

**Investigating factors causing delay in the
implementation of urban development projects in the
slums of Sari city**

**دراسة العوامل المؤثرة في تأخير تنفيذ المشاريع المدنية والتنمية
الحضرية لأحياء ساري الهامشية**

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Abstract

The present study was conducted in order to investigate factors causing delay in the implementation of urban development projects in the slums of Sari city. The present research is descriptive correlational in terms of method and applied in terms of objective. The statistical population of the study consists of mayors and deputies, departmental officials and all related experts of the central municipality as well as members, deputies, unit managers and experts in areas 1, 2 and 3 of Sari Municipality, the total number of whom surmounted up to 500 subjects. Based on the standard sampling table of Cohen et al., 217 individuals were selected as the statistical sample and a mixed, integrated method was used to provide access to the study sample. Required data was collected through a researcher-made questionnaire, the reliability of which, 0/86, was calculated using Cronbach's alpha coefficient. In order to test the hypothesis of the research, given the normality of the data, one-sample t-test and the Friedman rank test were used to rank the variables.

The results of the research showed that organizational factors, time constraints, legal factors, contracting factors, credit and financial, accounting system, and executing projects are effective factors causing delay in the implementation of urban development plans in marginal areas of Sari. Also, the results of Friedman test have shown that organizational factors, time constraints, legal factors, respectively, have

Investigating factors causing delay..... (88)

the most impact on the delay in the implementation of development projects and urban development in marginal areas of Sari.

Keywords : Development projects , urban development , marginal neighborhoods.

Introduction

Development projects are considered as the basis for the development and prosperity of the country and are important in the economic system and budgeting of the country; therefore, it is not surprising if they occupy a large part of the country's budget. But unfortunately, regarding the implementation of development projects and infrastructure from the stage of decision, design, approval, implementation, tender, contractor and advisor selection, project implementation, project control, delivery and finally exploitation of the project, project implementers, contractors, consultants and vectors, as three parts of the construction triangle, face varying and innumerable problems. The final consequence of such problems is the prolongation of project implementation, abandoning the project all together in the middle of the way, and the accumulation of projects that have completely lost the reasons based on which they came into being in the first place. Therefore, construction in urban areas, especially in the marginal and informal neighborhoods of our city, is now facing a deep crisis, characterized by, on one hand, delay in the implementation of projects and lowering the quality of work and, on the other hand, the disadvantages of the relations between the factors of construction.

There is a category called development and urban progress in cities and metropolises, especially in the marginal and informal neighborhoods of the city which is in direct relationship with socio-economic parameters. Cultural, social, developmental, recreational, sports and various issues of a city, as well as modern issues, such as technology, traffic, etc., are all topics that are summarized in urban management and, as a rule, discussed under the umbrella term of urban management. However, the possibility of delays in the implementation of any of these projects will affect the outcome of the work and, ultimately, the level of satisfaction of the users varies. Implementation of construction projects such as construction, water and sewage, etc., has a great impact on the quality of life, social and economic conditions of the society. Therefore, the shorter the time required for the completion of these projects, the

Investigating factors causing delay..... (89)

sooner the positive effects of such projects appear. On the other hand, these projects finance a large amount of the country's budget, indicating the necessity of carrying out construction projects in the shortest possible time and at the lowest possible cost. A lot of research has been done on finding the optimum cost-to-time ratio for project development projects and compressing work time; however, what seems to be left out is examining the conditions and consequences of completing a project in a much longer time than the original plan, and the effect this will put on the cost of the project (Chaghroudi and Adli, 2011). Urban development studies show that the high volume of such projects, without paying attention to the existing capacity, causes unreasonable delays in the construction period, thus imposing a great deal of economic and social costs on the city, especially in the marginal and informal neighborhoods of the city. In this situation, instead of helping productivity and growth, development costs would hinder progress and cause social dissatisfaction of citizens in the informal neighborhoods of the city. There are many factors affecting delays in the implementation of such projects; these delays may be due to weaknesses in management, legal gaps, credit failures, weaknesses in some executive agencies, the provision of land, and the inability of some contractors, preliminary studies, machinery and supplies, consultants, and economic agents. Considering that development projects are of great importance and cover most of the country's budget in the economic system and budgeting of the country, the delay in the implementation of development projects has caused a lot of losses to national resources. This delay also indicates the existence of barriers and root problems in the implementation of fundamental projects and threatens the reconstruction and economic development of the country seriously. If the project is completed at a predicted time or with a short delay in time that can be ignored, the adverse impact of factors such as inflation, which affects productivity, would be ignorable and, as a result, the project would finish at a specified cost. In order to prevent the occurrence of problems that cause lack of progress in urban projects, especially in the marginal and informal neighborhoods of the city, it is necessary to consider these issues from the viewpoint of expert

