European Online Journal of Natural and Social Sciences 2024; www.european-science.com
Vol.13, No 4 (s) Special Issue on Natural Hazards and the Ways of Resilience
ISSN 1805-3602

How to Estimate the Risk of Failure of Urban Renewal Projects from the Economic and Managerial Aspects

Seyyed Arash Sohrabi
Department of Education, Construction Engineering Organization of East Azerbaijan Province, Iran
*Email: arash.sohrabi85@gmail.com

Abstract

One of the important goals of crisis management is increasing the welfare level and establishing social justice in society. One of the ways to establish social justice is to renovate worn-out urban structures. Worn-out fabrics, despite having great economic and social capacities and rich human and environmental resources, are struggling with many social and economic problems such as rising unemployment, low social status of residents, insecurity, poverty, and low level of health, which increases the need to invest in the renovation of worn-out structures. On the other hand, in all projects, there are a series of obstacles that disrupt the process of realizing project goals. These obstacles are the same problems and risks that we face during the stages of designing, compiling, implementing, and operating the project. Therefore, the process of identifying and managing the risk of this category of projects is very important. In this study, an analysis of the existing solutions for risk management of this category of projects has been presented and, if possible, new solutions have been introduced. As you know, worn-out urban structures cause a series of social and economic problems and anomalies, such as: Rising unemployment, low social status of neighborhood residents, insecurity, poverty, and low level of health. On the other hand, one of the goals of society is to raise the welfare level and implement social justice in society. In this regard, projects have been defined under the title of renovation projects of worn-out urban structures. On the other hand, every project has a set of goals, the failure of which means the failure of the project. The factors of project failure are the problems and risks that we face during the project stages. For this reason, it is very important to identify and manage the risk of this category of projects.

Keywords: Risk, Risk Management, Crisis, Tehran, Urban Regeneration Projects.

Introduction

Risk management is an active and dynamic method that responds to ifs. The project management raises the different ifs of each work department, examines the effects of the event and the ifs, and finally adopts a logical response in the exchange of ifs, to have a positive effect on the project goals (Gheitarani, N., et al., 2020). It is clear that the unpredictable events that are called risks according to the definition; occur during the life of the project and some of them can cause new damage to the project. Therefore, the theory of risk management is proposed as a technique for dealing with unpredictable events and controlling such events (Dehghan S., 2024).

Renovation projects of dilapidated structures are affected by many uncertainties, which threaten the realization of the project's goals, due to the high complexity, diversity of executive areas, and multiple stakeholders (Dizaji, A. et al., 2023). In this type of project, due to the high costs and changing environment, the functional requirements may change several times due to dependence on restrictions and multiple stakeholders, the correct management of project risks is one of the key points. The risk of urban renovation projects has different dimensions, including economic risk, risk of managing older customers, risk of laws and regulations, and risk of construction technology.

In this research, we deal with risk management and economic risks of these types of projects (MM Norouzian & N Gheitarani, 2023).

In this research, firstly, the types of economic risks of urban renovation projects and their risk management solutions were introduced, and then we analyzed the existing solutions to manage these risks. Also, this research has tried to provide new and efficient solutions for risk management, and economic risks of this category of projects (Karimimansoob et al., 2024- a). Establishing a partnership company, obtaining minimum legal guarantees from financial partners, blocking credits and dealing with the contractor, and even in some cases terminating the contract in case of delay in completing the project, accurately estimating housing prices at the time of completing the project and developing possible scenarios, using all social capacities (Zakerhaghighi et al., 2015). Existing in the neighborhood to renovate the worn-out fabric, establish urban renewal schools, and local management as the most important risk reduction and management factors, economic risks in urban renewal, are the main results of this project (Norouzian & Gheitarani, 2023).

Dilapidated context refers to areas within the legal boundaries of cities that are vulnerable due to physical wear and tear, lack of proper access, lack of services and urban infrastructures, and have low spatial, environmental, and economic value (Norouzian & Gheitarani, 2024). The process of intervention in worn-out urban tissues takes place in three ways:

a) Improvement means improving the condition of the tissue and its internal elements. Improvement takes place when the relative exhaustion of the space has occurred in terms of functionality.

b) Renovation is done when the urban space, complex, or building has a proper function, but the relative wear and tear of the physical space has reduced its efficiency and effectiveness.

c) Reconstruction means rebuilding. Renovation takes place when the building, complex, or urban space is completely worn out (Gheitarany, N., et al., 2013- b).

Worn tissues have a series of features and characteristics that can be used to identify the range of these tissues, including:

- Lack of strength of buildings against earthquakes.
- Inefficiency of existing facility networks.
- Access network inefficiency.
- Lack of security.
- Low land value.
- High density (Norouzian M. M., et al., 2024).

According to the aforementioned characteristics, the identification and risk management of this category of projects is of great importance (Naghibi Iravani, S., et al., 2024 -b).

Theoretical

The main elements of risk. All forms of risk have common elements that include the following four elements:

Content: means the environment or situation in which the risk is intended. The content provides an overview of all measured outcomes.

1. If the appropriate content is not determined, it is not possible to determine which of the faa. Conditions and consequences should be considered in the risk analysis of management activities.

2. ***Activity element***: work or event that causes risk. Activity is considered as an active element of risk and it must be combined with one or more special conditions for risk to appear. All types of risk are created with an activity, without this element it is possible to create zero risk (Karimimansoob, V. et al., 2024- c).

3. ***Conditions***: In contrast to activity, which is an active element of risk, conditions are considered as a passive element of risk. Conditions are a set of circumstances that can create risk. Conditions can lead to the creation of a set of consequences or outputs if combined with a specific initiating activity (Gheitarani, N., et al., 2024- a).

4. ***Consequences***: The potential results or effects of an activity in combination with a specific condition or conditions (Farrokhirad & Gheitarani, 2024).

On the other hand, some other groups of researchers believe that the main elements of risk include the following three main elements:

a. ***Factors***: Factors are phenomena that are potential causes and obstacles to achieving project goals. An event or accident is caused by potential factors (Sadigh Sarabi, M., et al., 2024. -b). These factors may be related to each other or connected in a chain.

b. ***Event***: events or occurrences are the main causes and obstacles to achieving a goal that disturbs the natural cycle of the project, such as problems in negotiations for the acquisition of project land or an increase in workload (Aghazadeh, M. et al., 2018).

c. ***Effect***: It is the result of an event such as increasing the cost and time of the project (Norouzian, M. M., & Sarabi, 2023).

Risk measurement methods. Various indices are used to express fluctuations, some of the most important of which are: range of changes, average linear deviation, variance, standard deviation, semi-variance, semi-standard deviation, semi-variance, beta index, asset or value at risk (VaR), (Naghibi Iravani, S., et al., 2024 -a). In the following, we will describe some of these criteria:

Standard deviation. In the standard portfolio optimization method, the risk of a single asset is calculated by the deviation of the return of that asset:

$$\sigma = \sqrt{E[R_i - u)^2]}$$

In the above relationship, Ri and u represent the asset return in period i and the average asset return, respectively.

Variance$\sigma_{iM} = E\ [(R_i\ - \mu_i)(R_M - \mu_M)$

Beta$\beta_i = \frac{\sigma_i M}{\sigma_M^2}$.

