	0	1	0	0	1	-	0	1	0	1	1	1
C9	0	1	1	1	0	1	1	1	-	1	0	1	0	1
C10	1	0	1	1	1	1	a	1	1	-	1	1	0	1
C11	0	0	0	1	0	1	0	1	1	1	-	1	0	1
C12	0	0	1	0	0	0	0	0	0	0	1	-	1	0
C13	0	0	1	0	1	1	1	0	0	0	0	1	-	0
C14	0	0	0	1	1	0	1	1	0	0	1	1	0	-

Source: Research Findings, 2025

Final Reachability Matrix

After forming the initial reachability matrix of the challenges affecting the relocation of the capital from Tehran to the Makoran Coast, by incorporating transitivity into the relationships between the variables, the final reachability matrix is formed to make the initial reachability matrix consistent. Thus, if (i,j) are related to each other, and (j,k) are also related to each

other, then (i,k) are related to each other. In this step, all secondary relationships between the variables are examined, and the final reachability matrix is obtained according to Table 5. In this matrix, the driving power of each variable is the final number of variables (including itself) that it can play a role in creating. The dependence is the final number of factors that cause the mentioned variable (Table 5).

Table 5. Final Reachability Matrix

j I	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	Driving Power
C1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	13
C2	0	-	1	1	1	1	1	1	1	1	1	1	1	1	12
C3	0	1	-	0	1	1	1	1	1	1	1	1	1	0	10
C4	1	0	1	-	1	1	1	1	0	0	1	1	1	1	9
C5	0	0	1	0	-	1	1	1	0	0	1	1	1	1	8
C6	0	0	0	0	0	-	1	1	0	0	0	1	0	0	3
C7	0	0	1	1	0	1	-	1	0	0	0	1	0	1	6
C8	0	0	0	1	0	0	1	-	0	1	0	1	1	1	6
C9	0	1	1	1	0	1	1	1	-	1	0	1	0	1	9
C10	1	0	1	1	1	1	1	1	1	-	1	1	0	1	9
C11	0	0	0	1	0	1	0	1	1	1	-	1	0	1	7
C12	0	0	1	0	0	0	0	0	0	0	1	-	1	0	3
C13	0	0	1	0	1	1	1	0	0	0	0	1	-	0	5
C14	0	0	0	1	1	0	1	1	0	0	1	1	0	-	6
level of depend ency	2	2	8	7	6	9	9	10	4	5	7	12	6	8	

Source: Research Findings, 2025

In Table 5, the driving power (the extent of the influence of each of the factors on other factors) of the 14 identified factors in the challenges affecting the relocation of the capital from Tehran to the Makoran Coast is given. The results indicate that the scarcity of fresh water resources with a driving power of 13, climate change with a driving power of 12, and the lack of basic infrastructure with a driving power of 10 will act as the main and key challenges affecting the relocation of the capital from Tehran to the Makoran Coast.

Level Partitioning of Challenges Affecting Capital Relocation from Tehran to the Makoran Coast

In this stage of the research, after the final reachability matrix, the challenges are categorized into different levels. To determine the level of factors in the final conceptual framework, three sets of reachability set, antecedent set, and intersection set are formed for each of them. In the first table, factors whose reachability set and antecedent set are the same are considered as the intersection set in the hierarchy process, so that these challenges are not effective in creating any other factor. After identifying the highest level, those factors are removed from the list of other challenges. These repetitions continue until the level of all challenges is determined (Table 6).

Table 6. Level Partitioning of Challenges Affecting Capital Relocation from Tehran to the Makoran Coast

Code	Factors/Challenges	Reachability Set	Antecedent Set	Intersection Set	Level
C1	Scarcity of Fresh Water Resources	2-3-4-5-6-7-8-9-10-11-12-13-14	4-10	4-10	Ninth

C2	Climate Change	3-4-5-6-7-8-9-10-11-12-13-14	1-3-9	3-9	Eighth
C3	Lack of Basic Infrastructure	2-5-6-7-8-9-10-11-12-13	4-5-7-9-10-12-13	5-7-9-10-12-13	Seventh
C4	Environmental Degradation	1-3-5-6-7-8-11-12-13-14	7-8-9-10-11-14	7-8-11-14	Sixth
C5	Housing and Accommodation Provision	3-6-7-8-11-12-13-14	1-2-3-4-10-13-14	3-13-14	Fifth
C6	Energy Security	7-8-12	1-2-3-4-5-7-9-10-11-13	7	First
C7	Environmental Pollution	3-4-6-8-12-14	1-2-3-4-5-6-8-9-13-14	3-4-6-8-14	Third
C8	Unbalanced Regional Development	4-7-10-12-13-14	1-2-3-4-5-6-7-9-10-11-14	4-7-10-14	Third
C9	National Security and Defense	1-2-3-4-6-7-8-10-12-14	1-2-3-10-11	1-2-3-10	Sixth
C10	Transportation and Accessibility	1-3-4-5-6-8-9-11-12-14	1-2-3-8-9-11	1-3-8-9-11	Sixth
C11	Job Creation and Income	4-6-8-9-10-12-14	1-2-3-4-5-10-12-14	4-10-12	Fourth
C12	Waste and Wastewater Management	3-11-13	1-2-3-4-5-6-7-8-9-10-11-13-14	3-11-13	First
C13	Attracting Domestic and Foreign Investors	3-5-6-7-12	1-2-3-4-5-8-12	3-5-12	Second
C14	Natural Resource Management	4-5-7-8-11-12	1-2-4-5-7-8-9-10-11	4-5-7-8-11	Third

