

The Effect of Urban Development Plans on City's Old Context

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Abstract. It is about fifty years that the comprehensive and detailed plans have been the directing instrument and documents for Iranian cities spatial development. Meanwhile, the old context of cities not only became adapted with the modern patterns and their urbanism impression, but also this issue impaired their physical-special structure. Isfahan is a city with primary biological cores; and its historical background is indebted to Zayanderoud River. The role of the river and its branches (Madies) has been very important for agriculture and city development. "Madi" is one of Isfahan urban environmental features, which antiquity of this element refers to the ages before Islam. Unfortunately, due to the city development of the city, some part of the city identity, namely Madi, was forgotten. This paper tries to mention the value of such a city environmental element that was very considerable in the past, and evaluate the effects of urban development plans on them.

1. Introduction

The Iranian cities that had evolved innately relying on local innovation and creativity, have changed during the recent decades and have lost most of their unique features. The historic cores of Iranian cities encompass a large number valuable historic landscapes and monuments. These areas are the product of a complex process of interaction between human and physical environment, taking place over many centuries. Until the early twentieth century, cities had been involved in a continuous process of change. Isfahan is a historical city, located in the heart of Iran by a dramatic modernization transformations which started in 1920s. The natural features are the most important factors in Isfahan existential causes and city formation. The special and valuable situation of the *Zayanderoud* river as an identity index of Isfahan and the existence of branching *Madi* (*Madi* is a local expression means the water stream) and expansion in the urban context accompanying with other historical elements have established an organic context in the city center [1]. The *Madis* play an important and multifaceted role in Isfahan, and since it is as a field (structural), historical and environmental (natural) element that is considered in the context of Isfahan, rehabilitation and conservation of them has a significant impact on the quality improvement of city.

It lasts over five decades of experience in preparing and implementing the comprehensive urban plans and consequently the detailed plans in Iran, the prepared and implemented plans which aims to solve urban problems and improve the lives of citizens, in some cases not only help to alleviate urban problems, but also make new problems in cities. Regarding the usual methods of urban development plans Isfahan have faced with three ratified comprehensive plans (*kocks 1959, Organic 1969, Revision comprehensive plan 1988*) and three detailed plans (*Organic detailed plan 1973, Revision detailed plan 1993, Review detailed plan 2011*) and a districted plan (*Isfahan districted comprehensive plan 1988*) that each one has affected Isfahan physical order. According to the performed studies on the detailed plans in Isfahan and the use of resources in this field, this paper tries to evaluate the effect of



the detailed plans in different times related to the Madis as the environmental prominent elements in Isfahan. Therefore, the status of Madis is reviewed in three detailed plans periods in Isfahan, i.e. pre-revolution (Organic Detailed Plan 1973), post-revolution (Revision Detailed Plan 1993) and contemporary (reviewed plan-detailed plan 2011). In other words, the main purpose of this paper is to analyze the status of Madis in the approved city plans and their effect of them on Madis as indicator elements of the old context of Isfahan. In this regard, the paper seeks to answer the question: “Is the current condition of Madis a feedback of approved urban plans and their instructions in order to protect the Madis?”