Value at risk (VaR)

It is from the family of unfavorable risk size criteria and expresses the maximum expected loss of a portfolio for a specific time horizon according to a certain confidence interval (Aghazadeh, M. et al., 2019). The maximum possible loss of a portfolio is measured according to the loss density function denoted by f. The value at risk is the quantile of the f function at critical levels (α=0.01, 0.05). By definition:

$$P\ (\ Loss\ \leq VaR) = \int_0^{VaR} f(L)dL = 1 - \alpha$$
$$VaR\ (1-\alpha) = F^{-1}(1-\alpha)$$

The purpose of using this method is to maximize the value of the portfolio, which can experience profit or loss in a certain period with a certain level of confidence:

$$W_1 = W_0(1 + r_1)$$

In the above relationship, r is the growth rate or profit and loss coefficient of the portfolio.

$$\Delta W = W_1\ - W_0 =\ r_1 W_0$$

Now, if we raise the assumption of increasing the period of calculation efficiency, a time series will be created. In this case, according to the definition of VaR at the α-1 confidence level, it is equal to:

$$P(\ \Delta W \leq VaR) = 1 - \alpha$$
$$P(\ r \leq VaR) =\ \int_0^{VaR} f(r)d(r) = 1 - \alpha$$
$$VaR_r =\ F^{-1}(1-\alpha)$$

In the above relationship, f(r), the probability distribution function of portfolio change rate and VaR is equal to the critical change rate. There is a portfolio value for each rate of change r, and for a critical rate of return *r, there is also a portfolio value at the critical level α-1, which we denote by *W. As a result, we will have (Khanian, M., et al., 2019):

$$VaR = E\ (W) - W^*\ = -W_0(r^* - \mu)$$
$$VaR = W_0\ - W^* = -W_0 r^*$$

Basics of risk identification. It is never possible to identify all the risks that the project may face. These proofs are as follows: unidentifiable and predictable nature of some projects. Some risks are inherently unidentifiable and predictable because these risks are caused by our lack of knowledge. These risks are the result of an event.

- ***Emerging risks***: This category of risks appears after a series of actions that are supposed to be performed in the future, and now they are hidden due to the non-performance of those actions.
- ***Future risks***: Future risks are uncertain events or conditions that have not happened yet and cannot be predicted from the perspective of this point in time.
- ***Hidden or undetectable risks***: This group of risks is caused by the decisions or choices of "invisible stakeholders." These people include those people or groups that can affect the project but are hidden or unrecognizable from the eyes of people who try to identify risks.
- ***Always hidden risks***: For example, people cannot understand the risks caused by their psychological or emotional tendencies or patterns. These risks are incomprehensible and unobservable to them (Norouzian & Sarabi, 2023).

Methodology

The method of determining risk groups. There are different methods for risk classification, such as Main and secondary classification, based on their impact on project goals, classification based on the risk control unit, and finally based on the origin of risks (Zaker Haghighi et al., 2014). To identify risk and manage it, the best method is to determine risk groups based on their origin. For example:

External risks. These are divided into two categories, including:

a. ***Unpredictable such as changes in laws, and natural disasters***. Risks beyond the control of managers or their organizations that are completely unpredictable. Their list can be specified, but it is impossible to say which one of them we will encounter in a particular project. These risks can be caused by actions of the government or external groups, force majeure events, or failure to complete the project due to external influences. The intervention of the government or the intervention of regulatory organizations can be related to the provision of raw materials or finished goods, environmental needs, or pricing. The actions of external groups can also include disruptions or work disturbances. Forced events include cases of earthquakes, floods, or shipwrecks, and finally, external organizations cannot provide infrastructure or financial support, bankruptcy, or inappropriate design that can lead to the failure of the project (Sadigh Sarabi, M., et al., 2023- a).

b. ***Predictable but not assessable, such as market risks, inflation, and access to primary resources***. These risks are beyond the control of managers or their organizations, and we expect to face them, but their extent and extent is not known. The risks of this group are of two types:

The first is related to the activities related to the supply of raw materials, goods, and services, which includes prices, inventory, and demand. The second is related to financial policies that affect money circulation, inflation, and taxes. These risks also include operational requirements such as maintenance, and environmental factors such as water, air, and social impacts. Internal risks, themselves are divided into two categories:

a. ***Non-technical such as management, and scheduling***. These risks are under the control of project managers or their organizations and are non-technical. This group of risks is usually caused by the failure of the project organization's resources (people, materials, and financial resources) to achieve the expected performance and can cause delays in the schedule, increases in costs, or interruptions in the flow. Project liquidity (Sadigh Sarabi, M., et al., 2023- b).

b. ***Technical like***. Changes in technology, performance, and design issues are those that are directly related to technology, design, construction, and operation of facilities or final product design. These risks can be caused by changes or failure to achieve the desired performance (Gheitarani, N., et al., 2013- a).

Legal risks: licenses, royalties, contractual issues.

According to what is common in Iran, there are two types of legal risk: Risks related to government laws and regulations or internal regulations of organizations and risks related to signed contracts and agreements and related obligations. Investigating the source of risk in projects (Sadigh Sarabi, M., et al., 2024. -a). The PRINCEZ standard has provided two definitions for the project, the first of which focuses on the project's goals and the other on the project's characteristics. In terms of objectives, this standard defines a project as a management environment that is created to deliver one or more business products in a specific business situation (Gheitarani, N., et al., 2024- c). Elsewhere and according to the characteristics of the project, it is considered a temporary organization that must create a unique and predetermined result with a predetermined time and specific resources.

It can be said that a project is a set of activities designed to achieve a specific purpose or goal. Projects include activities that must be completed on certain dates, with certain costs and determined quality; the success of any project requires the achievement of all three factors of time, cost, and certain quality, otherwise, the project will become an unsuccessful and uneconomic project (Dehghan S. et al., 2024).

What happens in projects? According to experts, there are features in the project structure that naturally make projects risky. Some of these features are described below:

Uniqueness: several elements and components in the project that have not yet been realized.

Items produced or resulting from the project: products or services produced by a project to achieve the goals and benefits expected from its implementation.

Assumptions: Assumptions about various aspects of the project and its environment, which either explicitly or implicitly exist in the minds of the project agents and are the basis for decision-making and definition of project specifications (Gheitarani, N., et al., 2024- b). These items may not be correct and unrealistic in practice. Objectives and requirements: Sometimes the reason for the occurrence of risk in the project is the conflict between the criteria that determine the success of the project. Different stakeholders of the project: sometimes the demands, needs, changing and overlapping goals, and even conflict between the goals of the project stakeholders including project team members, project management, customers, suppliers, and contractors. Second, unpredictably causes risk (Ghadarjani et al., 2013- b).

Environment: the environment in which the project is carried out, which includes the environment of the project itself and the environment of its organization, or even the wider environment of society that is affected by people, political, social, economic, and moral factors. Some experts believe that, like the structure of risk failure, a structure can be defined and structured for the sources of risk occurrence, and it can be applied and used to understand the relationship and risk management. In the simplest form and possible structure, a list of potential sources of risk can be prepared and headings under each source can be defined so that the risks can be sorted based on them. Several institutions have prepared brief collections to achieve this goal, which include:

- PEST (political, economic, social, and technological).
- PESTLE (PEST plus legal and environmental elements).
- PESTLEIED (PEST plus legal, international, environmental, and demographic elements).
- TECOP includes technical, environmental, commercial, operational, and political elements that are used to structure risks.

Table 1. General risk breakdown structure for projects

Level 3 RBS	**Level 2RBS**	**Level 1 RBS**	**Zero level RBS**
Past/experiences/culture	Company	Management	Project risk
Organizational stability			
finance			
etc			
Past/experiences/culture			
contractual			
Definition of demands and their stability			

Level 3 RBS	Level 2RBS	Level 1 RBS	Zero level RBS
etc	Customer and stake-holders		
physical environment			
facility/building			
Local services			
etc	Natural environment		
political			
legal			
Interest groups			
etc			
labor market			
Labor conditions			
Economic market			
etc	Organizational environ-ment	Technology	
scope of work			
Terms of Use			
Complexity			
etc			
Technology maturity			
Limitations of technology			
Etc.	Economy		
Organizational experience			
Experiences and skills of employees			
physical resources			

Source: Naghibi Iravani, S., et al., 2024 -c

Results

The successful completion of a project depends on the accurate analysis of possible risks in adverse conditions during the economic life of the project, and until the project is operational, risks can erupt during each phase of the project. In addition to the ability to pay debts, every project should have a suitable profitability so that investors are attracted to attend and invest in this project. The existence of various risks can affect the cash flows of the project, which, if not controlled, will lead to a lack of liquidity and ultimately non-payment of creditors' claims, and in this case, the project will face failure (Kahvand, M., et al., 2015).

Renewal projects of dilapidated urban structures, like other projects, always deal with the category of risk and uncertainty, especially in those projects that deal with the interests of people and society as potential shareholders. Risks create many difficulties and problems for the progress of the project and the benefit of the urban renewal process, which strongly affects each stage of the project. The lack of sufficient information in the field of risk and uncertainties related to urban re-newal projects causes disruptions in the progress and costs of the project and even the incomplete-ness of the project. Having said that, the risk analysis of this category of projects is considered a very important factor in the success of the project (Karimimansoob et al., 2024- b).