executives seeking to improve the negative impacts of these factors. Now, considering what is being discussed in the plan, the main issue of the research is considering the factors affecting the implementation of urban development projects in the marginalized areas of Sari.

A review of resrach literature

Despite the early studies of the researcher, scientific and cognitive research in this regard has not taken place in informal and marginal neighborhoods and according to the present researcher, the present study is the first research being conducted on marginalized, informal neighborhoods on this level in the province; however, studies with, almost, similar concerns are like the followings.

Based on the results of Kazemi's study (2012), entitled ' Prioritizing the Urban Development Project Delays Using Fuzzy AHP (Case Study: Isfahan Urban Development Vice-President), the environmental issues involved in the implementation of urban projects, including long bureaucracy in government institutions, is the first factor influencing the delays in such projects; consultants and contractors are the second and third factors. Finally, an analysis of these results and solutions to minimize the negative effects of three factors with the highest priority in terms of delay, is provided by modifying them to solve the problems of timely implementation of projects.

Molaei and Ghazanfarinia (2009) examined the causes of delays in construction projects, reviewing the internal and external case study. Studies have shown that most of the major construction projects in the world, with more than 50% increase over the projected initial period, have led to an increase in related costs. Investigating the causes of delays in construction projects and thinking about reducing them is a serious issue that is considered worldwide. Depending on social, cultural, political, and management issues in different countries, reasons for delays are diverse. After identifying delays, it is necessary to apply a suitable method for analyzing the delays.

Nouri and Faraji (2009) investigated the delay factors of development projects and provided a model for reducing the delay time. The results of their case studies show that three factors affecting delays are financial problems, land acquisition problems, and problems with studying and designing. Also, with the model of interaction of delayed factors, it can be seen that by modifying the structure and rules of projects and using financing methods such as BOT and EPCF, in addition to solving the

Investigating factors causing delay..... (91)

financial problem, it is possible to increase the amount of the project resulting from the traditional methods of implementation and failure. The integrity of the design and construction phases has been minimized and the land plots have been reduced to a great extent.

Fathi and Najafian (2009) studied the causes of the delay of development projects in Kermanshah province. In this regard, in order to identify the main factors behind the delay of the projects, a few case studies of several development projects in this province have been addressed and a comprehensive survey questionnaire has been provided by the main causes of the delay. By analyzing the questionnaires, prioritizing these factors from the point of view of the consultant, the employer and the contractor is obtained. The results show that the seven main reasons for delays are as follows: the unrealistic duration of the contract, the lack of attention to the project control system, incomplete or faulty initial studies, map drawbacks, lack of experience and effectiveness of the contractor or subcontractors, failure to fulfill the employer's financial obligations to the contractor, contractor's weakness and lack of materials and equipment.

Rahmani (2000) has conducted a research on economic evaluation of the delay in development projects (case study of Mazandaran University campus). His research results indicate that the issue of delay in the implementation of development projects has been foregrounded from 50 years ago among macro-management, designers, consultants and contractors. Most of the studies conducted have mainly focused on analyzing the implementation of development projects with minor differences. However, so far, no legal and appropriate solution has been proposed to prevent delays in the implementation of construction projects.

Ben Mohammed (2010), in a study entitled "The Factors and Impact of Delays in Government Building Projects", has grouped the factors affecting construction delays into several sections. Inappropriate contractor planning, poor project management and problems with subcontractors, contractor's financial problems, undesirable contractor's work quality, delays in project equipment, mistakes in cost estimation, and lack of technical study are included within the category of contractor's delay. Employer involvement in construction operations by issuing commands for change during work and making decisions about the effective employer area are included with client-related delay factors category. Bin Mohammed refers to a number of factors associated with

Investigating factors causing delay..... (92)

material delays, including late delivery of materials (delays in delivery), poor quality of materials, lack of materials, material management problems, changes in types of materials during work, destruction and loss of existing materials.