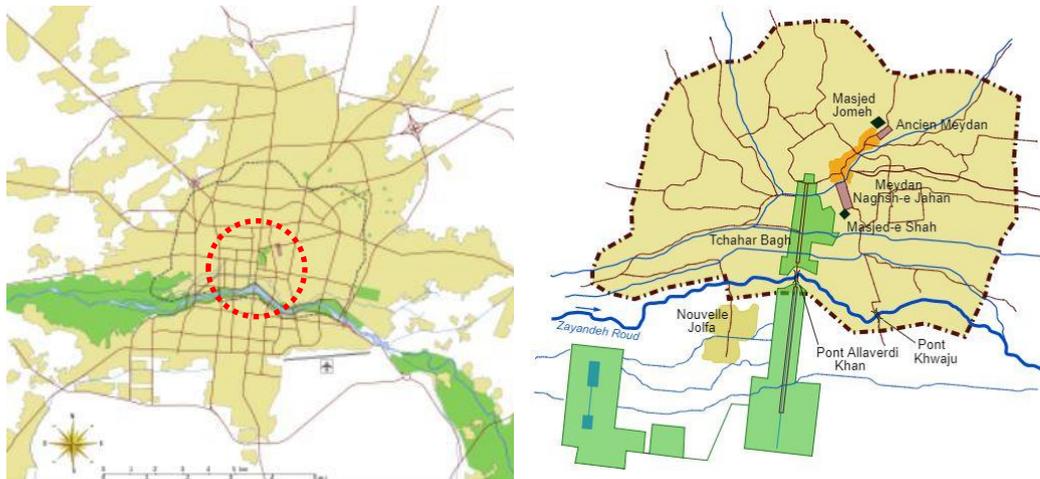


Figure 1. Left: Isfahan city– Right: location of Madies pass through the city

2. Materials and methods

The emergence and development of sciences related to urbanism and planning promotes the dissemination of several thoughts and theories of the city, urban development and spatial-physical effects. These theories were often stated during the last 150 years from the well-known researchers such as Eugene Viollet-le-Duc (1814-1879), John Ruskin (1818-1900), Camillo Boito (1836-1914), Camillo Sitte (1843-1903), Luca Beltrami (1854-1933), Ludico Quaroni (1911-1987), Gustavo Giovanni, Patrick Geddes (1854-1932), Le Corbusier (1887-1965), Lewis Mumford (1895), Kevin Lynch (1918-1984), Aldo Rasi (1931-1997), Christopher Alexander (1936), Constantinos Doxiadis (1914-1975), Richard Rogers (1933) who have addressed to recognize and break down the foundations of the old cities in different times and approaches in relation to the urban plans. Preparing the official plan of urban development in Iran has not so long history and its historical roots are referred to the beginning of a contemporary century. Therefore, the research literature of this subject is influenced by the roots of these new plans related to several current decades. Theoretical and sample fields of the studies that have been mentioned about Iranian cities draw a special pattern of socio-spatial and physical transformation that making the problems and difficulties is an obvious feature of it.

In the physical- spatial structure in Isfahan, Madis are multidimensional and multifaceted elements that many factors influence in their role and function in the urban system and also have a significant impact on the quality of the environmental context. Madis' length in the city is about 200 km and their width is between 15 and sometimes up to 45 meters. Also Madis are scattered across the city linear and can act as the green local and neighborhood axes. Thus, they must have an appearance according to today's life and meeting the needs and desires of people in the city; their rehabilitation is from essential actions for the city life and from those actions that may be done for upgrading the quality of urban environment. According to the socio- spatial and physical factors that interfere in Madis quality, the examination and explanation of Madis status based on all factors not only are impossible because of the wide variety of the required data, but also follow a danger of general speaking and superficial view; in this regard, evaluation and adjustment of qualitative difference of the detailed plans regarding Madis are based on the main components of the detailed plans. The methodology of this study is

analytical- applied based on environmental planning. Since the madies network as an urban issue needs precise investigations, field studies and analyses should be used to conduct the research. In order to do data collection, library and field methods were used. In this regard, investigation of approved comprehensive and detailed projects have been used.

3. Urban development plans in Isfahan

Urban planning and providing the related plans have extensively began since facing cities with the phenomenon of rapid growth of urbanization and they are placed in governmental programs. According to Iran Supreme Council of Urbanism and Architecture definition [2], detailed plan is based on the criteria and outlines of a comprehensive plan of the city as a legal document of spatial - physical development of the city and in addition to the planning regulations of urbanization has three main components, including street networks, land use and density of building. However, considering the Madis by urban planners and designers in urban development of Isfahan is tangible, but the current situation of Madis is not a description of rehabilitation and conservation measures of plans. Therefore, in the following to examine more comprehensive research purpose, among what we called the urban development plans mentioned in the physical transformations of Isfahan, we address the approved detailed urban plans.

