The Strategic Planning of Akhund Neighborhood in Qazvin City with Community-led Urban Regeneration Approach

Fatemeh Ghannad[1], Mozaffar Sarrafi[2*]

1. MA in Urban Planning, Department of Architecture and Urban Planning, Shahid Beheshti University, Tehran, Iran
2. Associate Professor of urban and regional planning, Department of Architecture and Urban Planning, Shahid Beheshti University, Tehran, Iran

Received: 24 February 2019 Accepted: 22 April 2019

Extended abstract

Introduction

Urban rehabilitation and renovation approaches in the evolution trend are considered from urban reconstruction to urban regeneration. The urban regeneration is a comprehensive, integrated, and holistic approach applied as an effective factor to sustainable promotion and quality of life enhancing according to the social dimensions along with economic environment. In a classification of urban regeneration, community-led urban regeneration proposes new forms of community intervention and participation of urban regeneration for recent decay, which traditional methods have failed. This method represents potentials for valuable capacity and grassroots knowledge. The aim of community-led urban regeneration is to enable local communities with social, economic, and environmental stagnation to reconstruct their communities. Four strategic goals in neighborhood regeneration through local community interventions include promoting social capital, inclusion and social cohesion, governance, and service provision. Community-based regeneration will increase the involvement and participation of the local community. Local community participation means strengthening the ability to succeed in urban regeneration projects. Participation is a very important part of the process of self-help and local community development. The participation is the natural result of empowerment and empowerment is the goal of the development. Encouraging local communities to benefit from their own resources leads to greater integration and sustainability because residents are likely to protect the the resources of the neighborhood in which they intervene and participate.

The Akhund neighborhood located in Qazvin city is one of the historical neighborhoods in this city, where there are inappropriate conditions in dimensions of economic, socio-cultural, physical, environmental, and management-institutional issues. Therefore, the aim of this research is the representation of plans and strategies based on community-led urban regeneration principles to remove neighborhood problems.

Methodology

Research methodology of this study is descriptive-analytic with a practical goal. Given the size and characteristics of this research, the data have been gathered with library and document and field studies including observation, interview, and survey especially at the stage of explaining problems. In this research, a six-step model is presented for community-led urban regeneration

* Corresponding Author, Email: sarrafi@sbu.ac.ir

in this neighborhood. The strategic planning process has been carried out in six stages of the status knowledge and assessment, the preparation of a neighborhood/local community problems statement, visioning statement, the formulation of goals and strategies for the neighborhood, policy making, and finally, the action plans. Then strategies, policies, and action plans are proposed in all dimensions of economic, socio-cultural, physical, environmental, and management-institutional aspects in the form of comprehensive and integrated programs to improve neighborhood conditions. SWOT method has been used to formulate the strategies and to determine the Strength-Opportunity strategies (SO), Strength-Threats strategies (ST), Weakness-Opportunity strategies (WO), and Weakness- Threats strategies (WT) in the form of five areas of decision-making in economic, socio-cultural, physical, environmental, and management-institutional aspects. Then, strategies have been evaluated and the best strategy has been selected by Quantitative Strategic Planning Matrix (QSPM). Ultimately, higher priorities strategies are identified in every topic fields and, then, policies and action plans have been expressed for them.

Results and Discussion

The main strategies in the physical dimension are including renovation and rehabilitation of distressed area and revival of the residential identity of the neighborhood, providing a shortage of services per head through the creation of these land-uses in wasteland lots, removing interference between the ride and pedestrian in important axes (religious and historical), creating spatial association between the important and historical elements of the neighborhood in order to strengthen the historical and cultural role. The strategies in the socio-cultural dimension are including reduction and prevention of crime and social harm, especially among young people, empowering the cultural diversity of immigrants through the training socio-cultural skills to strengthen the authentic identity of the neighborhood, organizing public spaces to increase the interactions of residents, promotion and creation of cultural and artistic spaces in the neighborhood based on the presence of old well-known people. The strategies in the economic dimension are also including use of the potential historical tourism and events in the neighborhood, creating employment opportunities by using entrepreneurship and supporting local small businesses, organizing and encouraging domestic jobs in order to raise the economic potential of residents. The strategies in the environmental dimension are including elimination of environmental pollution (air, visual, and audio) and development of neighborhood health, development of green and lively spaces. The strategies in management-institutional dimension are including creation and strengthening of informal people's institutions, definition and realization of small-scale neighborhood governance based on non-governmental organization, capacity building and empowerment of residents in order to participate in the administration of neighborhood affairs, capacity building and empowerment of urban managers in creating transparent, responsive, accountable, and efficient management.