Hypothesis analysis. As we know, every project is developed based on several assumptions or scenarios. Hypothesis analysis is a method used to check the validity of used hypotheses. This method identifies risks caused by inaccuracy, inconsistency, and incompleteness of hypotheses, as well as testing project hypotheses in two dimensions (Sohrabi, S., 2024). The first dimension of instability, which means determining the probability of the chosen assumptions being wrong, and the second dimension, is sensitivity: that is, checking the impact of the wrongly chosen assumptions on the project goals. The steps of this method include:

- Identifying the specific environmental conditions of the project to discover those features and characteristics of the organization that require transparency and integrity for the people involved in the project.
- Identifying characteristics that are prone to lack of correct understanding and proper communication.
- Identifying and recording project hypotheses: this work is often done in the initial process of the project.
- Examining two aspects of instability and sensitivity: Each of these dimensions is evaluated qualitatively.

Graphical methods. If the diagrams are drawn well, they can provide organizations with more risk information and also increase the awareness of the project team.

Cause and effect diagram. This diagram is used to identify the causes and factors of each effect. The cause and effect diagram is very similar to the main and secondary bones of a fish, where the main bones represent the main risks and the secondary bones represent the secondary risks. The steps of using this method are:

- Determining hypotheses for analysis
- Drawing the initial structure of the diagram
- Identification of causes and effects: the main purpose of this diagram is to identify the main cause and then it is time to ask the question, what is the cause of this cause?

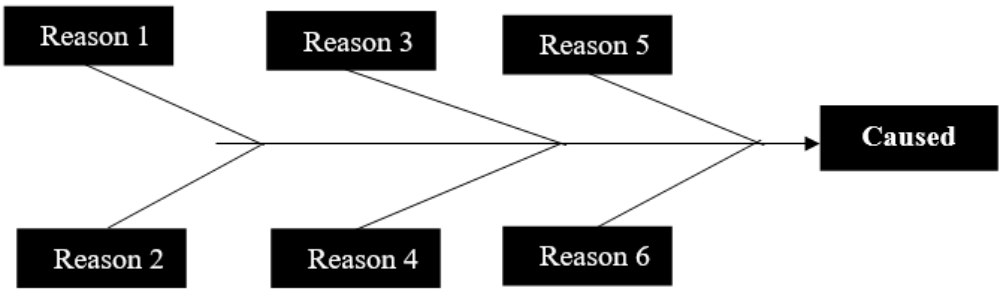

Figure 1. An example of a cause and effect diagram or fishbone
Sadigh Sarabi, M., et al., 2024. –d

Process flow diagram. In this diagram, common relationships, dependencies, and relationships between elements of a process or system are displayed.

The steps to use this chart include:

- Identifying relationships between process elements.
- Reviewing relationships to determine risk.

- There is always a possibility of risk after completing one stage of the project and starting the next stage. Finally, all known risks must be documented and kept for analysis.

Force field diagram. This diagram shows the positive and negative effects of pressures and potential risks as well as opportunities of a project or activity. The steps for using the force field diagram are:

- Providing a specific and clear definition of the desired conditions of the project or activity
- Identification of positive impacts by project team members
- Identify negative impacts
- Draw the results on the force field diagram

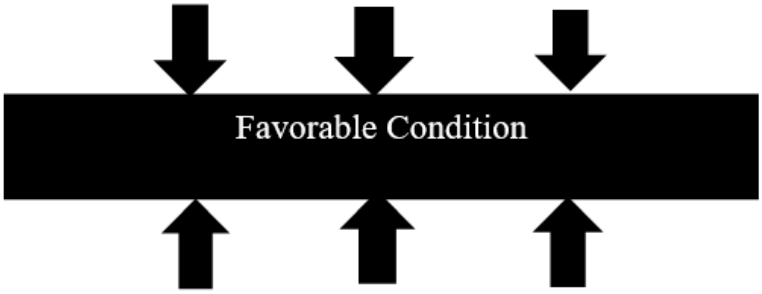

Figure 2. Risk Breakdown Structure (RBS)
Source: Khanian, M., et al., 2013

The risk breakdown structure is a hierarchical structure of potential risks that can provide valuable help in determining the risks ahead of the project. If such a structure is not prepared, the risk identification process seems very difficult and illogical. For each project, you can define your risk breakdown structure or use existing general risk breakdown structures. The main uses and advantages of this structure are:

- Helping to determine and identify risks.
- The highest level of RBS is used as a general list to cover project risks and the lowest level can be used as a checklist. This structure can also be used to classify risks identified by other methods.

Risk assessment: This structure is used to classify known risks based on the source of their creation. Therefore, with this work, the most important risk factors in projects are identified.

Comparison of alternatives: if this structure is used in tenders, RBS can be used to review and compare the offers.

Risk report: To prepare a report for senior management, the risk-failure structure can be summarized, and by using all levels of this structure, appropriate reports can be presented for working groups.

- ***Case reports.*** To ensure the potential capacity of short-term reaction in a company, there must be a system to provide the possibility of informing the management and the independent risk control unit of major short-term changes in the risk field. This can be done in the form of an in-

ternal web address using existing reporting methods for risk management or through informal systems that the company may wish to use.

- ***The output of the risk identification process.*** The output of this process is usually a document called "Risk Register." This book is a document containing the following contents:

- ***The list of identified risks***: In this document, the identified risks include the title of risks, separated by opportunities and threats, their root causes, the effects of risk on project goals, and the hypothesis. Uncertainties are described in the project.

- ***Root causes of risk***: These causes are fundamental conditions that may cause the emergence or escalation of identified risks.

- ***List of potential answers***: if identified, these answers can be useful as input for the risk response planning stage.

- ***Updating the risk-fracture structure***: the risk-identification process may lead to the identification of a new group of risks. Therefore, based on the results of this process, the risk-failure structure prepared in the risk management planning process may need to be modified or revised.

- ***The risk of urban renewal projects.*** Although summarizing the risk characteristics of urban renovation projects is not an easy task, the different types of risk in this group of projects can be divided into the following two categories:

- General risks of the project
- Specific risks of the project

- ***General risks of urban renewal projects.*** Before identifying the specific risks of urban renewal projects, it is necessary to emphasize that the general risks of various investments such as political, commercial and non-commercial risk, credit risk, market, liquidity, and the like are also prominent in these areas. We will describe some of these risks below:

- ***Political risk.*** Political risk is a sudden event that affects the status of active foreign organizations and companies. The political forces in a country can make fundamental and major changes in the state of the country, and these changes can affect the interests and other goals of foreign organizations and companies. Political risk may be macro or micro (Maleki, M., et al., 2024). Macro risk becomes relevant when all foreign institutions in a country are affected by political risks. Micro risk is also raised when some institutions and industries or even only some projects and plans are affected by risk.

- ***Business risk.*** The risk caused by doing business in a specific industry or a specific environment is called business risk. In other words, business risks are those that create competitive advantage and added value from the company's point of view for shareholders. This category of risks depends on the market of products and services in which the company operates, such as technological innovations, product design, and marketing.

- ***Operational risk.*** Risk is caused by inaccurate or faulty internal processes, people, and systems, or risk caused by external events. These risks are caused by human error, computer error, computer programs, errors in decision-making, and even losses caused by various types of embezzlement.

- ***Market risk.*** It is the change in yield that is caused by the general fluctuations of the market. Natural and legal persons keep their assets in various forms such as cash, stocks, bonds, real estate, gold, and other valuable assets, and all these assets are exposed to price fluctuations. The main factor is market risk. The most important types of market risk are as follows:
- ***Interest rate risk***: loss caused by interest rate fluctuations.
- ***Exchange rate risk***: loss caused by exchange rate fluctuations.
- ***Ownership risk***: loss caused by fluctuations in the market value of assets such as shares, goods, real estate, and real estate.
- ***Basis risk***: loss and damage caused by the inconsistency of yield fluctuations of various financial instruments that do not have the same credit quality, liquidity, and maturity.
- ***Concentration risk***: Losses and losses caused by the concentration of investment in one geographical area or one sector of the economy.
- ***Liquidity risk***: One of the most important financial risks is the risk of lack of liquidity to fulfill financial obligations, which indicates the degree of ease of converting an asset or claim into cash. Liquidity risk includes the risk of lack of funds and the risk of liquidity of assets.
- ***The risk of lack of funds***: indicates the inability to pay obligations. This issue is an important problem, especially for those portfolios that are balanced and committed to paying creditors' profit margins.
- ***Liquidity risk of assets***: occurs when the transaction cannot be carried out at the expected price.
- ***Inflation risk.*** It is the risk of purchasing power or reducing the purchasing power of invested funds, and it is related to the risk of interest rate fluctuations. Because the lenders try to increase the interest rate to compensate for the loss caused by their purchasing power.