Organic detailed plan (before Islamic revolution 1973): was approved to follow an organic comprehensive plan in the period of pre-revolution in 1973 [3]. In this plan, by limiting the urban development and by suggesting a population overflow in the satellite towns, constructing the new streets has been avoided in central and historical contexts of city. In organic plan, Madis' routes were seen as a pedestrian network to prevent passing cars and only the limited availability to the small and leading domain to the public parking area allowed. Madis axis is mainly from public service centers with a cultural, religious and educational role in places from neighborhoods' centers, the merchant role is emphasized beside it. In general organic plan, in addition to getting free Madis' route and creating the movement possibility over it, the legal limits of the routes, given hierarchy streams, has been evacuated from the building. In fact, there was a general ideology in Isfahan since the old days, there are two types of seasonal routes in Isfahan, one of winter routes used in cold seasons that include the roof-covered markets and bazars, the vast sunshine passages between the neighborhoods and the second, in the summer and warm routes which the adjacent passages of Madis and streams of water, of which they cover both parts of the city. From the very detailed features of the organic detailed plan is a floating plan; in fact, the management objective of organic detailed plan, with floating quality of land use in the plan is to give more and clearer details to the urban design that is also necessary due to the sensitivities and capacities of the historical context. Concerning height and density of constructions within the historical context, the proposals of plan are based on height and density restrictions.

Revised detailed plan (after Islamic revolution 1993): was prepared by the Naghshe Jahan Consulting Engineers [4]. It was almost a 20-year gap between the time of preparing this plan and organic plan, that due to outbreak of revolutions led to significant evolution in physical field of the city. During this period, there was almost no approved plan and criterion whatever that is an indicator of action sometimes is the municipal decisions and the Commission on Article 5 in the form of case decision mainly political without a comprehensive review. What are first and foremost in this plan are the significant expansion of the automobile transportation network and widening the city's many roads and even constructing the new streets. The enclosure of "Madis" based on the plan throughout its length is released and axially moving on foot has been seen. Passing the roadway in this plan contrary to the previous design alongside Madis is not removed, but this passage is limited to its adjunct home. In getting free the Madis enclosure, the widening has taken place in relation to the existing Madis axis and only valuable historical home remains safe from widening. In this plan, available public uses are reinforced around Madis but in the scale of the neighborhoods, there are no substantial changes unless where Madis are placed in the periphery of the urban street. Residential buildings in both sides of Madis have a special code in the detailed plans. Accordingly, by limiting the height and increasing it along the special angle of Madis on the one hand, the desired breeze can penetrate into the depth of the city and on the other hand by opening the crossing section of Madis, the major part of a green valley is

full of trees in the urban landscape. In this plan, the land use are fully fixed and contrary to the organic plan they are not stated in the floating plan.

Revision detailed plan (contemporary era 2011): The review plan ratified in 2011 by five counselor engineers (Atak, Bavand, Saravand, Sharestan, and Shahr va khane) charged as district responsible counselor engineers and Naqshe jahan Pars counselor engineers as the coordinator counselor engineer [5]. The composition of detailed plan revision is based on sustainable development principles and strategies, social development, organizing the population inhabitant, economic development and prospers of activities in the city, communicating net improvement, environment protection, green space expansion, tourism, and reformation and reconstruction of old historical context of Isfahan. Centralize all urban plans under the supervision of municipal urban designing organization such as historical context restoration, cultural places, community and cultural centers, sport places, parks and green spaces geometric reform plan, old contexts exhilarating, different elevation intersections, pedestrians, the third chain of Isfahan traffic, urban furniture, Zayanderoud river boundaries construction, Madis designing and reconstruction in order to optimizing the plans from quality and design value aspect and decrease in designing costs and performance of projects.

4. Finding: analyzing madies in Isfahan's detailed plans

Though the urban plans and particularly in scale of the detailed plan plays an unbearable role at least in shaping the city's body, but because of the variety of the conditions of these plans included, study of all plans is excluded in current paper. Therefore, in the review and analysis of the research process, it has been sought to choose the criteria that have the greatest impact on the form and performance of Madis and selected criteria in the detailed plan in different periods are investigated in association with Madis. Table 1, shows comparison of obligations and criterions of each three plans, concerning the main components of them (land use, buildings density and network) regarding the Madis.

The maps comparison shows that the Madis bound has faced with lots of changes concerning the buildings height and density. The organic detailed plan has considered the height of buildings in the Madi bounds up to two floors (7.5 meters) from the ground. It is not comparable with other two plans from this side; on the other hand the height identification of other two detailed plans indicates the major inequality. The high constructions on the Madis bound followed with the increase in the buildings height, density, the motorist traffic and doesn't indicate the protective approach of the plans (figure 2).