Conclusion

Community-led regeneration is based on local community involvement introduced as an innovative and new method for the current time. This approach seeks to exploit the capitals and knowledge of local community residents to benefit from solutions within these communities, and responses to their problems in order to enhance the possibility of success in urban regeneration projects and ultimately sustainable development. Local people's participation in urban regeneration projects increases local capitals, identity and sense of community, development of skills and opportunities, collective ownership, as well as knowledge, awareness and collective learning. As a result, it increases the quality of life, the sense of satisfaction, the welfare and the prosperity of these communities. Therefore, in this research, the developmental insufficiency in the Akhund neighborhood has been applied to be solved using community-led regeneration approach.

First, the needs and neighborhood problems have been identified using residents' opinions.

Second, the visioning statement has been created, and strategies have been adopted to achieve the goals and objectives of the neighborhood. Third, the privileges have been given to these strategies and the best strategies selected in various dimensions. Ultimately policies and action plans have been formulated for them.

Keywords: strategic planning, community-led regeneration, local community, akhund neighborhood, qazvin city.

References

1. Abu Samah, A., and Aref, F., 2009, *Community Development Programmes in Malaysia*, Nature and Science, Vol. 7, No. 12, PP. 86-89.
2. Bahrainy, H., Izadi, M., and Mofidi, M., 2013, The Approaches and Policies of Urban Renewal from "Urban Reconstruction" to "Sustainable Urban Regeneration", Urban Studies Journal, No. 9, PP. 13-17. (In Persian)
3. Beider, H., 2007, Neighborhood Renewal and Housing Markets: Community Engagement in the US and UK, Wiley-Blackwell, United States.
4. Bevilacqua, C., Calabrò, J., and Maione, C., 2013, *The Role of Community in Urban Regeneration: Mixed Use Areas Approach in USA*, Proceedings REAL CORP 2013 Tagungsband, 20-23 May 2013, Rome, Italy.
5. Breuer, D., 2002, Community Participation in Local Health and Sustainable Development; Approaches and Techniques, European Sustainable Development and Health, Series 4, World Health Organization, Europe.
6. Clark, J., and Wise, N., 2018, *Urban Renewal, Community and Participation, Theory*, Policy and Practice, Publisher: Springer; 1st Ed.
7. Consulting Engineers City and Plan, 2015, *Qazvin Comprehensive Plan*, Ministry of Roads and Urban Planning, Tehran. *(In Persian)*
8. Daneshpour, Z., 2008, Introducing an Incremental 'Problem- Finding- Problem- Solving' Approach - a Preliminary Proposal to Examine the 'Problem- Finding' Approach in Tehran, Honarha Ye Ziba Architecture and Planning Journal, No 36, PP. 5-16. (In Persian)
9. Darchen, S., and Ladouceur, E., 2013, Social Sustainability in Urban Regeneration Practice: A Case Study of the Fortitude Valley Renewal Plan in Brisbane, Australian Planner, Taylor and Francis.
10. Evans, G., 2005, Measure for Measure: Evaluating the Evidence of Culture's Contribution to Regeneration, Urban Studies, Vol. 42, No. 5 and 6, PP. 959–983.
11. Farajirad, KH., and Kazemian, GH., 2012, *Local and Regional Development: An Institutional Perspective*, Jahade Daneshghai Publications, Tehran. *(In Persian)*
12. Friedman, A., 2017, *Fundamentals of Sustainable Neighborhoods*, Interpreted by M., *Nemati Mehr and A., Yadollahpour*, Shahid Beheshti University Publication, Tehran. *(In Persian)*
13. Hajipour, KH., 2006, *Community-Based Planning, An Efficient Approach for Sustainable Urban Management*, Honarha Ye Ziba Architecture and Planning Journal, No. 26, PP. 37-46. *(In Persian)*
14. Halsall, J. P., Oberoi, R, Cook, I. G., and Wankhade, P., 2013, *Understanding Community Governance: A Global Perspective*, International Journal of Asian Social Science, Vol. 3, No. 5, PP. 1112-1127.
15. Izadi, M., Moshaver, M., Sajjadzadeh, H., and Tavassoli, M., 2018, *Locating Urban Catalyst Projects in Inefficient Urban Textures with the Regeneration Approach: A Case Study on Tehran*, Journal of History Culture and Art Research, Vol. 7, No. 3, PP. 136-151.
16. Jin, E., Lee, W., and Kim, D., 2018, Does Resident Participation in An Urban Regeneration Project Improve Neighborhood Satisfaction: A Case Study of "Amichojang" in Busan, South Korea, Sustainability, Vol. 10, No. 10, P. . PP.1-13

17. Jones, P., and Evans, J., 2013, *Urban Regeneration in the UK*. Sage, London.

18. Lee, J. H., and Lim, S., 2018, An Analytic Hierarchy Process (AHP) Approach for Sustainable Assessment of Economy-Based and Community-Based Urban Regeneration: The Case of South Korea, Sustainability, Vol. 10, No. 12, PP.1-14.

