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THE EFFECT OF CLIMATE ON IMPROVEMENT OF DAMAGED HOUSING ARCHITECTURE IN SUSTAINABLE URBAN DEVELOPMENT (CASE STUDY: NEIGHBORHOOD SRDRGAN IRANSHAHR)

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ABSTRACT

Urban deterioration is a sign of physical and socioeconomic conditions which have occurred as a result of long-term neglect of buildings, infrastructures, and passages deprived of appropriate situations for living. The present article is intended to examine and evaluate the role of rehabilitation of deteriorated textures at SardarganIranshahr Locality, Iran, in sustainable development. Our methodology is developmental-practical together with typological and analytical methods used as appropriate. Analysis of this research is carried out in two descriptive and inferential levels. In descriptive statistics level, statistical indices such as frequency and percentage are applied. In analysis level, on the other hand, inferences are made in accordance with available data, suppositions, and software SPSS and GIS. According to conducted analyses, this is concluded that a type of intervention in which functionalist and culture-oriented methods are combined is the most suitable approach to reach at sustainable development. It means that residents are, in a synchronous manner, inclined to complete rehabilitation projects in a combined functionalist and culture-oriented method.

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KEY WORDS

Deteriorated texture; rehabilitation; functionalist method; culture-oriented method; participation; sustainable development

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INTRODUCTION

Old urban regions, which have been spaces responsible to their residents' needs upon their formation, are currently devoid of potent performance as a result of technological, biological, and socioeconomic developments. While they used to be a place of wealth accumulation and powerfulness of cities, these regions are presently experiencing weakened civil services and infrastructures, being unorganized in their physical aspects [1]. Rehabilitation plans, with regard to their broad dimensions, are intended to arrive civil life into a sustainable development. Rehabilitation implies betterment and development of civil dimensions that have been accompanied with this concept right from the scratch. Accordingly, civil rehabilitation has several plans, and its focal objective is urban sustainable organization and development. In delineation of urban sustainable development, elements such as socioeconomic, cultural, and environmental stabilities possess strategic roles. In the meanwhile, this is important to address the urban rehabilitation as an interaction among processes, elements, and instruments engaged in affairs associated with sustainable development and urban management, the contexts which are unavoidable in reaction to defects and inequalities as well as economic, spatial, and environmental inefficiencies [2]. The present study, therefore, was formulated to examine and evaluate the role of rehabilitation of deteriorated textures at SardarganIranshahr Locality, Iran.

Statement of Problem

Rehabilitation is improvement of textures and their internal elements. It includes a body of actions that are adopted respecting physical consistency with primary patterns and maintenance of textures and elements therein. In non-physical aspect, rehabilitation is able to electrify internal life [3]. In urbanization, rehabilitation is concomitant with actions and predictions to better quality of physical and spatial environments. It means that a better spatial environment is achieved if modern facilities are furnished [4] an increase in lifetime[5]. Deterioration implies inefficiency and reduction in effectiveness of a texture as to efficiency of other urban textures. Deterioration of textures and their internal elements is caused by lack of development plans and technical supervisions thereon. Repercussions of texture deterioration, which ultimately lead to an excretion of city's respect by citizens, are

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emanated in different modes including reduction of safety and environmental conditions as well as physical, socioeconomic, and facility disarrangements [6].
A sustainable development is one which fulfills requirements of the present generation without endangering those of upcoming ones [7].

: 1). Our cities have shown the best types of resistance in the past. In this research, therefore, conditions of constructions and buildings are assessed in both qualitative and quantitative terms. This is to address whether or not cultural and socioeconomic status of residents have had impacts in this regard. This is intended to identify deteriorated textures at SardarganIranshahr Locality, Iran, and determine deterioration indices and role of local rehabilitations in urban sustainable development.