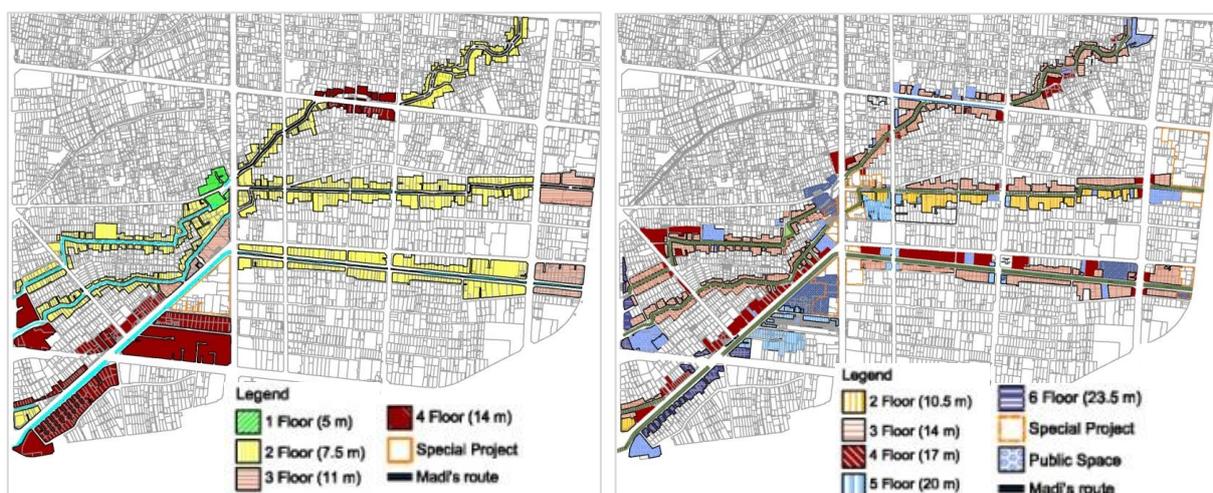


Figure 2. Madi's frontage building density (Left: Revised Detailed Plan, Right review detailed plan)

Table 1. Comparing of rules and regulations of Isfahan's detailed plans in relation with Madis

	Organic Detailed Plan (1973)	Revision Detailed Plan (1993)	Review Detailed Plan (2011)
Land use	Balanced concentration of public services through the available markets in the vicinity of Madis and distribution of new services to surrounding area; Appropriate activities with historical functions of area; Payment of parking tolls by properties along the pedestrians of Madis, in accordance with a detailed plan to the municipality to create the parking in the properties; The minimum subdivision area for the residential land use 300m ²	The minimum subdivision area for the residential land use 500m ² ; Authorized commercial functions of the residential land use with the municipal agreements including permitted use of independent activity or commercial and service activities for quarters (maximum area 30m ²); Dedication of code MS to the Madis bound (special residential land use and public services); Considering the public service uses, educational facilities, green space and religious uses in Madis margin;	Commercial land use (daily market at the neighborhood, region and city level) using fruit and vegetable market and seasonal exhibitions and markets; Public green space as major land use; Commercial neighbor containing historical value, daily market, commercial complex; Authorized commercial usage of residential land use units in frontage of neighboring inter district and sectors main passages under the condition of municipal permission; Specific residential land use only for residential use and authorized items
Density	Considering the average density for residential and commercial land use; The buildings' height up to 7.5m; Not being obligatory to recess from the ally in the pedestrian passages with less than 6m width in the ground floor; Coordination of residential density from the aspect of construction level and the height of the buildings with the existing context;	The maximum floors for the first row of Madi's frontage is two and for the second row is three floors; The maximum number of floors for kindergarten and medical center is one floor and other public services land use is two floors; The permitted height is for the same boarders areas and it can't be more; The maximum number of floors for the same boarders ownerships with the codes: N 1.7, N 1.12, N 1.10 (Jolfa historic area, Takhte Poolad religious cultural complex and historical-cultural areas) is one floor; The maximum height for the public buildings in one floor is 5m and two floors buildings is 7.5m	In the adjacent pavement of Madis with a width of 6 m, the maximum allowable building height of 10.50meters (two storeys); In the adjacent corridor with a width of 6-8 meters of Madis, the maximum allowable building height of 14 meters (three storeys); In the adjacent pavement of Madis with a width of 8-10 m, maximum allowed height of 17 meters (four storeys); In the adjacent corridor with a width of 10-14 meters of Madis, maximum allowed height of 20 meters (five storeys); Recess with at least 2m from Madi, all the floors without any building construction and as the outdoor places under the owner authorization and adding maximum one floor up to the approved height;
Network	Removing the proposed streets with the comprehensive organic plan in this area; Maintaining valuable and important passages; Establishment on motorist access in the low valuable pathways of the context All access restriction limits up to 10 m; Recess only on low valuable passages; Allocating the Madis' margins to main pedestrian crossings and preventing disconnected by motorists;	Building doors with more than 1.5m width in the impending side to the Madis which is regarded for the pedestrian is not permitted; Devotion of around Madis path to the pedestrians and the prohibition of the motorist movement; Limited, non-continuous paths for emergency vehicles with a maximum width of 3 meters in the places that the owners of the plates have the access only through the Madis margin; Widening the Madis passing equally from the existing axis except the existence of valuable buildings from architectural and historical aspect;	Principled separation of the pedestrian and motorist path in a part that is dedicated to the motorist; Prohibition of motorist access from the Madis side in the blocks that have other accesses than the Madis side; Connecting Madis with a network of walking routes between the neighborhoods of surrounding area; The priority of moving Madis around the path with pedestrian crossing and the prohibition of the motorist, except for certain cases; Establishment of especial bikeway with at least 2m width by the differentiation in its flooring along the Madi path and building parking lot for bicycles in every 500m; No obligation to recess in historical buildings or aging trees adjunct to Madis; Establishment of special path with maximum width of 5m for to the emergency vehicles for parts that only have access to Madis axis