Specific risks of urban renewal projects. Before discussing the risks of urban renewal projects, it is necessary to state the limitations of this category of projects. As we know, every project faces a series of limitations that ultimately lead to risk. The basic limitations of urban renewal projects are as follows:

Focused and purely physical study can only be implemented for small areas and has extensive social and cultural consequences for a large area. No government, institution, or organization alone and without the help of the people can implement the modernization category to the extent that exists in Tehran.

Insufficient financial resources of the municipality.

- People and brokers are not satisfied with their rights
- As people's awareness increases, their resistance increases.
- The economic approach of the public sector in the last 20 years has not been in the direction of providing the interests of the residents.
- Residents of these contexts do not want to gather for economic and social reasons and resist.
- Available financial resources are insufficient.
- The financial capacity of the residents is low, and the economic poverty of the residents.

- Residents of these contexts are facing difficulties in meeting their basic needs.
- These textures were created as a result of activity prevailing over residence and as a result of the price difference between peripheral areas and central areas.
- A stagnant urban economy in worn-out structures has caused the structures to be deprived of renovation measures.
- Life in these contexts is generally ethnic and tribal and contrary to urban life.
- The social problem shows itself more in aggregation.
- The culture of the inhabitants of these contexts is generally traditional and religious.
- Aggregation of blocks conflicts with the pattern of people's residence.
- There is a desire to live in the yard.
- The population density is high in worn-out tissue.
- There are no infrastructural services in the worn-out fabric.

Urban renovation projects are inherently risky and uncertain, which creates many problems in the progress and profitability of the project. The presence of risk in this category of projects affects the processes of project feasibility analysis, design and planning, construction and implementation, and finally the general use and operation of the project. Each of the urban renewal projects usually has goals that, if they are fulfilled, the project can be considered successful. These goals are as follows:

- Efficient use of resources and minimizing waste and wastage of resources during this cycle
- Limiting the pollution caused by the project to a level that natural systems can deal with without any risk or damage.
- Valuing and preserving the diversity of nature
- Ability and opportunity to do desirable and satisfactory work by each person in a diverse economy.
- Recognizing the value of unpaid work while paying for fair work and fair distribution.
- Ensuring people's health by creating security, cleanliness, a pleasant environment, and health and treatment services that emphasize disease prevention and providing adequate care for patients.
- Public access to facilities and equipment, services and goods

Everyone's access to skills and knowledge (Ghadarjani et al., 2013- a).

The research shows that the reason for the failure of many urban renewal projects is the imbalance between development and the real needs of communities. Because most of the urban renewal projects, instead of spending all their energy on meeting the real needs of the communities, insist and emphasize the physical redevelopment of the existing communities. As we have already stated, urban renovation projects are always faced with risk and uncertainty categories (Aghazadeh, M. et al., 2017). One of these risks is the risks caused by political issues such as political groups or other activists related to them. In addition, after the implementation of these projects, the existing jobs in these areas will change according to the existing needs and changes will be made in this field.

These projects also affect the real estate market in the project area. This influence is such that the total interest of real estate in the project area is positively or negatively affected by other similar projects that are implemented around the project. These changes, in turn, may cause changes in the scale, location, and intensity of the real estate activities of the developers of these projects. For example, the sale or rental price of existing properties may be affected by the sales/rental volatility of a new project.

Another category of risk and uncertainty that exists in urban renovation projects is related to budget issues and components and non-commitment. The risk and uncertainty associated with the commitment indicate the uncertainty of the existence of the buyer after the implementation of the project and the renovation of worn-out structures.

There is another way, and that is, the owners of worn-out structures, before starting the project, express their desire to buy real estate later. They announced the completion of the project but later withdrew from their decision. This withdrawal may have many reasons, including the unfavorable quality of the regenerated tissue. Another uncertainty that exists in this category of projects is related to the performance of the property landscape. One of the main obstacles to investing in urban renovation projects by investors is not having a proper understanding of the future of the project and not having a clear path for them. This problem causes problems such as the possibility of investing in an uncertain market, and these problems will ultimately increase the investment risk.

Therefore, the quality of the building and the commitment of the tenant, along with a suitable vision of the future of investment and appreciation of the investor, are the most important criteria for an investor to invest in a project. As you know, investment in projects is either long-term or short-term. A long-term investor cares more about the quality of construction specifications than the commitment and agreement of the tenant, because he is aware of the negative effects of the cancellation of the agreement by the tenant on the future of his investment. On the other hand, the short-term investor pays more attention to the tenant's commitment and contract. Another risk factor identified in this category of projects is land value fluctuations. In fact, during the implementation period of the project, the price of land in the project area may increase or decrease, and each of these changes in turn affects the future of the project and its profit. Another risk factor identified in urban renewal projects is the pollution caused by these projects.

This risk is increasing due to uncertainty about the nature of pollution. Specialists in this field have a consensus opinion that the risk of pollution is an additional and excess risk for both the investor and the project manager, and it can even cause disruptions in the process of evaluating whether the project is cost-effective or not. From the point of view of financing, pollution can lead to weakening the borrower's ability to pay the loan on time because it imposes an additional and unforeseen cost on the project. On the other hand, in the growth and development stage, the need to deal with pollution significantly leads to an increase in costs and affects the profit or even the practicality and dynamism of the project. Therefore, the risks inherent in urban renovation projects can be summarized based on social, technical, economic, environmental, laws and regulations, and political factors, which are explained in the table below.

For example, it can be said that the risk in urban renovation projects related to construction, lack of coordination between planners and the community, weak communication in the project area, uncertainty, environmental changes, increasing complexity of the project, and economic changes such as inflation and Price reductions, economic crises, including the imbalance between the real needs of society and new developments are considered. Therefore, these risks and consequences should not be ignored. They influence the general processes of project management and cause de-

lays in the completion of the project and protests from activists, investors, and community leaders. Finally, it can be said that these projects are related to the general interests of people and society.

Table 2. Specific risk criteria of urban renewal projects

Description	Sub-criteria	Main criteria
This risk reduces the cost of evacuation and exit from the renovated areas and finally migration to the outskirts of the cities. On the other hand, if the city limits are open, the price of land in the central areas of the cities will not increase, and this itself will reduce the incentive to invest in these areas.	Horizontal expansion of cities	Social risk
One of the preconditions for the implementation of urban renewal projects is the liberation and complete ownership of the lands in the project area. Before this condition is fulfilled, no investor is willing to invest in these plans and projects. Another risk that is raised in this context is the lack of knowledge and lack of information about the number of owners and tenants in the project area by the investor.	Free up the ground	

Discussion

In the current situation, the world economy is facing major crises, especially in most economic and financial fields. Due to the imposition of various sanctions and the impact of global crises, our country has many problems that cannot be solved easily if they are not dealt with scientifically. One of the effects of global crises and sanctions is the decrease in sales and prices of some of the country's export items, such as oil, petrochemical products, steel, etc. As we know, these crises affect the performance of institutions and organizations as well as economic activities such as plans and projects in progress and cause risk in these projects and plans.

In such a situation, risk management seems necessary to protect against the undesirable consequences of risk tolerance. Neglecting the necessity of risk management causes a deviation from the main course of affairs and in such a case, the investor may spend all his time and energy to deal with the consequences of not managing risk. In a short phrase, risk management can be defined as "identifying the factors that cause uncertainty in reaching predetermined goals for an activity and choosing or creating effective solutions and tools to control, reduce and cover the risk." certainty In other words, risk management is the term. From the system of identifying risks in the surrounding environment, evaluating their potential effects on critical variables, and using direct and indirect mechanisms to avoid the risk or cover basic economic activities. A company that is exposed to these risks.