19. Magalhaes, C., 2015, *'Urban Regeneration' in International Encyclopedia of the Social and Behavioral Science*s, James D. Wright (Edt), 2nd Edition, Vol. 24, Publisher: Elsevier, Place of Publication: Oxford, http://dx.doi.org/10.1016/b978-0-08-097086-8.74031-1.

20. Mattessich, P., and Monsey, M., 2004, *Community Buildings: What Makes It Work*, St. Paul, MN: Wilder Foundation.

21. Mccarthy, J., 2007, *Partnership, Collaborative Planning and Urban Regeneration*, Ashgate Publishing Company Ashgate, Aldershot, England.

22. Mcdonald, S., Malys, N., and Maliene, V., 2009, *Urban Regeneration for Sustainable Communities: A Case Study*, Technological and Economic Development of Economy, Vol. 15, No. 1, PP. 49-59.

23. Mohammad Nezhad, A., and Sarrafi, M., 2013, *Another Look At Local Capacities*, A True Participation In Urban Planning, Tashakol, No 7, PP. 28-32. *(In Persian)*

24. Nikkhah, H. A., and Redzuan, M., 2009, *Participation As a Medium of Empowerment in Community Development*, European Journal of Social Sciences, Vol. 11, N. 1, PP. 170-176.

25. Perdikogianni, I., 2007, *From Space to Place: The Role of Space and Experience in the Construction of Place*, Proceedings 6th International Space Syntax Symposium, İstanbul.

26. Pourahmad, A., Habibi, K., and Keshavarz, M., 2010, New Approaches of the Process of Conceptualization of the Regeneration of the Urban Distressed Area, Journal of Studies on Iranian Islamic City, Vol. 1, No. 1, PP. 73 -92. (In Persian)

27. Rafieian, M., and Jahanzad, N., 2015, *The Thought Transformation on Planning Theory*, Armanshahr Publication, Tehran. *(In Persian)*

28. Roberts, P., 2008, *'The Evolution, Definition and Purpose of Urban Regeneration' in* Urban Regeneration, *A Handbook*, Peter Roberts and Hugh Sykes (Eds). London: Sage.

29. Rubbo, V., 2009, Urban Regeneration and Integration in Turin (Italy): The Example of Porta Palazzo/ The Gate Project, The Netherlands: FORUM, Institute or Multicultural Affairs.

30. Sarrafi, M. et al., 2015, Sustainability of Iranian Cities: A Query on the Role f Planner, Elm Publication, Tehran. (In Persian)

31. Sarrafi, M., 1998, *The Necessity for Transformation in Iran's Development Planning Theory*, Fifty Years of Planning in Iran. Conference Proceedings of the Fifty Years of Development Planning in Iran, Office of Research and Technical Criteria, Tehran. *(In Persian)*

32. Schuurmans, A., Dyrbøl, S., and Guay, F., 2019, *Buildings in Urban Regeneration in Sustainable Cities Authenticity*, Ambition and Dream Book, Almusaed A., and Almssad, A. (Edt), Published: Intechopen, London.

33. Sharifzadegan, M. H., and Malekpour, B., 2013, Theoretical Basis and Experiences in Applying SWOT Analytical Matrix in Regional Development Strategic Planning, Shahid Beheshti University Publication, Tehran. (In Persian)

34. Smith, M. K., 2011, *Neighborhoods and Regeneration*, Theory, Practice, Issues, The Encyclopedia of Informal Education, www.infed.org/community/neighbourhoods and regeneration.htm.

35. Statistics Center of Iran (2011). Detailed results of the census and population of housing in 2011, Qazvin province. *(In Persian)*

36. Tallon, A., 2010, *Urban Regeneration in the UK*, First Published 2010 by Routledge Taylor and Francis, London and NewYork.

37. Thwala, W. D., 2009, Experiences and Challenges of Community Participation in Urban Renewal Projects: The Case of Johannesburg, South Africa, Journal of Construction in Developing Countries, Vol. 14, No. 2, PP. 37–54.

38. UNEP, 2004, *Guidelines for Urban Regeneration in the Mediterranean Region*, Priority Actions Program Regional Activity Centre Split, January 2004.

39. Wates, N., 2008, The Community Planning Event Manual; How to Use Collaborative Planning and Urban Design Events to Improve Your Environment, Publish, Earth Scan, London.