The basic of pathways network of this area, is old axis (Chaharbaq axis and inter sector historical passages), modern urban axis (new streets) and natural axis (Madis). The comparison of aforesaid pathways net map of detailed plans doesn't show significant changes; these changes demonstrate the purification of Madi bounds and antecedence to their boundaries were a few with inconsiderable dimension; the accomplished sitting back from Madis bounds are aimed at facilitating the motorist traffic. Establishment of little squares and urban open spaces in the reconsideration plan for detailed plan are other differences of this plan that are not considered in other detailed plans.

The maps of comprehensive plan that are prepared in a more general scope than the detailed plans shows the dominant land use arena identification as field division. These maps are represented in the form of land use in the detailed plan [6]. In Organic Detailed Plan the land use of the Madis bounds are mostly residential and its changes in this field is completely obvious with other two plans; therefore the major changes of other two detailed plans are shown here (figures 3,4).

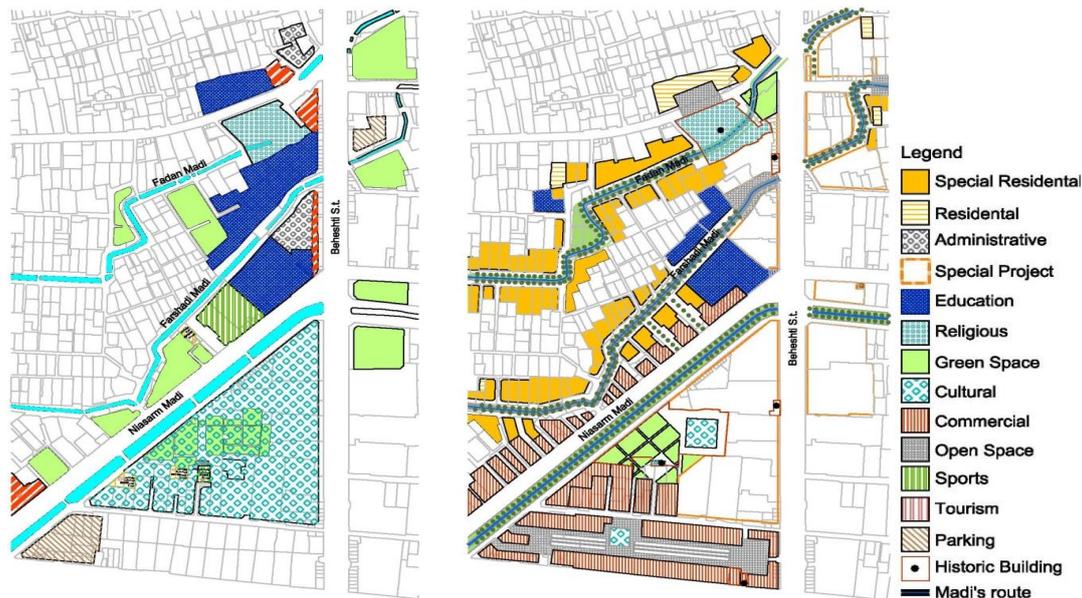


Figure 3. Land use comparison of connection place of Niasarm, Farshadi and Fadan Madis with Beheshti Street (left: Revision Plan 1993 - right: Review Plan 2011)



Figure 4. Land use comparison of Fadan Madi (left: Revision Plan 1993- right: Review Plan 2011)

5. Discussion and conclusion

It has been for five decades from the preparation of urban development plans including directing, comprehensive, and detailed plans aimed at harmonized urban physical development. But they have not been able to achieve their objectives for the lack of scheduling comprehensive system governance on the total country. On the other hand, the origin of these plans shows inconsistencies with Iran land variety and features [7]. The evaluation of current status of Madis indicates that there is considerable

distance and difference between the reality (current situation) and the images of Madis derived from the plans. These differences are obvious almost in all determined components -except the main urban pathways- including the buildings height, land use, and Madis boundaries pathways.

Madis are one of the important features of Isfahan that have been able to resistant from the very first day of its formation until now. They have preserved the city life as a coherent generalization in the physical structure and Isfahan space organization. In the current period the socio-economic, union, and ethnic structures in the past provided the causes of sectors' distinction from each other socially and culturally on one hand and the causes of the internal coherence and social and cultural correlation of each sector have been destroyed. Consequently the appropriate physical structures and spaces had been stopped from coordinated changes.