History of risk management in projects. Risk management and project management have many similarities in terms of root and concept, and both of these topics were raised in the late 1950s. This year, the PERT method was used as the first formal planning technique to plan activities in the Polaris space rocket project. This technique is a project planning model that includes a network of activities along with an estimated probability distribution for the duration of the activities. In the early 1960s, there were many discussions and discussions about the use of probabilistic decision-making branches in the implementation of PERT models, and the purpose of holding these meetings and discussions was to present a new method.

This new method was called "generalized PERT", which was later known as the GERT method. The difference between these two old and new methods is that in the new method, decision branches, unlike the old method which was based on definite activities, can also be based on possible choices. The new method provides the possibility that at the time of starting the work, in addition to specifying the main activities, possible activities, which are usually not specified until the completion of an activity, are considered when preparing the project schedule. This method, like the previous method, was first used in the space industry, and in addition, one of the oil companies also used these models for the North Sea oil projects.

Since 1975, these companies started expanding and developing possible models for the planning of offshore projects in the North Sea, which included other aspects of planning in addition to project timing. This method was called SCPRT. This method creates a precise understanding of the uncertainty and risk in a project. During the 70s and 80s, this method was developed along with a family of PERT, generalized PERT, and GERT methods and was used by oil companies and several other organizations in England, the United States, and Canada was tested.

In this way, the first steps were taken to develop formal and separate risk management processes. During the 1980s and early 1990s, variants of this method and some new models were used for a variety of applications and a wide range of trends, which are often referred to under the general name of "engineering or risk management".

Risk management processes. Nazari et al. (87), in the book "Risk Management of Projects," have explained the multiple stages of risk management well, and a summary of these stages is explained below. When implementing the risk management process, two issues have high priority. The first is the identification of critical risks that have a significant impact on the time and cost of the project, and the second is that after identifying and analyzing this group of risks, the need to react to the risk is raised. Project risk management includes risk management planning processes, risk identification, qualitative analysis, quantitative analysis, risk response planning, and finally project risk monitoring and control, some of which will be described below.

Risk management planning. The first stage of the risk management process is risk management planning, which is considered a prerequisite for entering the other stages. Risk management planning is a decision-making process regarding the attitude and planning of risk management activities of a project. As you know, each stage of the process includes a series of inputs and outputs, and the output of this stage includes project objectives, risk management objectives, risk management scope, and risk management approach. After preparing and editing, these documents have been provided to the stakeholders of the project to be used to measure the effectiveness and efficiency of the risk management process. At this stage, the prerequisites for starting the risk management process are fulfilled, which are mentioned below.

Definition of project objectives. Before starting the risk management process, all the stakeholders of the project should have a correct understanding and understanding of the project's goals and also reach a consensus about them. If there is a project charter before starting the risk management process, this charter can be used to understand and recognize the project goals, but otherwise, the definition of the project goals will be included in the work plan and duties of the risk management process.

Explaining the objectives of risk management. The implementation of the planning stage of risk management in projects includes goals such as documenting the goals and scope of risk management to inform the stakeholders of the project and achieve consensus among them regarding

these matters. In addition, the method of performing the risk management process is also determined at this stage.

Explanation of the scope of risk management. This matter is of great importance because it is only if the working scope of risk management is determined that one can adequately and appropriately focus on the next steps and stages of risk management. As we know, a project is carried out in a complex environment with many stakeholders and dependencies, so in this case, it is possible to limit the risk management process to a subset of the entire project environment. It can be said that the scope of risk management is different for different projects, in some projects this scope only includes the internal responsibilities of the project team, and in some other cases, it may even include the risks of other parties. Including those involved with the organization. There is another important factor that plays a role in determining this range, and that is determining the types of risks that are considered in the risk management process.

Risk management approach and methodology. As we said earlier, one of the outputs of the risk management planning stage is the risk management approach, and each project has its approach. In some projects, it is necessary to carry out the risk management process in a precise and selective manner, along with the use of various techniques and experts, as well as the use of extensive inputs and special tools. On the other hand, simpler approaches are used in some other projects. At this stage, the approach, work method, tools, and techniques that can be used in the risk management process, the roles and responsibilities of each of the project stakeholders, reporting standards, and finally the structure And the frequency of preparing and updating the reports is determined.

Qualitative risk assessment. It means the process of measuring the impact and chance of occurrence of identified risks. In this method, risks are described using descriptive phrases and sentences, and the basis of the work is based on individual or collective estimates. The purpose of this stage is to determine the relative importance of the identified risks and finally to prioritize and classify each of them based on the impact on the project goals and the probability of each of them occurring. As a result, at this stage, risks are classified based on the two dimensions of the probability of occurrence and impact of the risk. At this stage, group consensus, Delphi, and pseudo-Delphi methods are used to estimate the probability of occurrence and impact of risk on the project goals.

a. probability of occurrence. The meaning of the probability of occurrence is the amount of expectation that can be expected for that event to occur. To measure the probability of occurrence, three methods are usually used. Mathematical calculations are used for cases such as coin toss, and in cases where the probability of occurrence is not so easy to measure, information and past experiences are used. To calculate the probability of occurrence of rare events, we must rely on the judgment of experts and technicians.

b. Impact of risk. To express the impact of risk on project goals, descriptive expressions or numerical values can be used. The issue raised here is that each risk has only one probability of occurrence, which indicates its uncertainty, but each risk can affect one or more of the project's goals. Another important issue in this project is the mutual influence of the project's goals on each other, and some risks may arise during the project's operation phase, such as health and safety. The point that should be noted about the ranking of the identified risks is that it is not possible to do the ranking based on only one of these dimensions, but must be combined in the risk assessment. be used

Prioritizing risks. Two methods are usually used to prioritize project risks, which are: prioritization based on the origin of the risk and based on the parts of the project that are exposed to risk. In the first method, the failure-risk structure is used. In this method, after defining the risk-failure structure of the organization, the risks identified in the projects are classified according to their ori-

gin and nature. Then, the areas of risk concentration within the known failure-risk structure and the positions of the most important sources of project risk in this structure are determined. In the second method, prioritization is based on the work breakdown structure (WBS) and its combination with the risk breakdown structure. To determine the areas of the project that are more exposed to risk, the risk-breakdown structure can be used.

Therefore, the identified risks should be allocated to different components of the work failure structure, as a result, each risk can be related to an element of the work failure structure that is affected by the risk. Examining the pattern of assigned risks identifies the parts of the project that are exposed to more risk.

Quantitative risk assessment. In fact, at this stage, the impact of risks on the project goals is examined more precisely and quantitatively. At this stage, the relationship between risks and project activities is determined, and this relationship itself is a factor in determining the amount of change in time and cost of each activity according to the critical risk. In this case, each of the activities becomes a possible state and therefore a distribution function must be defined for them. To quantitatively evaluate risks, there are various methods, some of which are: the expected monetary value method, decision tree, and simulation and modeling methods, including the Monte Carlo method.

In the first method, opportunities are considered as positive value and threats as negative value. The expected value of a decision is obtained from the algebraic sum of the expected values of the events branched from that decision. The decision tree method is also a drawing method for structuring decisions and possibilities in an environment of uncertainty.

Risk response planning. This stage is the process of developing choices and determining measures to reduce the effects of risk on project goals. Before starting this process, it is necessary to have some information as follows:

- The final list of identified risks and their evaluation, in such a way that the probability of their occurrence and impact is evaluated and the classification is done based on the criteria of the source of the risk and the area affected by the project.
- Compilation of the list of project beneficiaries who can be considered responsible for responding to the risk.
- Determining the accepted and agreed risk threshold for the project.

Risk response strategies. In total, there are four strategies to respond to risk, which are:

Avoidance: It means changing the project plan to eliminate the risk or protect the project objectives from the impact of the risk. There are two types of avoidance strategies, one is direct avoidance, which seeks to break the source-risk relationship, and the other is indirect avoidance, which considers the relationship between risk and impact.