40. www.npt.gov.uk

41. www.tamarackcommunity.ca/downloads/trail_builders/stmichel_actionplanf.pdf

Evaluation of Social Capacity in Accepting Smart Urban Growth Principles (Case Study: Kashan)

Esmaeil Aliakbari[1], Mohsen Shaterian[2*], Fatemeh Sheikhzadeh[3]

1. Professor of Geography and Urban Planning, Payame Noor University, Tehran, Iran
2. Professor of Geography and Urban Planning, Kashan University, Kashan, Iran
3. PhD Candidate in Geography and Urban Planning, Shahid Beheshti University, Tehran, Iran

Received: 03 February 2017 Accepted: 28 July 2019

Extended abstract

Introduction

Cities like living creatures have normal growth and a city's normal growth can be considered as a growth proportionate to its population. The city's growth is a negative factor when it voids its normal trend because it can threaten its stability. After the Second World War, in the developed countries and after the Islamic revolution in Iran, the physical development of cities has exceeded even the population growth rate and resulted in unplanned and unstrained growth that caused a phenomenon in the urban planning called urban sprawl which is contrary to the urban stability. After the negative consequences of urban sprawl became known, many theories and patterns were propounded. Currently, smart urban growth strategies are considered as an abstract, encompassing all the past theories to rationalize the urban development. Smart growth seeks to rely on mixed uses with multiple transportations (public transport, cycling, walking, etc.) to reduce reliance on cars in urban trips to direct the cities towards a compact and vertical form. What is important at this time is to achieve a model of urban development that is more adapted to the principles of sustainability. Following the appearance of unpleasant consequences of sprawl, smart growth policies have global solutions compatible with sustainable development. In addition, making capacity and assessing people's capacity is required to achieve sustainable development. Capacity building has been focus of the sustainability agenda in the Brundtland Report. Capacity-building efforts at all levels of society have been supported as a vital and indispensable strategy for future sustainable development. Chapter 37 of Agenda 21 is specifically dedicated to the issue of capacity building for sustainable development. As part of the chapter, it explained that the ability of a country to pursue the path of sustainable development is determined to a large extent by the capacity of people and institutions as well as geographical and ecological conditions of the country. To encourage the cooperation of the community and stakeholders suggests conduction of surveys to increase citizen involvement in solving urban problems.

Methodology

The aim of this study is to investigate the social capacity of 10 areas of Kashan in accepting the ten principles of smart growth. The Principles of smart growth are compound and its acceptability has compared in the form of policy in 10 areas and then regional differences have been surveyed in accepting the principles. This is an applied study. To achieve the required data, we have used library studies. The questionnaire data in Likert scale have analyzed the

* Corresponding Author, Email: shaterian@kashanu.ac.ir

parameters using SPSS software. The spatial analyses as maps have been made using Geographic Information System (GIS) software (ArcGIS10.7). The statistical population is households living in Kashan city (66731 households). The total number of samples is 320 and the number is determined by the Cochran formula. The samples are selected by a systematic random sampling method.

Results and discussion

Kashan can be categorized into four textures including old, middle, new and rural-urban. Urban sprawl has created many problems in this city in recent years. Most of the problems are including inappropriate distribution of green space, a lack of applications for sport, culture, and leisure in the city center, lack of identity sense in the new context and undesirable appearance and ancient ruins.

In this study, the principles of smart growth were studied as the solution for the problems with combining the principles by analysis variance (ANOVA) tests. The results indicated that, in terms of all participants in the survey, smart growth principles are suitable for the growth and development of Kashan. In the total scale of Kashan city, there is the appropriate social capacity to enforce the principles of smart growth. In more detailed studies, the results of the ANOVA test for each principle show that social feature of citizen and the physical condition of each area has created different capacity in the adoption of the following principles. The mix use offers a variety of transportation options, making neighborhoods accessible by walking, strengthening communities by filling out development and redevelopment, generation of options for intelligent development and encouraging attractive communities with a strong sense of place. However, there is no significant difference among the ten areas of the city in accepting the increasing choices and housing opportunities, protection of open space, farmland and critical environmental areas, using innovative design techniques, and encouraging cooperation among community and shareholders.