It has been about five decades that Isfahan has systematic detailed plans and all of them have emphasized on Madis values and importance and introduced its bounds as special one and has composed serious criterion and regulations for them. But the Madis problems has become more than before. The high construction issue in their bounds, fast and easy access of the motorists to the neighboring houses and consequently the persistence on the purification of its bounds and over setting back proportionate to their circumstances are from these problems that are investigated in this survey. Apart from the changes in life style and the evolution of the urban activities, the main reason in weaknesses of local functions of Madis in the current time, can be observed in the urban planning methods and techniques that are unable to produce and establish functional, social, and modern human communications appropriate with the modern requirements in the Madis span. Table 2 [8], evaluates the detailed plans from the view of their objectives and concepts, evaluation and ratification, and their implementation issues and problems.

From the structural examination of the Isfahan Madis and the analytic point of view in the urban development plans role, it is deduced that:

- There is no predetermined and unchangeable destiny for the city and its current identity is caused from the long lasting gradual transformation or rather short time fundamental evolutions that are occurred during the time and will continue in future inevitably. The truth shows the implausibility of some claims regarding the historical identity that seems to be updated resisting in front of any type of dynamic changes.
- Lowering the dignity of historical heritages and flawing the dynamism of past to present and future connection facilitates the way of ignoring the historical cores of the city.
- A stereotyped behavior, regardless of the city incipient movement and the political and social realities brings the defeat by itself. Single-dimensional modernism that is going to establish evolution in the urban structure ignoring the national and traditions heritages and society cultural evolution cannot work in a way but unconsidered and primarily destructive measures.
- Being bounded to the principle of objectivity demonstrates that the composition of objectives must be done through observing society political structure, the real amount people participation in decision making, the existence of the beneficiaries groups, economic situations, and the role of land, work and goods.
- The strong character of the city has had a considerable effect on the designing trend and is elegant despite lots of urban plans offers.
- The urban spaces in Isfahan have not formed from simple arrange of buildings and axis by each other; but each of them are a collection of functional relation and elements that are organized in a body and any flaw to any part of it can ends in its whole eradication. So although the penetration in the context has got historical necessity for entering modern elements of city life, this measure must be taken according to structural –incipient legality.
- Without real participation of people, while there is a possibility of idealistic elements penetration in the plans optimistically, no assurance exists for the plan's objectives and programs success.
- Physical preparations cannot provide required instruments for controlling urban developments. The urban expansion is a multi-dimensional phenomenon that the physical aspect is its

updated observable face; so it is impossible to defeat such a complicated issue successfully with a single-dimensional solution.