Transfer: It means transferring the consequence of a risk along with the ownership of its response to a third party. In this case, the risk responsibility is also transferred to the third party and the risk receivers must have the necessary ability to manage the allocated risks.

Adjustment or reduction: It means reducing the probability and consequences of an adverse risk event.

Acceptance: It means accepting the loss when that loss occurs.

This method is considered an acceptable strategy for small risks. There are two acceptance-type response methods, including:

a. Active Acceptance: The most common type of active acceptance response is to consider additional amounts as reserves for time, cost, or project benefits. In this case, both known risks and risks that are not currently known are covered.

b. Passive acceptance: other more general responses that can protect the project and the organization from the effects of accepted threats, such as creating a culture of risk awareness in the project and organization and including the risk management process in the processes Project routine.

Risk monitoring, control, and review. At this stage of the risk management process, according to the information and data collected in the previous stages, a series of actions are taken, including:

- Identifying, analyzing, and planning for new risks.
- Following up on specific risks.
- Monitoring the conditions and overall status of the project.
- Monitoring other non-important risks.
- Revision in the implementation of the monitoring, control, and revision process.
- Evaluating the success rate of planned responses.

Risk management solution for urban renewal projects. Risk management in urban renewal requires the interaction of the private and public sectors, including the government and municipalities, and coordination between the investors and the owners of the areas to be renovated, as well as the institutions responsible for renovation and urban management. The basic question that is raised in this regard is, what solution can be adopted to remove the existing obstacles and risks through the renovation of worn-out urban structures? As we have already mentioned, the first step in the risk management process is the identification and evaluation of relevant risks, which were identified in the previous chapter. Therefore, here we evaluate the identified risks. In the field of risk assessment, there are two common methods, which include the risk matrix and ANP methods. Below is a brief description of each of these methods:

Risk matrix method. It is the most common method of risk assessment, which is generally used by many businesses as a practical tool to evaluate the consequences of identified risks and also in property development projects such as investing in Hotels. The data used to form and calculate the risk matrix is obtained through negotiation or ranking methods. This method, like other methods, has a series of advantages and disadvantages, which we will discuss below.

Among the advantages of this method, we can mention the ranking of the consequences of each risk in the form of a table, which is the same as the result of the risk matrix, comprehensibility for ordinary people, and ease of use. One of the disadvantages of this method is not using reliable and reliable tools in the data collection stage. It can be said that the collection of data to calculate the risk matrix is based on the personal opinion of the relevant people and experts, and not quantitative measurement tools.

Another problem is that in this method, due to the large number of risk factors, especially in large-scale urban renovation projects, it is not possible to compare any of the risk criteria and the results calculated with the matrix. They are usually subjective, it does not exist. Also, the details of the data to help develop and expand the structure of the decision-making process are not available. Therefore, in this category of projects, urban planners need more effective tools to evaluate potential risks.

The Network Analysis Process (ANP) method. Multi-criteria evaluation methods, including the network analysis process method, have been widely used in all sciences, including urban plan-

ning. At the same time, the ability to check the consistency in judgments, and the possibility of final ranking of options, can overcome their serious limitations, including not considering the interdependencies between decision elements and the assumption of the relationship between hierarchical and one-sided decision elements has been overcome and provided a framework for the analysis of urban issues.

In this technique, there is no need for a hierarchical structure, complex relationships between different decision levels are shown in a network form, and interactions and feedback between criteria and alternatives are considered. In this method, the project team takes advantage of the results obtained from the matrix calculation to provide a numerical proposal according to the most appropriate and best development plan. Also, the result of this method can be used to support the decision-making process to reduce project risks. As we have already stated, after the risk assessment, it is time to respond to the risk, and at this stage, the risks must be answered correctly.

In this regard, firstly, it gives a brief description of the existing strategies for responding to risk, social risk, political risk, laws, and regulations, etc. As you know, for risk management, social, environmental, technological, and political risks, and laws and regulations, several solutions have been proposed, some of which are mentioned below:

- Proposing and approving laws requiring organizations and institutions related to urban management to use local and expert forces in urban planning and design.
- Forming committees to examine the needs and demands of citizens and try to fulfill them, such as: Changing the use of old buildings and structures whose use is obsolete, such as water reservoirs, and caravanserais, to needed and general uses; creating shopping centers and retail business environments in worn-out contexts to meet the needs of residents; research and provision of services for individuals and families living in Baft neighborhoods.
- Determining fines and criteria to oblige the owners of dilapidated and inefficient spaces to organize said spaces.
- Promoting the culture of using light and resistant structures in the renovation of worn-out structures
- Creating access and providing the possibility of easy transportation of building materials
- Formulating legal solutions to solve the ownership and legal problems of properties of unknown owners, heirs, and endowments and speeding up their registration affairs.
- Payment of compensation for possible environmental problems caused by the implementation of the project
- Transferring the responsibility of purchasing and releasing the lands needed for the project to a selected group of capable people with negotiation power
- Establishing agreement and consensus among all groups and political parties in the field of not stopping and closing the project in case of any change of job or the end of the mission.
- Establishing a construction and improvement company to acquire, manage, and prepare land to provide development infrastructure and implement the renovation of worn-out structures.
- Clarify the process of providing loans.
- Preparation and compilation of different models of facades, taking into account the conditions of each neighborhood

- Developing and designing a specific program for each region due to the different needs and social situations of the people in the neighborhood
- Providing suitable rules and solutions for releasing the lands needed for the project, such as:

a. Paying the fair price of properties to those owners whose properties are selected or required for the implementation of renovation projects.

b. Resettlement of tenants whose houses are included in the renovation plan.

Several methods have been designed for land clearing, including:

1. Compulsory possession. In this method, after evaluating the lands in the region and approving the necessary laws, the government buys and owns them.

2. Voluntary method. It is used when the land owner wants to get a construction permit, for example, to build a house.

3. Land redistribution method. The procedure is such that each of the owners will receive a residential unit at the end of the renovation process. On the other hand, the municipality obtains the lands needed for public purposes without paying any costs by adjusting and re-modifying the worn-out structure and deducting a percentage from the lands. Finally, the added value resulting from the implementation of the process of renovation of worn-out fabric is also divided between the municipality, owners, and investors. Each of the mentioned methods has some strengths and weaknesses, which are stated in the following table:

Table 3. Weaknesses and strengths of land release methods

Weaknesses and strengths of the method		Land release method
Weak Points	**Strengths**	
Owners not sharing in the profit due to fabric renovation.	Compliance with the principles of architecture and urban planning, revitalization, and reconstruction of the area on the scale of the plan and not limited to each plot	Compulsory possession
Popular issues and social tensions	People's participation in the benefit of renovation	Voluntary method
The need for a lot of investment and financial resources, resistance	Owners share in the profit of the project, creating a homogeneous urban space, not needing a lot of initial capital to implement the project, and complying with the principles of architecture and urban planning.	Earth reset

Sources: Norouzian, M. M., 2024.

Formulation of codified policies and integrated urban management in the face of dilapidated structures:

A kind of coordination should be established among all the institutions involved in the renovation project of worn-out structures. By delegating their powers to the coordinated and integrated urban management, the existing institutions and organizations should speed up the process of modernization. Therefore, we should no longer witness any inconsistency between the institutions involved in this process. For example, the municipalities do not accept or implement the comprehensive and special plan of the Ministry of Housing and Urban Development, or the cultural heritage

organization does not allow the Ministry of Housing and Urban Development to encroach and occupy the places under its supervision.

- Removal of various complications to facilitate the renovation process.
- The amount and amount of loans should be determined according to the conditions of each region and the characteristics of the worn texture, as well as for each project.
- Revision of the Law to Support the Revival, Improvement, and Renovation of Dilapidated Tissues: By examining and studying the new law, we find out that this law covers only a certain part of dilapidated tissues that require the direct intervention of the government sector.

Therefore, considering the extent and variety of worn-out fabrics in different cities, this law is not effective. On the other hand, the indicators defined by the Supreme Council of Architecture and Urban Planning, which is the basis for the formulation of this law, are not complete and do not have the necessary comprehensiveness.