Acceptance of smart growth principles based on rank for Kashan was carried out by using the Friedman test; thus, the priorities are obtained as following:

1. Encouraging attractive communities with a strong sense of place
2. Generating a variety of transportation options
3. Making neighborhoods accessible by walking
4. Mix use
5. Protection of open space, farms, and critical environmental areas
6. Development of housing choices and opportunities
7. Encouraging community and stakeholder collaboration
8. Strengthening communities through full development and redevelopment
9. creating incentives for smart development in order to make it predictable, fair and affordable cost to build.
10. Using innovative design techniques and intensive

Conclusion

The results indicate, in general, that although there is no significant difference in the principles of smart growth in the areas of the city, examining each principle in the area of Kashan show that social capacity in areas are different in the six principles of smart growth. It can be concluded that there is a high social capacity to implement smart growth strategies, although strategies implementation should not be the same for all areas. Its implementation must be conducted according to the requirements of each area. The higher mean values of the principles in an area show the needs of the area for consideration in a particular field. Since this questionnaire is designed to measure social capacity in order to implement the smart growth principles in Kashan city, grade average principles show implementation priorities for any principles. In other words, the implementation of smart growth principles in order of priority causes more welcomed and cooperation of people. Therefore, it will bring a greater success rate

in this city. The respondents believe that the highest average rating is attractive communities with a strong sense of place and the lowest rank related to use of innovative design techniques and compacting.

Keywords: social capacity, smart growth, urban areas, questionnaires, Kashan.

References

1. Bose, S., 2004, *Smart Growth in the State of Ohio: Conflicts and Constraints an Analysis and Evaluation of the Evolution of Smart Growth in the Cleveland and Cincinnati.* Master of Community planning, University of Cincinnati, Dr. Chifos. C.
2. Chen, X., 2008, *The Evaluation of the Implementation of Smart Growth in Chinese Official Plans: (A Case Study of Xuzhou City, China), Master of Arts in Planning,* University of Waterloo
3. Edwards, M. M., and Haines, A., 2007, *Evaluating Smart Growth (Implications for Small Communities),* Journal of Planning Education and Research, No. 27, PP. 49-64.
4. Grant J. L., and Tsenkova, S., 2012, *New Urbanism and Smart Growth Movment*, International Encyclopedia Housing and Home
5. Ingram, G. K. et al., 2009, *Smart Growth Policies: An Evaluation of Programs and Outcomes*, Lincoln Institute of Land Policy, Cambridge and Massachusetts
6. Min, J. et al., 2018, *Quantitative Assessment of City's Smart Growth Level in China Using Fuzzy Comprehensive Evaluation*, MATEC Web of Conferences.
7. Ming, Ch., 2017, *Evaluation on Smart Growth of Sustainable Cities, Advances in Social Science*, Education and Humanities Research, Vol. 123, 2nd International Conference on Education, Sports, Arts and Management Engineering.
8. Mohammed, I. et al., 2016, An Approach to Assess the Effectiveness of Smart Growth in Achieving Sustainable Development, *Journal of Sustainability*, From (www.mdpi.com)
9. Peng, Y., 2018, *Research on How to Measure the Success of Smart Growth of a City*, Advances in Intelligent Systems Research, Vol. 147, International Conference on Network, Communication, Computer Engineering.
10. Sartori, J., et al., 2011, *Indicators of Smart Growth in Maryland*, The National Center for Smart Growth Research and Education at the University of Maryland.
11. Abbaszadegan, M., and Salek Ahmadi, M., 2011, Underground Spaces Opportunity to Achieve an Efficient Model of Sustainable Urban Development, The First Conference on Sustainable Urban Development, Center of Excellence for Sustainable Urban Development, Tehran. *(In Persian)*
12. Abdollahi, A. A., and Fattahi, M., 2017, *Measurement of Urban Growth Indicators by Using ELEKTRE (Case Study: Kerman Regions),* Journal of Spatial Planning, No. 2, PP. 141-171. *(In Persian)*
13. Abdollahi, A. A., and Khodaman, Z., 2017, *Survaying and Evaluating of Physical Space of Smart Growth Indicators by Using WASPAS Model (Case Study: Yazd Regions),* Journal of Studying Urban Areas, Shahid Bahonar University, No. 3, PP. 79-99. *(In Persian)*
14. Ali Akbari, I. et al., 2015, *To Measure the Spatial Expansion of the City of Kashan and Physical Consequences, The First National Conference on Sustainable Development in Science*, Geography and Planning, Architecture, Tehran. *(In Persian)*
15. Ali Akbari, I. et al., 2016, *Evaluation of Abandoned Urban Spaces and Their Development Using Smart Growth Principles (Case Study in Kashan*), The First National Conference on Land and Urban Development Sciences, Tabriz. *(In Persian)*
16. Aghaalikhani, Z., and Brakpour, N., 2014, *Compare Social and Institutional Capacity for Sustainable Development in the Cities of Karaj and Qazvin*, Journal of Urban Studies, No. 4, PP. 1-14. *(In Persian)*

17. Ana Morad Nejad, R. et al., 2018, *Physical-Spatial Analysis of Urban Areas Based on Smart Growth Indicators (Babol City*), Vol. 9, No. 34, PP. 19-30. *(In Persian)*