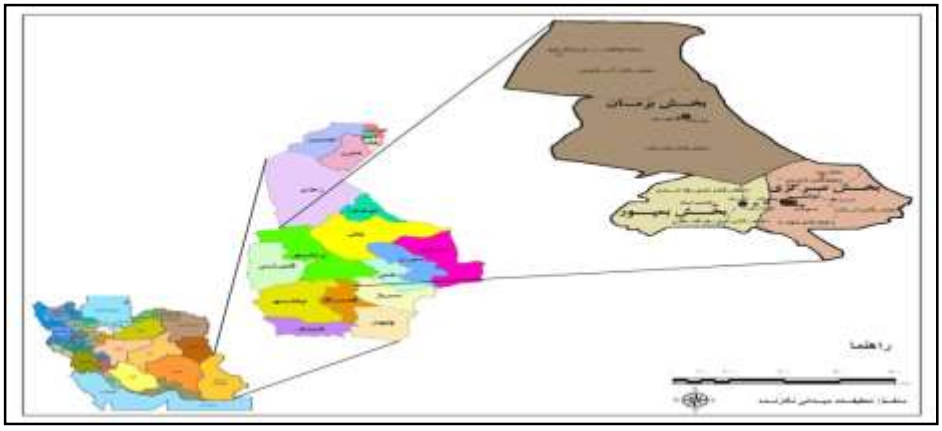

Fig. 1: position of Iranshahr province in political divisions

Literature Review

The issue of deteriorated textures has had so great significance that it has attracted several research attempts both in Iran and outside. Studies conducted in Iran have not been limited. Subsequent to recent earthquakes in Iran, higher attention is paid to deteriorated textures, and an enormous number of seminars and conferences have been arranged by Municipalities, City Councils, etc. While the frequency of books directly addressing deteriorated textures is slim, the massive number of articles and theses in this regard is indicative of huge attentions by students and technicians. Included in these authors is Narimani (2000) who, in his work Rehabilitation of Historical Textures, presented orderly solutions for organization of aged textures and experiences gained by some countries in this regard.

MATERIALS AND METHODS

In this research, data was collected in two library-based (descriptive and statistical information from books, publications, statistics, and articles) and field-based (interviews, questionnaires, maps, and demarcation of deteriorated areas) manners. To collect primary information, sample surveys were conducted in SardarganIranshahr Locality, Iran. Statistical population included all Sardargan residents. A number of 120 persons were chosen as samples, whose number, with respect to existing time and financial limitations, was determined by Cochran Formula.

To collect required data, questionnaire was designated. In order for a questionnaire to have needed validity, researchers have to show their questionnaire to relevant experts and remove dark spots and defects existing in their instrument. After applying plausible comments, authors would develop their questionnaire and get it affirmed by experts. In order to evaluate questionnaires' reliability, Cronbach's alpha was applied, based on which reliability of this questionnaire was calculated to be %85.2, the value which is indicative of high reliability of this measurement instrument. Analyses were performed in two descriptive and inferential levels. In the former, statistical indices such as percentage and frequency have been employed. In the latter, furthermore, chi-squared test and SPSS and GIS were used, as appropriate.

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Fig. 2: Sardargan locality and position of deteriorated textures

General Characteristics of Deteriorated Textures

Lifetime of buildings: More than %80 of constructions in deteriorated areas has a lifetime of exceeding 50 years. Or else, if they are constructed within the last 50 years, they dispossess required technical standards, as recognizable by their countenance.
Resistance to earthquake in such constructions is mostly low, being unable to defy average- to high-pressure earthquakes.
Type of materials: the materials employed in such textures are typically bricks, clay bricks, woods, and iron in which vertical and horizontal connection regulations are disregarded and fuzzy system is absent.
Grading: residential constructions in such textures are mainly fine-grained and area of their arena is less than 200 square meters in average.
Accessibilities: deteriorated textures possess disorderly structures and their accessibilities have essentially been designed for pedestrians: most passageways are either dead-end or have widths less than six meters with low permeability coefficients.
Number of floors: most constructions in deteriorated textures have one floor or two.

Urban services and infrastructures: deteriorated textures confront serious shortage regarding their services, infrastructures, open spaces, green spaces, and public spaces. Interventions in such constructions would be of aggregation and rehabilitation types [8]

Dimensions of Sustainable Development

In a systematic relationship in an interactive and dynamic system, sustainable development might be discussed under the following rubrics [9]:

- Physical and biological aspects (environmental aspects);
- Social aspects;
- Economic aspects; and,
- Physical and skeletal aspects.