Risk management solutions, economic risks of urban renewal projects and their analysis. In this section, we introduce the existing solutions for risk management, the economic risks of urban renewal projects, and their analysis. As we mentioned in the previous chapter, one of the economic risks of this category of projects is land price fluctuations in the project area. In fact, with the implementation of renovation projects, the price of land in the planning area will increase, or in some cases, even the possibility of a decrease in the price of land is possible. Many solutions have been adopted to deal with this risk.

Such as: trying to sell the plan unit, and increasing advertising in investment according to the economic justification of the plan. Another problem and risk in these fields is the reluctance of the private sector to invest in these fields. Among the reasons for this, we can point to weak market demand, unfavorable neighborhood quality, and management problems in this category of projects. To deal with this problem, many solutions have been proposed, such as:

- Granting banking concessions, tax exemptions, and loans to support the participation of the private sector.
- reducing time wastage;
- Increasing the flexibility of resources, formulating plans and precise timings to provide the necessary resources;
- Improving the quality level of management and decision-making;
- Speeding up the exploitation of projects;
- Investment return guarantee.
- And finally directing and controlling the demand market to encourage private sector investment in these contexts.

In this regard, one should first identify the middle and low-income groups in the framework of the demand and then classify the low-income groups located in the worn-out context. As you can see, one of the solutions provided to encourage the private sector to invest in worn-out tissue is guaranteeing a return on investment. One of the problems with the above solution is the lack of setting a range and value for the rate of return on investment in projects. Another problem in these projects is the inability to sell the project unit on time. Therefore, according to the fact that the majority of the repayment of the principal and profit of the buyers of the project participation bonds will be provided from the sale of the built residential and commercial units.

As a result, it is necessary to adopt appropriate solutions to manage and reduce this risk. The solutions that have been adopted so far in our country include the guaranteed purchase of units built during the renovation process, the construction of cheap residential units with good quality instead

of dilapidated and useless spaces, and planning for the promotion of the unit. Buildings are built to sell in time or installments according to their location, finding out about the residents' wishes and using their opinions in the housing design. As you can see in the previous chapter, another problem of urban renovation projects is the inability of the owners to buy renovated units.

The main problem is the lack of liquidity and lack of purchasing power of the owners. Therefore, the government is required to cover the owner's deficit to purchase at least one renovated unit. In some projects, the implementers of the project helped this group of owners with various methods such as cooperatives, loans, and shareholders, and in this way, they provided the means for their participation in the project. Another risk that exists in these projects and must be answered is the failure to complete and deliver the project on time, or the delay in the completion of the project.

Conclusion

Renovation projects of worn-out structures are complex and multi-sector plans that deal with multiple stakeholders and various institutions, so they face many risks and uncertainties. Considering the high sensitivity of these projects and the need to speed up their implementation and cost management, it is very important and vital to pay attention to the issue of risk and its management to achieve the goals and success of the renovation projects. In this regard, this research aims to identify the risks in this category of projects, state the existing management solutions, analyze the existing solutions, and finally provide new suggestions and methods for project risk management. It pays for the renovation of worn-out urban structures.

In this research, several risks such as the lack of investors and investment partners, unwillingness of the private sector to invest in these projects, land price fluctuations, purchasing power, inability to sell the project unit on time, lack of Provision of sufficient funds by the relevant institutions, economic crises, multiplicity of beneficiaries and weakness in the selection of investment partners have been examined and analyzed. In recent years, various strategies have been tried to reduce the risk of urban renewal projects, but the examination of existing and half-worked projects and even in some cases the prolongation of the project implementation indicate the ineffectiveness of the methods and solutions.

The most important problem in this category of projects is the lack of investors and investment partners, the inability to provide sufficient funds, and the unwillingness of the residents of worn-out structures to invest and participate in renovation projects. As we said earlier, every urban renovation project has a series of goals, which are considered successful if they are fulfilled. Considering the existing problems on the way to the realization of the project goals, the process of risk management is an important step toward the realization of this goal. Therefore, in the fourth chapter, we discussed the risk management solutions available in our country, which are:

Guaranteeing return on investment, directing and controlling the demand market, and paying fines for delay. After the project according to the predicted schedule, the modification of the process of evaluating the resources needed by the project, the collection of micro-funds, the definition of support packages for investors, etc. Finally, we analyzed these solutions and stated that due to the large number of adopted solutions, these solutions did not have the necessary efficiency, and this problem itself has many reasons, such as people's distrust of Officials, the prescriptive nature of the planning system, the lack of culture to institutionalize inclusive participation, weakness in the country's capital market and ….

Finally, newer solutions have been presented to solve the defects and shortcomings of past solutions and make people and investors more cooperative. Among these solutions, it is possible to

point out the establishment of a partnership company, drafting a beneficiary analysis document, guaranteed rent, holding a competition under the headings of choosing the best investor, the best project, and the best-participating neighborhood, etc.

Suggestion based on findings. Holding a painting competition among children under the title of the ideal neighborhood in my opinion, and then the best painting will be selected, and based on that, small projects will be prepared and then implemented. To teach children, you can use their popular characters, such as Uncle Porang and Uncle Fitile, or some people can directly convey their message to children by dressing up as famous cartoon characters, such as SpongeBob, etc. These activities indirectly contribute to the participation and influence of parents because they will always monitor the activities and actions of their children.

- Suggestions for the future
- Investigating the level of women's participation in the implementation of renovation projects and providing solutions to achieve this goal
- Feasibility of establishing Qarz-ul-Hosna Institute for the renovation of worn-out tissues
- Introducing new products to finance urban renewal projects
- Introducing a new insurance product to guarantee investment in these tissues
- Feasibility of establishing schools or universities of urban renewal and neighborhood management in Iran

References

Aghazadeh, M., Karimzadeh, I., & Ganjali, M. R. (2019). Dextran grafted nickel-doped superparamagnetic iron oxide nanoparticles: Electrochemical synthesis and characterization. Journal of Nanostructures, 9 (3), 531-538.

Aghazadeh, M., Karimzadeh, I., Ganjali, M. R., & Malekinezhad, A. (2017). Al3+ doped Fe3O4 nanoparticles: a novel preparation method, structural, magnetic and electrochemical characterizations. International Journal of Electrochemical Science, 12 (9), 8033-8044.

Aghazadeh, M., Karimzadeh, I., Ganjali, M. R., & Maragheh, M. G. (2018). Electrochemical fabrication of praseodymium cations doped iron oxide nanoparticles with enhanced charge storage and magnetic capabilities. Journal of Materials Science: Materials in Electronics, 29, 5163-5172.

Aydin, A. C., Yaman, Z., Ağcakoca, E., Kiliç, M., Maali, M., & Aghazadeh Dizaji, A. (2020). CFRP effect on the buckling behavior of dented cylindrical shells. International Journal of Steel Structures, 20, 425-435.

Dehghan S., Norouzian M. M., Gheitarani M. A., Heidarian, N., Safaei-Mehr M., Gheitarani M. A., Sohrabi, S. A. (2024).

Dehghan, S. (2024). Analyzing important components that increase vulnerability to natural disasters. European Online Journal of Natural and Social Sciences: Proceedings, 13(4 (s)), pp-100-119.

Dehghan, S., Karimimansoob, V., G Hoover, C., Sadigh Sarabi M., Gheitarani, N., Sohrabi, S. A. (2024). Performing Dynamic Analysis of the Conceret Structures using Genetic Algorithm and Determining the Optimal Range during a Natural Hazard Crisis (Tempe, Arizona, U.S.A). International Journal of Advanced Multidisciplinary Research and Studies. 4 (5), pp: 1136-1146.

Dizaji, A. A., Kiliç, M., Maali, M., & Aydin, A. C. (2023). Buckling behaviour of dented short cylindrical shells retrofitted with CFRP. Proceedings of the Institution of Civil Engineers-Structures and Buildings, 176 (1), 62-75.

Farrokhirad, E., & Gheitarani, N. (2024). How Green Wall Imploratory Strategies Can be Facilitated and Optimized through Public Engagement?. European Online Journal of Natural and Social Sciences, 13 (2), pp-128.

GHADARJANI, R., & GHEITARANI, N. (2013). Methods for enhancing public participation in the rehabilitation and renovation of deteriorated housing (case study: Joulan neighborhood in the Hamedan City).