18. Azimi, N. et al., 2017, *Analysis of Physical Development Patterns of Iranian Cities with Regard to Demographic, Natural and Physical Variables*, Journal of Human Geography, No. 3, PP. 461-473. *(In Persian)*

19. Bayat M. et al., 2016, Fr*om Sprawl to Smart Growth: An Analysis of the Spatial Spreading Pattern of Rural Settlements (Case Study: Akhund Mahaleh and Soleyman Abad Villages, Tonekabon Area),* Journal of Research and Rural Planning, No. 13, PP. 49-65. *(In Persian)*

20. Bakhshi A. et al., 2016, *Spatial Analysis of Urban Growth Indicator in Coastal Cities (Case Study: Babolsar),* Journal of Urban Management, No. 43, PP. 129-148. *(In Persian)*

21. Ebrahimi, M., and Moaref, M., 2018, *Sustainable Urban Development Based on Urban Urban Growth to Analyze the Components, Features and Benefits of Smart City*, Journal of Shabak, No. 35, PP. 39-48. *(In Persian)*

22. Ferdowsi S., and Shokri, P., 2015, *Spatial Physical Analysis of Urban Areas Based on Smart Growth Index*, Journal of Research and Urban Planning, Vol. 6, No. 22, PP. 15-32. *(In Persian)*

23. Firoznia, Gh. et al., 2011, *Analysis of the Impact of Distance on the Integration of Extension Villages to the City (Case Study: Extension Villages to Kashan City),* Journal of Rural Research, No. 4, PP. 123-151. *(In Persian)*

24. Gholizadehfard, A., and Fathi, G., 2013, *Smart Growth Strategy Environmental Protection*, Environmental Planning and Management Conference, Tehran. *(In Persian)*

25. Hajisharifi, A., and Kianfar, K., 2013, *Assessment of Compatibility with the Principles of Smart Growth Neighborhoods Haft Hoz and Ctesiphon*, The Fourth National Student Conference Geography, Tehran. *(In Persian)*

26. Hashemi Lamardi, M., and Rovshanali, M., 2019, *Investigating and Analysis of Urban Smart Growth on Urban Urban Sprawl in Behshahr*, Journal of Geographical of Engineering of Territory, No. 4, PP. 129-141. *(In Persian)*

27. Heidari, A., 2013, *Space-Physical Analysis of Future Development of Smart Urban Growth Saqez with an Emphasis on Using the Shannon Entropy*, Journal of Geography and Urban Development, No. 2, PP. 68-94. *(In Persian)*

28. Kiani, A., and Reisi, A., 2018, *Surveying Physical Development Based on Smart Growth in Fanooj City*, Journal of Geography and Planning, Vol. 21, No. 59, PP. 263-280. *(In Persian)*

29. Kianfar, K. et al., 2013, *Smart Growth Principles and Implementation Mechanisms*, Planning and Environmental Management Conference, Tehran. *(In Persian)*

30. Mafi, E., and Gholizadeh, Sh., 2016, *Ranking of Areas of Mashhad Based on Smart Growth Index*, Journal of Geography and Regional Planning, Vol. 13, No. 2, PP. 29-44. *(In Persian)*

31. Mahboubfar, M. R. et al., 2012, *Feasibility and Planning of Tourism in the City of Kashan*, Specialized Scientific Journal Spatial Planning, Vol. 1, No. 1, PP. 109-132. *(In Persian)*

32. Mohammed, I. et al., 2016, An Approach to Assess the Effectiveness of Smart Growth in Achieving Sustainable Development, Sustainability. *(In Persian)*

33. Mohammadi Dost, S. et al., 2017, *The Feasibility of Applying the Principles of Newurbanism in the Sustainable Rehabilitation of Inefficient and Problematic Urban Neighborhoods with an Emphasis on Smart Growth (Case Study: Central Part of Ahwaz City),* Journal of Regional Planning, No. 24, PP. 215-230. *(In Persian)*

34. Mokhtari, R. et al., 2014, *Analysis of Urban Growth Patterns in Fourteen Areas of Isfahan Based on Regional Planning Models*, Journal of Urban and Regional Studies and Research, Vol. 5, No. 19, PP. 65-82. *(In Persian)*

35. Moradi, M. et al., 2018, *City Development Requirements From Within (Case Study: Borujerd City)*, Journal of Architecture and Urban Planning (Armanshahr), No. 23, PP. 319-332. *(In Persian)*

36. Nazm Far E. et al., 2018, *Analysis of Smart Growth Indicators in Urmia Region*, Journal of Urban Ecology Research, No. 17, PP. 35-48. *(In Persian)*