Source: Research Findings, 2025

As can be seen in Table 6, the challenges affecting the relocation of the capital from Tehran to the Makoran Coast are classified into 9 levels. In the ISM graph, the reciprocal relationships and influence between factors and the relationship of challenges at different levels are clearly visible, which leads to a better understanding of the decision-making and

policymaking space. It should be noted that all these mentioned factors are among the most important key challenges in the relocation of the capital from Tehran to the Makoran Coast in the country, but the challenges that are at the higher level of interpretive structural modeling have a greater impact. (Fig 2).

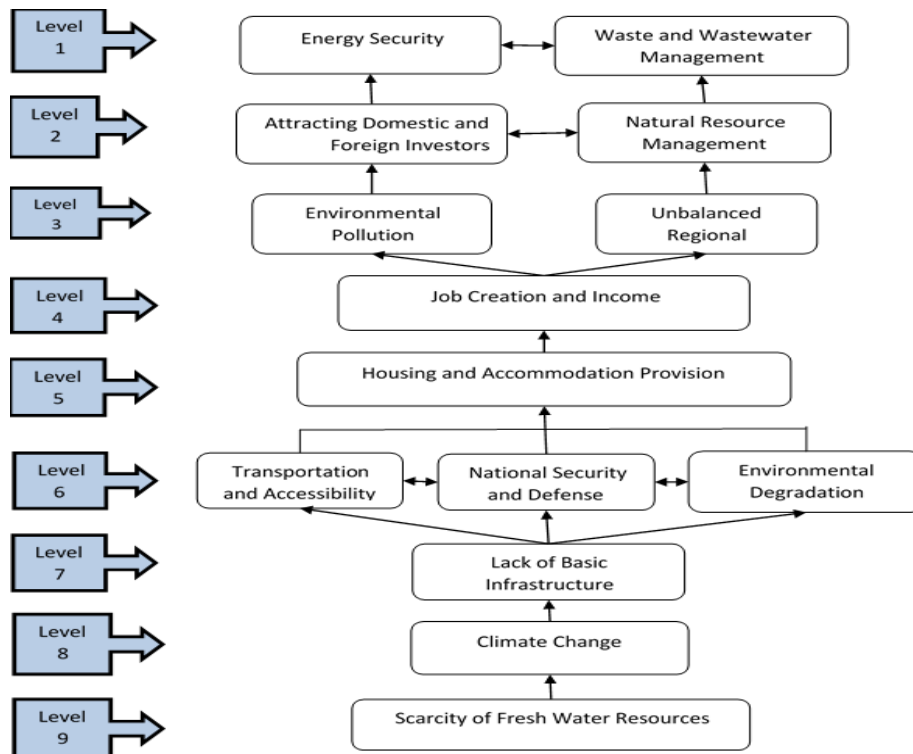


Figure 2. Interpretive Structural Model of the Challenges Affecting Capital Relocation from Tehran to the Makoran Coast

As observed in Table 6, the challenges affecting the relocation of the capital from Tehran to the Makoran Coast are classified into 9 levels. The ISM graph clearly shows the reciprocal relationships and influence between factors and the relationship of criteria at different levels, which leads to a better understanding of the decision-making space on the subject under study. It should be noted that all these mentioned challenges are among the most important key challenges in the relocation of the capital from Tehran to the Makoran Coast in the country, but the challenges that are at the higher level of interpretive structural modeling are more influenced.

Conclusion

In this article, the key challenges affecting the relocation of the capital from Tehran to the Makoran Coast from a land-use planning perspective were examined. The research results showed that among the 14 identified challenges in the dimensions of environmental, economic, and social sustainability, three challenges—scarcity of fresh water resources (with a driving power of 13), climate change (with a driving power of 12), and lack of basic infrastructure (with a driving power of 10)—act as the main and key challenges. The scarcity of fresh water resources has the greatest impact on economic development, the environment, and quality of life and requires comprehensive planning and large-scale investment. Climate change, with its widespread effects such as drought, ecosystem degradation, and increased costs of dealing with natural disasters, also requires immediate action. The lack of basic infrastructure has also hampered the development of the region and limits investment attraction and access to essential services. These challenges show that relocating the capital to the Makoran Coast is a complex project that requires special attention to environmental, economic, and social dimensions, as well as comprehensive participation to achieve sustainable development. Therefore, considering the identified challenges, a complete relocation of the capital does not seem to be the most logical solution; instead, transferring some of the capital's functions to other cities, along with internal organization of Tehran and balanced development of other regions of the country, is

a better solution to reduce pressure on Tehran and solve its problems.