More in-depth divisions are possible within each main aspect mentioned hereinabove, which are essential in operation phase.

Viewpoints Regarding Improvement and Rehabilitation of Deteriorated Textures

Culture-oriented viewpoint: Augustus and WelbyNorthmirPugin are founders of this viewpoint. They believe that a good construction has a good performance so that it is recognizable at the first sight. A culture-oriented urban planning decides based on patterns of spiritual needs, dominance of native cultures on non-native ones, dominance of small cities on larger ones, dominance of democracy on dictatorship, and dominance of group needs on personal ones. As a result, a large, geometrical city is negated and general constructions and spaces are emphasized.

Humanist viewpoint: Christopher Alexander, Patrick Geddes, and Kevin Lynch are 20th century scholars who have made their statements on improvement and rehabilitation on the basis of humanist theories. Their theories are influenced by participation urbanization theories presented in the last decade of the 20th century. Their main purpose was to pay attention to people and their participation in urban improvement and rehabilitation based on humanist theories and participation of citizens.

Development-oriented viewpoint: In this perspective, individuals and human beings constitute the foremost focus. Individuals, in their humanistic scientific and literary developments, have made required mental arrangements for a revolt against resilient asceticism into deeps of the Middle Ages. This school focuses on a departure from cultures and histories of the past, as it gives no room for nostalgic ideas in a modern community. Development-oriented thinkers tend to propose a pattern in which four human needs and four main functions of an urban land are emphasized: profession, leisure, housing, and traffic.

Performance-driven viewpoint: It allows for any exploitation of the space aimed at obtaining greater profitability. In this mode of thinking, economic issues are of paramount importance, while social and cultural matters occupy no suitable position. Practical application of this viewpoint comes with the following outcomes:

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- Facilitation in new movements through establishment of modern quick connection networks;
- Orientation of space into polarization of activities (chiefly unemployment);
- Drastic changes in social structures;
- Physical demolition of a main part of textures in terms of a reshaping of their functions; and,
- Destruction of architecturally valuable constructions and edifices [10]

Functionalist viewpoint: No school of thought has ever experienced as much disagreements as the Functionalist viewpoint has: it is totally rejected by a group of theorists and, by contrast, utterly known as the most comprehensive view. Despite all such disputes, the Functionalist viewpoint continues to breathe well into the current years since the 20th century. It left huge impacts on geographical studies in the first decades of the 20th century. According to the Functionalist viewpoint, a region is a functional unit as an organism more than addition of its own segments [11].

Sustainable Development viewpoint: Old textures have encountered a crucial conflict in the contemporary age. On the one hand, their spatial and historical identities are defined by pre-industrial human, economic, and cultural identities, and, on the other, they are confronted with powerful requirements and needs of the post-industrial time [11].

Main Urban Framework Organization Viewpoint

In this theory, the impacts by urban development on possession of a clear image of urban frameworks are described. In this way, each part of the city could be able to be expanded in connection with main framework and has the capability to modification. In this theory, harmonization of a city's development system with its natural geographical coordinates is deemed as essential, and this action is known as a suitable instrument for focusing on visual manifestations [12].

Urban Deteriorated Textures Rehabilitation and Improvement Theories

Gentrification theory

Gentrification theory deals with modification of housing plans and improvement of social living in old, central regions particularly for high-income social classes, low-children families, and the youth. In gentrification theory, the fundamental argument is that neighborhoods around core commercial centers are occupied by working classes and poor groups particularly immigrants of color, ethnic minorities, indigenous elderly groups, and immobile groups as a result of congestions, exhaustions, urban environmental pollutions, reduction of urban security, spread of social disorder, reluctance of the private sector for investment, and other defects.

Accordingly, and based on the gentrification theory, urban improvement and rehabilitation is facilitated through encouragement of private and governmental developers and investors. This frustrates low-income and rural groups from living in the region only to be replaced by average groups and high-income classes. This process provokes an increase in rent costs at city-centers, alluring purchasers who search for investment occasions to return to central parts of cities [13].