Ghadarjani, R., Gheitarani, N., & Khanian, M. (2013). Examination of city governorship pattern and citizen participation as a new approach to city management in region 5 of Isfahan municipality using T-test in SPSS. European Online Journal of Natural and Social Sciences, 2 (4), pp-601.

Gheitarani, N., Arash Sohrabi, S., Naghibi Iravani, S., & Dehghan, S. (2024). Analyzing the Mechanism of the Possible Effect of Place Attachment of Residents of Iranian Neighborhoods in Improving the Level of Quality of Life (Study Example: Joolan Neighborhood in Hamedan City). European Online Journal of Natural and Social Sciences, 13(1), pp-42.

Gheitarani, N., El-Sayed, S., Cloutier, S., Budruk, M., Gibbons, L., & Khanian, M. (2020). Investigating the mechanism of place and community impact on quality of life of rural-urban migrants. International Journal of Community Well-Being, 3, 21-38.

Gheitarani, N., Ghadarjani, R., Kahvand, M., & Mehrabadi, S. A. M. (2013). Explaining the effective measures in decreasing the vulnerability of urban area against earthquake using AHP model (case study: Tehran, a metropolis). Journal of Basic and Applied Scientific Research, 3 (8), 675-681.

Gheitarani, N., Mehdi Norouzian, M., & Safaei-Mehr, M. (2024). Space Configuration and Identity of Urban Neighborhoods. European Online Journal of Natural and Social Sciences: Proceedings, 13(4 (s)), pp-62.

Gheitarany, N., Mosalsal, A., Rahmani, A., Khanian, M., & Mokhtari, M. (2013). The role of contemporary urban designs in the conflict between vehicle users and pedestrians in Iran cities (case study: Hamedan City). World Applied Sciences Journal, 21 (10), 1546-1551.

Kahvand, M., Gheitarani, N., Khanian, M. O. J. T. A. B. A., & Ghadarjani, R. A. Z. I. E. H. (2015). Urban solid waste landfill selection by SDSS. Case study: Hamadan. Environment Protection Engineering, 41 (2), 47-56.

Karimimansoob, V., Mahdaviparsa, A., Sadigh Sarabi, M., & Safaei-Mehr, M. (2024). Application of BIM in Energy Conservation in Low-Cost Housing in Case of Study in Dallas Independent School Residential District, Texas. European Online Journal of Natural and Social Sciences, 13 (3), pp-188.a

Karimimansoob, V., Safaei-Mehr. MM., Norouzian. M., Gheitarani. N. (2024). Scrutinizing of City Taxes Effects on Final Housing Price in Hamedan. European Online Journal of Natural and Social Sciences, 13 (3), pp-235. b

Khanian, M., Bolouhar, B., Gheitarany, N., & Nezhad, S. M. (2013). Studying the causes of vitality in traditional markets of Iran (Case Study: Shoemaking Order of Central Market of Hamadan). World Applied Sciences Journal, 22 (6), 831-835.

Khanian, M., Serpoush, B., & Gheitarani, N. (2019). Balance between place attachment and migration based on subjective adaptive capacity in response to climate change: The case of Famenin County in Western Iran. Climate and Development, 11 (1), 69-82.

Maleki, M., Gheitaran, N., El-Sayed, S., Cloutier, S., & Gaelle Giraud, E. (2024). The development and application of a localised metric for estimating daylighting potential in floor plate. International Journal of Ambient Energy, 45 (1), 2277310.

Mehdi Norouzian, M., & Gheitarani, N. (2024). Analysis and Determination of Factors Affecting Flexibility (UR) and Urban Sustainability (US). European Online Journal of Natural and Social Sciences: Proceedings, 13(4 (s)), pp-28.

MM Norouzian; N Gheitarani. (2023). The Impact of Commercial Sectors on Environmental Quality: A Case Study of Tabriz's Ecosystem and Financial Landscape. International Journal of Advanced Multidisciplinary Research and Studies, 3 (6), 1553-1559.

Naghibi Iravani, S., Arash Sohrabi, S., Gheitarani, N., & Dehghan, S. (2024). Spatial Configuration as a Method to Measure the Actual and Potential Ability of Spaces Used by Indoor and Outdoor Users. European Online Journal of Natural and Social Sciences, 13(2), pp-90. a

Naghibi Iravani, S., Karimimansoob, V., Arash Sohrabi, S., Gheitarani, N., & Dehghan, S. (2024). Applying Fuzzy Logic and Analysis Hierarchy Process (AHP) in the Design of Residential Spaces; Case of Study: Arak City. European Online Journal of Natural and Social Sciences, 13 (2), pp-144. b

Naghibi Iravani, S., Sohrabi, S. A., Gheitarani, N., & Dehghan, S. (2024). Providing a Pattern and Planning Method for Footpaths and Sidewalks to Protect Deteriorated and Vulnerable Urban Contexts. European Online Journal of Natural and Social Sciences, 13(1), pp-1. c

Norouzian, M. M. (2024). Investigating the qualitative components of meaning and the role of the endowment tradition in Iranian urban spaces. Edelweiss Applied Science and Technology, 8(6), 477-490. https://doi.org/10.55214/25768484.v8i6.2104.

Norouzian, M. M. Gheitarani, N., Heidarian, N., Safaei-Mehr, M., Gheitarani, M. A. The mechanism of using the geographic information system in detecting unsafe spaces in the municipal areas of big cities (Investigation of unsafe places in the city of Dallas, Texas, USA).

Norouzian, M. M., & Sarabi, M. S. (2023). Analyzing the dynamic data of Mashhad metro line 1 tunnel using seismic table. ISAR Journal of Science and Technology, 1(2), 1-9.

Sadigh Sarabi, M., Arash Sohrabi, S., & Dehghan, S. (2024). Improving Tensile Strength and Strength and Resilience of Reinforced Concrete through Pozzolanic Materials. European Online Journal of Natural and Social Sciences: Proceedings, 13(4 (s)), pp-14. -d

Sadigh Sarabi, M., Arash Sohrabi, S., Dehghan, S., & Gheitarani, N. (2024). Presenting a Selected Method for the Industrial Use of Roller Concrete through Pavement. European Online Journal of Natural and Social Sciences: Proceedings, 13(4 (s)), pp-1. - a

Sadigh Sarabi, M., Arash Sohrabi, S., Dehghan, S., & Gheitarani, N. (2024). Investigating the Response Mechanism of Vertical Concrete Structures to Alternating Horizontal and Lateral Loads. International Journal of Advanced Multidisciplinary Research and Studies, 4 (5), 1167-1173. https://doi.org/10.62225/2583049X.2024.4.5.3383 - c

Samami, H., Naghibi Iravani, S., Arash Sohrabi, S., Gheitarani, N., & Dehghan, S. (2024). Evaluation and Optimization of Building Greening Methods in Four Different Climates Using Building Information Modeling (BIM). European Online Journal of Natural and Social Sciences, 13 (1), pp-27. -b

Sarabi, M. S., Norouzian, M. M., & Karimimansoob, V. (2023). Analyzing and investigating the effects of Naqadeh earthquake aftershocks in West Azerbaijan on the results of probabilistic seismic risk estimation using clustering analysis. ISAR Journal of Science and Technology, 1(1), 38-45. a

Sarabi, M. S., Sohrabi, S. A., Dehghan, S., & Gheitarani, N. Impact on Seismic Risk Analysis of Possible Pulse in Nearby Areas. https://doi.org/10.62225/2583049X.2023.3.6.3285 -b

Sohrabi, S. A. .(2024). Integrated management of urban and rural crises (challenges and solutions). Integrated management of urban and rural crises (challenges and solutions). European Online Journal of Natural and Social Sciences: Proceedings, 13(4 (s)), pp-80-100.

Zaker Haghighi, K., Gheitarani, N., Khanian, M., & Taghadosi, R. (2014). Examination of effects of urban street configuration on the amount of commercial buildings establishment (according to natural movement theory), Case study: Hamedan. European Online Journal of Natural and Social Sciences, 3 (1), pp-20.

Zakerhaghighi, K., Khanian, M., & Gheitarani, N. (2015). Subjective quality of life; assessment of residents of informal settlements in Iran (a case study of Hesar Imam Khomeini, Hamedan). Applied research in quality of life, 10, 419-434.