Based on the results of this research and other domestic and foreign scientific research, the complete relocation of the capital in Iran, including to the Makoran Coast, does not seem feasible or logical for several reasons. First, this action requires massive investment in infrastructure and administrative buildings in the new city, which is unjustifiable given the country's economic constraints. Studies such as those by Hafeznia (2015) and Nobari and Rahimi (2009) have emphasized that a complete relocation of the capital can create a pause in the development of other regions of the country. Second, global experiences show that relocating the capital may transfer the problems of metropolises to other regions. For example, Brasilia in Brazil and Astana in Kazakhstan faced problems such as class divisions and environmental pollution after the capital relocation. The research by Eskandari Sani and Rasti (2011) also pointed out that a complete relocation of the capital can create new social and environmental crises.

Furthermore, a complete relocation of the capital does not necessarily mean reducing centralization. Studies such as the one by Jomehpour (2015) have shown that this action only transfers the focus from one city to another and does not solve the country's structural problems. Also, a complete relocation of the capital can create social and cultural dissatisfaction among residents of Tehran and other regions, especially for government employees who are forced to relocate. The research by Nobari and Rahimi (2009) pointed out that the resistance of government employees to relocation is one of the main obstacles to capital relocation.

From a geopolitical and security point of view, Tehran is known as the political and security center of the country due to its special location. A complete relocation of the capital can weaken this position and create new security challenges. Hafeznia's research (2015) emphasized that the relocation of the capital should be done considering the macro structure of the country and its governing values, which is not very feasible at present.

The results of the research by Mousavi and Bagheri Koshkouli (2015) also point out that Tehran, due to its political position and extensive infrastructure, is a centralizer of

many industrial and service activities. This high economic concentration has created many job opportunities, which in turn has increased migration to Tehran. This migration trend has exacerbated environmental and social problems and raised discussions about the relocation of the capital. This research shows that a complete relocation of the capital does not seem to be the most logical solution; instead, transferring some of the capital's functions to other cities, along with internal organization of Tehran and balanced development of other regions of the country, is a better solution to reduce pressure on Tehran and solve its problems.

The results of the research by Rostami et al. (2020) also show that the relocation of the capital, although attractive in terms of regional development and the use of the geographical capacities of the region, will be accompanied by major challenges. These challenges include the lack of necessary infrastructure, high relocation costs, social and cultural resistance, and security and geopolitical risks. This research also emphasizes that a complete relocation of the capital without careful planning and land-use planning can create new inequalities and exacerbate economic and social problems in the Makoran region.

Therefore, according to the results of this research and other mentioned researches, it is suggested that instead of relocating the capital from Tehran, the management of the capital and decentralization of it should be reviewed in urban and national development policies. Global experiences in the field of capital relocation, such as those in South Korea, Brazil, Malaysia, and Pakistan, have mainly shown the failure of countries in this regard. These failures are due to the lack of accurate identification of the problems of metropolises and the inability to organize urban functions. However, some countries such as Germany and Australia have had successes in this area, but due to the structural administrative-political and territorial

differences of Iran, these experiences are not applicable to Iran. Also, to organize the capital and reduce the problems caused by over-centralization in Tehran, the following actions are suggested to be prioritized: First, preparing and implementing a comprehensive plan for Tehran with the aim of identifying problems, prioritizing them, and taking comprehensive measures by responsible institutions. Second, serious cooperation and coordination between national and local institutions in integrated urban management. Third, taking physical and physical measures such as changing urban planning patterns, vertical development of Tehran instead of horizontal expansion, and developing public transportation, especially underground and monorail systems. Also, attention to culturalization and education on the use of advanced technologies, strengthening the specialized and executive capacity of local institutions, involving people in important urban decisions, and decisiveness in strategic decisions related to the metropolis of Tehran is necessary.

In addition, decentralization policies from the perspective of land-use planning from Tehran should be considered as one of the main priorities in national and local planning. Implementing scientific and comprehensive measures in the field of feasibility study and prioritization of decentralization of capital functions, developing suitable areas for attracting population (such as coastal areas, ports and southern islands, including the Makoran Coast), supporting industrialists and producers in deprived provinces, and strengthening small cities through regional and local policymaking are among the key solutions to reduce pressure on Tehran and create balance in territorial development. Finally, these approaches can help create balance in national development and reduce the problems caused by over-centralization in the capital.

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