Dis-Deprivation Theory and Social Planning Strategy

Instead of rehabilitation of monuments, this strategy focuses on socioeconomic plans and resolution of peoples' social and economic problems. According to this theory, required grounds for implementation of urban organization policies and plans are, first of all, identified through analysis of reasons (urban deterioration and deprivation). A study conducted in 1977 regarding central part of cities showed that urban social and economic imbalances have their roots in policy-making characteristics in urban large-scale economic levels. Therefore, this is important to pin such plans as social dis-deprivation, improvement, and rehabilitation into the to-do list instead of physical solutions like improvement and rehabilitation of urban frameworks in order to organize city-centers and other deteriorated regions. Consequently, deterioration and dormancy in city centers and old regions might be known as a cause of economic deprivation and poverty and their improvement paves the path for protection of old cultural textures and necessary developments.

Application of Social Capital as a Persistent Solution in Determination of the Deteriorated Textures Issue

Empowerment of societies using social capital is a relatively new topic in urban planning that can be presented as a persistent solution through completion of required theoretical basics, i.e., Iranization process, in order to diminish poverty levels and improve socioeconomic status of local communities. Participation is completed by social transformations, and it is made compatible to social attitudes, approaches, and institutions. As societal developments are popularized, importance of participation and its role in social development process is more emphasized. Participation is a process of civil self-instruction. Social participation, social reliance, and social coherence constitute building blocks of social capital.

RESULTS

In this section, the data collected from the research's case study is analyzed through inferential statistics. The first hypothesis indicates that "The type of intervention in which functionalist and culture-oriented methods are combined is the most suitable approach to reach at sustainable development."

To examine this hypothesis, functionalist and culture-oriented indices of residents were analyzed in a synthetic manner. In doing so indices such as tendency of residents to rehabilitation using traditional materials, a desire to have rehabilitation in traditional ways, the method by which building densities located in traditional textures are transferred, importance of value of the land, economic interests of residents, preservation of historic buildings and precious textures were investigated.

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In order to examine this hypothesis, Pearson chi-square test was applied based on measurement index of variable, whose results are shown in the following **[Table-1]**.

Table 1: results of investigation of functionalist intervention method on development of locality

Analysis method	Value	Degree of freedom	Level of significance
Pearson chi-square test	37,223	16	0.002

According to results of this examination, this is safe to indicate that since significance level of the test, i.e., 0.002, is lower than 0.05 in confidence level of %95, this is concluded thatfunctionalist intervention method provokes sustainable development.

Table 2: results of investigation of culture-oriented intervention method on development of locality

Analysis method	Value	Degree of freedom	Level of significance
Pearson chi-square test	32,831	16	0.008

According to results cited in the **[Table- 2],** this is safe to indicate that since significance level of the test, i.e., 0.008, is lower than 0.05 in confidence level of %95, this is concluded thatculture-based intervention method provokes sustainable development.

Table 3: results of investigation of the combined functionalist and culture-oriented method on development of locality

Analysis method	Value	Degree of freedom	Level of significance
Pearson chi-square test	30,402	16	0.016

According to results of examination of the first hypothesis, this is safe to indicate that since significance level of the test, i.e., 0.016, is lower than 0.05 in confidence level of %95, this is concluded that the combined functionalist and culture-oriented method provokes sustainable development.

The second hypothesis indicates that "The most important role of residents is their maximized actual participation in rehabilitation and refurbishment of deteriorated textures."

This hypothesis examines the impact of residents' inclination to emit maximized participation in rehabilitation and refurbishment of deteriorated textures. In order to examine this hypothesis, Pearson chi-square test was applied based on measurement index of variable, whose results are shown in the following **[Table-4].**

Table 4: results of investigation of the impact of maximized participation in reconstruction of the locality

Analysis method	Value	Degree of freedom	Level of significance
Pearson chi-square test	42,335	16	0.000

According to results of the Table 4, this is safe to indicate that since significance level of the test is equal to 0.000 is in confidence level of %95, this is concluded that the residents' inclination to rehabilitate texture of their living region leaves impacts on their participation degrees.