Apollo and Ali Neto (2011) stated that five most important causes of delays in development projects are the change of work plan, delayed payment, poor monitoring and control, high cost of capital, political instability.

Tommy et al. (2009) ranked the list of major factors affecting delays in construction projects in Zentan, Libya, in a research entitled "Delays in the construction industry in Libya." This list contains 42 items, the highest ranking for the inappropriate and least planning factor, related to map conflicts and the determination of coordinates. Lack of effective communication, design errors, lack of logistics, poor decision making, financial problems, lack of materials, difficulty of liquidity during the construction period, increase in quantities, contractor management, administrative bureaucracy in employer organizations, notification for Additional work, changes in the location of the project, the focus on progress and financial issues are some other affecting factors. (Nazarpoor, 2016)

Singh (2009) considers the following factors to be effective, in a study entitled 'Delays and Increases in Infrastructure Projects, Exploring Their Rates, Their Causes, and How to Compensate and Improve them in India': natural and technical factors, according to which due to incomplete calculations and natural factors, the time and cost of the project may be completely different from their initial estimates. Singh points out that some of the cost increases caused by the deal are what we call contract defaults. He, also, states that organizational or institutional encroachment has to do with infrastructure projects that have to deal with the consequences of organizational failures. Inconsiderate action or lack of proper attention on the part of some authorities might stop the whole project.

Suyiz et al. (2008) explored the causes of delays in development projects in Jordan. Many of the ongoing projects outperform existing estimates of spending and time. A series of delays in the implementation of projects were identified and classified according to the system in Jordan. Most common factors were evaluated using data collected in field research and interviews conducted with project engineers and employers. Most respondents agree that contractor financial problems and order

Investigating factors causing delay..... (93)

changes by the employer are the most important factors leading to delays in project execution. Bad weather conditions and changes in government laws and regulations have, also, led to delays.

Mubarak et al. (2008), in a study of the causes of delay in construction projects in Egypt from the perspective of contractors, consultants and landlords, conducted seven specialized semi-structured interviews to identify the most important causes in the manufacturing industry of Egypt. The result was a list of 32 reasons that were subsequently subjected to quantitative evaluation in a questionnaire survey to identify and confirm the most important cause of delays in projects. The most important causes known by the survey are based on overall outcomes: financial problems faced by the contractor during construction, late payment to the contractor by the employer, changes to the plan by the employer or his representative, partial payments during the performance labor, and lack of specialized management in construction.

Hui et al. (2008), in a study entitled "Delay and Increased Costs in the Macro-Construction Projects of the Country, Vietnam", analyzed the main factors behind delays in development plans and designs. These factors included tardiness and lack of urgency, which by itself consisted of several sub-factors, such as late payment for work, poor contract management, inappropriate and outdated construction methods, and unpredictable workshop conditions, incompetence, consisting of several sub-categories, such as poor monitoring and management of the project indicating weakness and inefficacy on the part of the contractor, necessitating more precision and consideration in the selection of the contractor. The third factor is design; this factors depends on three variables of mistakes in the design, changes in design and additional work. Mistakes in poor design or design, which are rooted in the designer's inefficacy, occur frequently. It must, also, be noted that unreal plans lead to changes.

Hypotheses or research questions:

Hypothesis 1: The legal factors affect the delay in the implementation of urban development projects in the marginalized areas of Sari.

Investigating factors causing delay..... (94)

Second hypothesis: Organizational factors are effective in delaying the implementation of urban development projects in the marginalized neighborhoods of Sari.

Third hypothesis: contracting factors are effective in delaying the implementation of urban development projects in the marginalized areas of Sari.

Fourth hypothesis: Time limitation is effective in delaying the implementation of urban development projects in the marginalized neighborhoods of Sari.

Fifth hypothesis: Credit and financial factors are effective in delaying the implementation of urban development projects in the marginalized neighborhoods of Sari.

Hypothesis: Accounting factors are effective in delaying the implementation of urban development projects in the marginalized areas of Sari.