37. Pourahmad, A. et al., 2013, *A Study Prone Areas of Urban Development Using Multi-Criteria Evaluation (MCE) In GIS*, Geography Fourth National Student Conference, Tehran University. *(In Persian)*

38. Rahimi, M. et al, 2018, *Evaluation of Urban Growth Indicators Using Factor Analysis Model (Case Study: The First Region of Shiraz)*, No. 55, PP. 253-266. *(In Persian)*

39. Rahnama, M. R., and Abbas Zadeh, G., 2011, *Principles and Models to Assess the Fundamentals of the Physical Form of the City*, First Edition, Published by University of Mashhad. *(In Persian)*

40. Rasouli, H. et al., 2017, *An Investigation of Intermediate Development in Urban Endowment Spaces in Urban Physical Development (Case Study: Sari City)*, New Research in Human Science, No. 22, PP. 77-110. *(In Persian)*

41. Saifuddin, F. et al., 2014, *A Study Platforms and Smart Urban Growth Barriers in the Middle (Case Study: Khorramabad)*, Journal of Land Use, Farabi Campus of Tehran University, No, 2, PP. 241-260. *(In Persian)*

42. Shaterian, M., 2000, *Demographic Trends in the City of Kashan in the Past Half Century*, First Edition, Publication of the Invitation to Tehran. *(In Persian)*

43. Shormij, R., and Hoseinian, F., 2011, *The Use of Smart Growth Approach Face of Adversity with the Phenomenon of Urban Sprawl Case Study: City Ghazvin*, National Conference Hundred Years of Modern Architecture, Building Engineering Organization Alborz, Karaj. *(In Persian)*

44. Williams, G., Burton, E., and Jencks, M., 1999, *Achieving Sustainable Urban Form (Methods and Strategies)*, Translated by Mohammad Hadi Khalil Race, Processing and Urban Planning Company (Affiliated to Tehran Municipality). *(In Persian)*

45. Zarabi, A. et al., 2012, *Smart Urban Growth Spatial Analysis (Case Study Areas of the City)*, Journal of Human Geography, No. 77, PP 1-17. *(In Persian)*

46. Ziyari, K. et al, 2017, *Measureing Physical Capacity of the Central Cities Texture for the Development of Intermediate (Case Study: Minab City)*, Journal of Studying Urban Areas, Shahid Bahonar University, No. 8, PP. 63-78. *(In Persian)*

An Investigation of Urban Green Space Suitability in Residential Complexes (Case Study: Rasht City)

Mehrnoosh Mirabimoghaddam[1], Esmaeil Aghaeizadeh[2*], Ruhollah Oji[3]

1. MA in Geography and Urban Planning, Faculty of Literature and Humanities, University of Guilan, Rasht, Iran
2. Assistant Professor of Geography and Urban Planning, Faculty of Literature and Humanities, University of Guilan, Rasht, Iran
3. Assistant Professor of Geography and Urban Planning, Faculty of Literature and Humanities, University of Guilan, Rasht, Iran

Received: 09 April 2017 Accepted: 17 June 2019

Extended Abstract

Introduction

Urban green spaces such as gardens, parks and woodlands provide a wide range of benefits to human urban populations, and a vital habitat for wildlife. By improving physical fitness and reducing depression, the presence of green spaces can enhance the health and wellbeing of people living and working in cities. Hence, there is an inclusive consensus on the importance of green spaces in the cities for urban planning and developing sustainable or ecological cities of the 21st century. Although there is no universal definition of urban green space, today, the notion of cities without effective green space in various forms is not conceivable. Urban green space is part of the urban landscape that is composed of a variety of vegetation alongside the buildings to determine the city's morphological structure. These spaces are part of the open spaces of a city, which are covered by natural and often manmade trees, shrubs, flowers, grasses and other plants based on human monitoring and management rules. Urban green spaces are divided into four general categories; one of which is semi-private green space which is restricted to the owners. Residential complexes are one of the most important areas to develop green spaces in cities. Attempts to provide the green space needed by residents in urban residential complexes have a significant impact on the complexes as well as urban landscape. However, there are significant differences among residential complexes in terms of their green space criteria (such as per capita, diversity, density, etc.). Despite its location in a humid climate, Rasht metropolis, as the capital city of Guilan province, does not have a desirable condition in terms of green space. For this reason, it is important to investigate green space condition of residential complex in Rasht. Therefore, the purpose of the present research is to rank the residential complexes of Rasht in terms of their greens paces.