- Considering the previous plan ideas in the entire modern ideas codification is a positive point that has brought such endurance in the procedure of programming and has compensated the premature invalidity to some extent.
- The entity of the plans have been needed to the strong and centered interference of the government in many cases; but the responsibility of state institution had been in a way that in many cases people and the city are being impressed by the beneficiaries or victimized by the deliberations. This is the truth is unfortunately not supported by any urban plans and the performance discussion doesn't have any significance there. The separation of scheduling from performance and the custodian organizations for city governing inefficiencies had been always effective in the plan's relative fiascos.

Table 2. The evaluation of detailed plans from the view of their objectives, content, and performance

Content and objectives of the plans	Evaluation and approval	Executive problems
<p>Lack of connection among the three components of population, activity, and function</p> <p>Lack of appropriate connection between the counselor engineers and urban management</p> <p>Lack of agreement with Madis conditions</p> <p>The assimilation of the detailed plans for the whole city</p> <p>The urbanism offered patterns being stereotyped and the plans' content lack of appropriateness with the sectors needs</p> <p>Separation of Madis from environmental district in effective components on sectors space organization and function</p> <p>The manner of similar interference in all urban contexts types including historical, ancient, developed, and marginal</p> <p>Mere attention to physical subjects and issues and ignorance of the third dimension related matters and the quality dimensions of the environment and socio-economic dimensions</p> <p>Lack of attention to the local conditions and ignorance of people participation</p> <p>Non significance of Isfahan immense politics</p> <p>Lack of dynamism in the comprehensive and detailed plans and being recognized as absolute</p> <p>The criterions being expanded and awkward</p> <p>Lack of connection among the studies and designing</p>	<p>Lack of sufficient attention to the evaluation and composition trend</p> <p>Long distance between the preparation and composition time of comprehensive and detailed plans</p> <p>Being state plan and the priority specification by the governing system</p> <p>The interference of responsible personal elegance</p> <p>Emphasis on the assessment of physical suggestions</p> <p>Lack of executive facilities consideration</p> <p>Absence of composed system in supervision</p> <p>Ignoring the role and participation of people in plans utilization</p>	<p>Lack of people and social institutes participation</p> <p>Absence of any control lever and criterions in the expedite city development</p> <p>Lack of coordination between plans and zonal constructing programs</p> <p>The plan's financial and credit not being predicted</p> <p>Technical employees shortage (human and executive force)</p> <p>Centered decision making system</p> <p>The change in the effective components quality coefficients on time passing derived calculations and predictions</p>

References

- [1] Kalantari S 2009 *Spatial & Physical Planning Of Old Fabric Madies of Isfahan as Urban Pedestrian Network*. Master thesis, (Tehran: Islamic Azad University) p 123
- [2] Iran supreme council of urbanism and architecture 2009 *urban development and architecture & urban regulation* (Tehran: Iran Development) p 144
- [3] Organic Consulting Eng 1973 *Detailed plan of Isfahan master plan*. Isfahan General Directorate of Roads and Urban Development.
- [4] Naghshe-E-Jahan Pars Consulting Eng 1993 *Detailed plan of Isfahan: Urbanism construction criteria* (Isfahan General Directorate of Roads and Urban Development)
- [5] Isfahan municipality 2011 *Planning and building regulations detailed design plan review* (Tehran: Department of Planning and Architecture)
- [6] Behzadfar M 2011 *Design & plan in urban development* (Tehran: Iran University of Science & Technology Press) p 50
- [7] Qamami M the concise criticism and evaluation of urban plans 1992 *ABADI* **7** 30 25
- [8] Habibi K, Behzadfar M, Meshkini A, Alizadeh H, Mahaki V Evaluation of the effects of urban development plans on qualitative promotion of Iranian old city space 2011 *Motaleate-e Shahr-e Irani Islami* **4** 26