Outcomes of the Research

According to results of questionnaires, socioeconomic and physical characteristics of the texture under investigation are as follows:

- An amount of %74 of persons under study has academic degrees lower than diploma. In this study, around %26 of subjects have high academic degrees.
- Most subjects, i.e., %70 of them, determined their income levels to be ranging between 300,000 to 500,000 Iranian Rials.
- Respecting occupations, the highest frequency, i.e., %32.5, was allocated to self-employed persons, and the lowest frequency, i.e., %8.3, to retired ones.
- The people under study indicated their most important reason for living in Sardargan to be their kinship relativities (%50), low-priced housing facilities (%38), and vicinity to their workplace (%12).

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- An amount of %51.7 of subjects indicated that their educational, recreational, and green space accessibilities in Sardargan are weak. By contrast, an amount of only %11 of subjects regarded acceptable their access to such functions.
- An amount of %58 of subjects have high tendency to leave Sardargan, and only around %12 of them incline to remain at Sardargan Locality.
- An amount of only %17 of subjects is satisfied with the manner by which their locality is subject to rehabilitation; while, almost %50 of subjects are dissatisfied with this conditions.
- More than %50 of the individuals under study have evaluated quality of the monuments in Sardargan Locality as *unsuitable*. Whereas, only %8 of subjects regarded as *suitable* the quality of the monuments in their locality.
- Most subjects, i.e., %66, consider as essential the rehabilitation of Sardargan Locality, and only %7 rejected such rehabilitations.
- An amount of only %16 of subjects has reliance on municipality of the region to make engagements; while, around %42 of them are distrustful of the manipulations performed by the municipality.
- Most passageways of this locality are made of compound pavements, and only a limited number of passageways are of asphalt pavements.
- According to the research's results, this may be indicated that %75 of the subjects wish rehabilitation projects to be performed in their locality, from which an amount of %49 demand a combined participation by people and municipality.
- Results show that %25 of buildings are newly constructed, %58 of them are reformed, and around %17 of them are to be destructed.
- The most important problems in Sardargan are stricture of passageways (%61), deterioration of locality's textures (%20), and absence of environmental health (%7.5).
- Main causes of locality texture's deterioration are archaism of the region (%34) and high density (%31), as suggested by residents therein. Inattention of civil managers and low levels of residents' income (%17.5) are tanked next.
- Results show that only %32 of buildings are lodged by one family, and the rest are shared by several households. Three families in one unit has the highest frequency (%32) and more than four families in one unit has the lowest frequency (%1).

DISCUSSION AND CONCLUSION

The present trends of urban rehabilitations and improvements are illustrative of the fact that these regions would be subject to higher problems in case preventive actions are failed to be adopted and governmental and municipal measures remain in the same levels as before.

The first hypothesis indicates that "The type of intervention in which functionalist and culture-oriented methods are combined is the most suitable approach to reach at sustainable development."
According to the analyses, this is concluded that residents are, in a synchronous manner, inclined to complete rehabilitation projects in a combined functionalist and culture-oriented method. It means that the more they are inclined to maintain their older edifices and values, the more they are attentive to their economic interests. Accordingly, the first hypothesis of the research is affirmed.

The second hypothesis indicates that "The most important role of residents is their maximized actual participation in rehabilitation and refurbishment of deteriorated textures."

Based on the results, this is expressed that the level by which residents are inclined to have renovated locality affects their tendency to participate in this issue. It means that the higher they are inclined to rehabilitate their region, the higher would be their participation degrees in this regard. Accordingly, the second hypothesis of the research is affirmed, as well.

Suggestions

- Wholly unvalued buildings are proposed to be destructed only to construct green spaces and civil facilities in their stead. Civil environmental conditions should be bettered.
- New functions, as proportionate with nature of constructions and spaces, are suggested to be allocated. New urban spaces are to be established to prevent deterioration of older functions. Interiors of residential houses

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are proposed to be modernized and present-age infrastructural facilities to be employed. Incompatible functions are suggested to be effaced.

CONFLICT OF INTEREST

Authors declare no conflict of interest

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