

Determining Urban Textile Renovation Priority Using Multi-Criteria Decision Making Methods (Case Study: Sarshor Neighborhood of Mashhad)

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Extended Abstract

1. Introduction

Cities are living beings that always need to be revived, and in order to survive, they need to revive their worn out textures. Among the cities of Iran, the city of Mashhad with 2245.47 hectares of urban wastewater is facing a major challenge for the renovation of these parts. The texture of the Sarshoor neighborhood, one of the most vibrant urban areas of the city, despite its rich history, has a very high level of activity due to its spatial proximity to the holy shrine complex. In other words, the economic potentials in the context of the neighborhood have led to spontaneous renovation by the residents and investors; therefore, to guide the renovation of such spaces according to the defined models, it is possible to have a coherent and proper complex from physical, aesthetic, functional, and social perspective, and, finally to contribute to urban regeneration. Therefore, having the program to prioritize the recovery of its texture and different parts is very necessary. The main objective of the research is to prioritize the restoration of the worn out parts of the Sarsoor neighborhood, but in addition to this objective, the accuracy

of each of the multi-criteria models used in this study to determine the priority of renovation of each component is also the second objective.

2. Methodology

In this research, a descriptive-analytical research method has been used that includes: 1- Description of weight of overlapping models, hierarchical analysis, network analysis and fuzzy analysis; 2- Introducing features of Sarshoor neighborhood; 3- Using the above models in Arc GIS software environment. Documentary and library methods as well as field observations were used to determine the criteria used in the research. The required criteria include material, age, durability, use and classes. Multi-criteria decision-making models including hierarchical analysis, network analysis, fuzzy and weight overlapping were used to prioritize the components for renovation. To determine the preference and weights of each criterion and sub criteria, 50 questionnaires were distributed and collected by experts in two stages. Finally, the averaging method was used to determine the final weight of the criteria and sub criteria.

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3. Results

In fuzzy models, network analysis, hierarchical analysis, and weight overlap respectively 21.5%, 29.68%, 31.10%, and 24.10% of the size of Sarshoor neighborhood was ascribed to renovation with high priority. Meanwhile, areas with average priority were identified in Sarshoor neighborhood. For the fuzzy model, 30.32%, for the network analysis model, 32.43%, for the hierarchical analysis, 38.21%, and for the weight overlay model, 52.61% were determined. Also, the lower priority areas in the fuzzy model were 48.18%, in network analysis 37.9%, in hierarchical analysis 30.69%, and in weight overlay 23%.

Also, the lower priority areas in the fuzzy model were 48.18%, network analysis 37.9%, hierarchical analysis 30.69%, and weight overlay 23%. Considering that about half of the available space is reserved for residential use, this land use has the highest level of area for the high priority of the renovation. As in the fuzzy model of a total of 27.9 hectares of residential use, 14.3 hectares have a high priority for renovation. In the first priority, based on the fuzzy model, sport use with 100% has the highest frequency for renovation in this priority. In the low priority, administrative use with 98% has the highest share, and residential and educational uses are in the top priority. The results from the hierarchical analysis model in the high priority section for renovation indicate the share of 49% of residential use, which has the highest frequency among other uses for renovation. Commercial use is the next with 38%. In the case of residential and non-residential network analysis models, the commercial use has the highest priority, and in the first priority, sporting uses with 100% and then commercial with 51% in the next rank. Finally, barren spaces have the highest share in the low priority area for the development of worn out texture with 100% of their area. The information obtained from the overweight model, such as the other three models, shows that the share of residential and commercial use is high, but the share of

residential and commercial uses is lower than the other models. Sport land use with 100% has the highest average renovation rate. In the low priority section for rehabilitation based on this model, administrative, residential, and therapeutic uses have the highest share, respectively. Finally, based on the above, it can be concluded that the first priority of renovation among different residential uses of the neighborhood is residential and the next priority is commercial use. Also, after comparing the results of the four models with the status of different parts of the Sarshoor area, the results of the Fuzzy model are closer to reality for identifying priority compared to other models.

4. Conclusion

Sarshoor is one of the oldest neighborhoods with a worn out texture in downtown Mashhad, which, despite its historical background, has a very high activity area due to the location of the hermitage complex. Nevertheless, the neighborhood faces numerous problems due to the lack of a plan to prioritize the parts to be restored, which has resulted in the loss of public limited financial resources and loss of physical, aesthetic, functional and even socioeconomic cohesion. Therefore, having a plan to prioritize the recovery of its parts is very necessary. Accordingly, in order to determine the priority of rebuilding parts, several criteria were considered: materials, age, durability, use and classes, as well as multi-criteria decision making methods in GIS for analyzing the above criteria. Based on the findings of the research, it is suggested that the priority of renovation for executive systems is residential uses, and for private sector investors is administrative-business uses, which can be useful given the

capacities of the neighborhood, and can give more cohesion to the study area.

Key words: Worn texture, Multi-criteria decision making, Fuzzy model, Sarshoor neighborhood of Mashhad.

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