Seventh hypothesis: The plan is effective in delaying the implementation of urban development projects in the marginalized neighborhoods of Sari.

Research methodology

The present research is descriptive correlational in terms of method and applied in terms of objective. The statistical population of the study consists of mayors and deputies, departmental officials and all related experts of the central municipality as well as members, deputies, unit managers and experts in areas 1, 2 and 3 of Sari Municipality, the total number of whom surmounted up to 500 subjects. Based on the standard sampling table of Cohen et al., 217 individuals were selected as the statistical sample and a mixed, integrated method was used to provide access to the study sample. Required data was collected through a researcher-made questionnaire, the reliability of which, 0/86, was calculated using Cronbach's alpha coefficient. In order to test the hypothesis of the research, given the normality of the data, one-sample t-test and the Friedman rank test were used to rank the variables.

Findings

Summary of the results of the statistical tests of the research hypotheses

Variable	The number of samples	T test	df	Significance level	Hypothesis test result
Legal factors	217	59/321	216	*/0.000	Confirmed
Organizational factors	217	63/182	216	*/0.000	Confirmed
Contracting factors	217	21/041	216	*/0.000	Confirmed
Time limitation	217	63/012	216	*/0.000	Confirmed
Credit and financial factors	217	57/421	216	*/0.000	Confirmed
Accounting factors	217	52/326	216	*/0.000	Confirmed
Design factors	217	47/243	216	*/0.000	Confirmed

According to the table above, given the calculated t statistics for the variables (t statistic=59.331% and sig=0/000 for the first hypothesis), (t=63/182 and sig=0/000 for the second hypothesis), (T= 21/041 and sig= 0/000 for the third hypothesis), (t = 63/012 and sig=0/000 for the fourth hypothesis), (t=57/421 and sig=0/000 for the fifth hypothesis), (t=52/326 and sig =0/000 for the sixth hypothesis), (t= 47/243 and sig = */0.000 for the seventh hypothesis), the zero hypothesis is rejected and the hypothesis of the research is strongly confirmed by the at a significance level of 0/95%; thus, legal, organizational, contracting factors, time constraints, credit and financial system, accounting system, and the design are quite effective in effecting delay in the implementation of civil development projects in the marginalized areas of Sari.

Prioritizing effective factors in delaying the implementation of development projects

Variables	Mean rate
Legal factors	4/46
Organizational factors	4/59
Contracting factors	4/31
time limitation	4/51
Credit and finance	2/46
Accounting system	2/39
Executing projects	2/14

Based on the results of the test, main factors affecting delay in the implementation of urban development projects are like the followings; Organizational factors with a mean of 4/59.

Time constraint with a mean of 4/51

Legal factors with a mean of 4/46

Contracting factors with a mean of 4/31

Credit and finance with a mean of 2/46

Accounting system with a mean of 2/39

Executing projects with a mean of 2/14

Discussion and conclusion

Following the economic growth, urbanization and infrastructure development have also experienced considerable progress. Infrastructure development is an integral part of country development programs in each country in the form of long-term, medium-term and short-term plans. Accordingly, the basic indicators of the growth and development of each country are the infrastructure which, in turn, is a fruit of the implementation of urban development projects in urban areas, especially in the informal and marginal areas of the cities; these structures, also, occupy a large section of the budget of countries. Carrying out such plans with the least obstacles and problems will provide quicker and better service to the people and; on the other hand, the prolongation of such plans will cause huge discomfort and discontent among citizens. The lack of proper planning for the execution of such plans would lead to improper use of the resulting resources and, consequently, delay in the implementation of the projects. Therefore, this research has been conducted with the aim of investigating the factors affecting the delay in the implementation of urban development projects in marginal areas of

Investigating factors causing delay..... (97)

Sari. The main focus of the research was determining the factors causing delay in the implementation of urban development projects in the marginalized areas of Sari. Finally, the results and findings of the research showed that organizational factors, time constraints, legal factors, contracting factors, credit and financial system, accounting system, and the execution of projects were the main agents causing delay in the implementation of urban development projects in the marginalized areas of Sari. Also, the results of the Friedman test showed that organizational factors with a mean of 4/49, time limitation with a mean of 4/49, legal factors with a mean of 4/46, contracting factors with a mean of 4/14, credit and finance with a mean of 2/46, accounting system with a mean of 2/39, and the execution of projects with a mean of 2/14 has the most and least impact on the delay in the implementation of urban development projects in the marginalized areas of Sari. The prolongation of the implementation time of the plans is an undesirable phenomenon with which the majority of cities are struggling, including the city of Sari as the capital of Mazandaran province; this phenomenon is much more noticeable in moderate, average cities and it causes social, political, economic, and cultural distress and, in general, will lead to public dissatisfaction among citizens.

Suggestions

- Modification regarding criteria for selecting contractors in terms of financial ability, technical and vocational knowledge, relevant work experience in the field of intra-urban projects.
- Employers and engineers of urban projects are required to initiate the implementation process after assuring the approved budget rather than conducting tender and determining the contractor.
- Establishment of a Committee for the elimination of disruptive installations, traffic and green space in all relevant organizations.
- Establishing planning and scheduling unit in Sari city municipality or Sari city council in order to determine the appropriate time (based on scientific studies) considering the conditions and limitations of urban projects in order to prevent the delay in opening the projects.
- Increasing the scientific capacity of engineers in project estimation and considering fines for consulting engineers in case of delays in the preparation of maps.
- Increasing the evaluation of various executive procedures (considering the limitations of urban projects) in order to change the implementation method during the occurrence of barriers.

Investigating factors causing delay..... (98)

- Authority and independence of the counselor's opinion in the domains of changing the method of implementation, changing the volumes, etc.) and giving a definite opinion to the employer after the decision is made.
- Use of specialized and related forces in the design of urban projects.
- Technical evaluation and detailed analysis of executive items, strengthening technical knowledge of managers and familiarity with new sciences related to project management.
- More careful consideration when reviewing the contractor's performance records on behalf of the employer and the consultant.
- Establishing a Committee for the elimination of disputes in all organs, including the Water Organization and the Electricity office.
- Establishment of urban unit management.

المخلص:

هدف البحث دراسة العوامل المؤثرة علي التأخير في تنفيذ مشاريع تنمية الحضرية في أحياء ساري الهامشية. منهج البحث وصفي مسحي و من حيث الهدف تطبيقي. يتكون مجتمع الدراسة الإحصائي من رئيس البلدية و المساعد و مسؤولي الوحدات و جميع الخبراء المعنيين في البلدية المركزية و كذلك رؤساء البلدية و المساعدين و مسؤولي الوحدات و كل الخبرا ذوي الصلة بمناطق ١، ٢ و ٣ في بلدية مدينة ساري و يبلغ عددهم إلي ٥٠٠ شخص. استنادا إلى جدول العينات القياسية من كوهين و الزملاء، قد اختير ٢١٧ شخصا كالعينة الإحصائية و للوصول إلي العينة قد تم استخدام طريقة أخذ العينات المختلطة (طبقة منتظمة). أجري جمع المعلومات من طريق الاستبانة. وفي الوقت نفسه، تم حساب موثوقية الاستبيان باستخدام معامل ألفا كرونباخ البالغ ٠.٨٦. قد تم استخدام اختبارات إحصائية الوحدة العينية من أجل اختبار فرضيات البحث نظرا للطبيعة العادية للبيانات و لترتيب المتغيرات، قد تم استخدام اختبار تقييم فريدمان. و أظهرت نتائج البحث أن العوامل التنظيمية، ضيق الوقت، العوامل القانونية، أصحاب المقاوله، الائتمان و المالي، نظام المحاسبة، تنفيذ المشاريع الأمنية علي التأخير في تنفيذ المشاريع المدنية و التنمية الحضرية تأثر في أحياء ساري الهامشية. أيضا، و قد أظهرت نتائج اختبار فريدمان أن العوامل التنظيمية، ضيق الوقت، العوامل القانونية،

Investigating factors causing delay..... (99)

على التوالي، كان لها أكبر الأثر في تأخير تنفيذ المشاريع المدنية و التنمية الحضرية لأحياء
ساري الهامشية

الكلمات الرئيسية : المشاريع المدنية ، التنمية الحضرية ، الأحياء الهامشية .

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