Methodology

A descriptive – analytical method is used in this study. To gather information, a library research method along with an implementation of questionnaires and a field survey are applied. After preliminary information was gathered, we started explanation of criteria and indicators associated with this work and the process of developing the questionnaire. There are a total of 49 residential complexes in the city which are used as study population of this research in order

* Corresponding Author, Email: aghaeizadeh@guilan.ac.ir

to rank them based on their green space. An Analytic Hierarchy Process (AHP) method was used to rank the complexes. Using the Spearman's rank-order correlation, in SPSS software, the correlation between the area and the rank of green space in the residential complexes were tested. GIS and AutoCAD software are used to produce the maps.

Results and Discussion

To investigate the desirability of residential green space in residential complexes, 11 criteria of designing the green space have been considered. These criteria are including vegetation diversity, trees density, entranced green space, existence of pesky trees, green space, flowers, evergreen trees, climate-compatible plants. According to experts, importance of the criteria was extracted in paired comparisons, among which the design criterion has the highest score. As a result, it has the greatest impact on determining the green space of residential complexes, while the pesky trees criterion has the lowest score. After determining significance coefficient of the criteria, the significant coefficient of each option is determined. The results of this study showed that residential complexes of Gas and Bahoor with the highest score (0.54) are in the first place in terms of the desirability of green spaces in residential complexes. The lowest score (0.05) belongs to the residential complexes of Atlas, Pasargadae, Shaghayegh, Sefidroud and Baahonar. The complexes with the highest rank in terms of the green space criteria are located in the central part of the city, whereas the complexes with the lowest rank are located in the south and southwest part of Rasht. The relationship between the area and the rank of residential complexes is one of the other issues examined in this study. In fact, the analysis was conducted assuming that the larger the area of residential complexes, the higher the rank in terms of green space. However, the results showed that there is no significant relationship between the area and the green space of residential complexes in Rasht at a 95 percent confidence level. This means that there may be complexes with less space and a higher rank and vice versa. It can be argued that there is no relationship between the available space in the residential complexes and their green space in Rasht. Nevertheless, there is no serious planning to provide the required green space in these complexes.

Conclusion

The results showed that 49 residential complexes in Rasht are mainly concentrated in the north and north-east of the city. Thus, they are not well distributed throughout the city. Also, investigation of the indices studied in this research showed that most of the complexes are ranked average in terms of green space design, existence of pesky trees, productive trees and planted surfaces criteria. Most of the complexes are ranked very well in terms of entrance green space, tree density, climate-compatible plants, and per capita green spaces. Finally, based on the hierarchical analysis technique, Gas and Bahoor residential complexes with the highest scores in terms of green spaces are in first place; while the residential complexes of Atlas, Pasargadae, Shaghayegh, Baahonar and Sefidrud with the lowest scores are in the last place among the complexes. As noted earlier, the investigation of relationship between the area of the complexes and their green space ranks indicates that there is no correlation between these parameters.

Keywords: green space, urban green space, residential complexes, Rasht City.

References

1. Balooni, K., Gangopadhyay, K., and Kumar, B. M., 2014, *Governance for Private Green Spaces in a Growing Indian City*, Landscape and Urban Planning, No. 123, PP 21-29.
2. Bilgili, B. C., & Gökyer, E. 2012, Urban green space system planning. In M. Özyavuz (Ed.), *Landscape planning*, Rijeka-Croatia: IntechOpen.
3. Bush, J., and Hes, D., 2018, *Urban Green Space in the Transition to the Eco-City: Policies*, Multifunctionality and Narrative Enabling Eco-Cities (PP. 43-63): Springer.

4. De La Barrera, F., Reyes Paecke, S., Banzhaf, E., 2016, *Indicators for Green Spaces in Contrasting Urban Settings*, Ecological Indicators, No. 62, PP. 212-219.
5. Keeley, M., and Benton Short, L., 2018, *Urban Sustainability in the US*, Cities Take Action: Springer.
6. Li, H., and Liu, Y., 2016, *Neighborhood Socioeconomic Disadvantage and Urban Public Greenspaces Availability: A Localized Modeling Approach to Inform Land Usepolicy*, Land Use Policy, No. 57, PP. 470-478.
7. Rafiee, R., Ahini, M., and Slman, Khorasani, N., 2009, *Assessment of Change in Urban Green Spase of Mashhad City Using Satellite Data*, Internasinal Journal of Applaid Earth Observation and Geoinformation, No. 11, PP. 431-438.
8. Sirirwardane, M., Gunatilake, J., and Sivanandarajah, S., 2016, *Study of the Urban Green Space Planning Using Geographic Information Systems and Remote Sensing Approaches for the City of Colombo*, Sri Lanka Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment (PP. 797-800): Springer.
9. Stępień, J., 2018, *Urban Green Space as a Tool for Cohesive and Healthy Urban Community Interdisciplinary Approaches for Sustainable Development Goals* (PP. 5-15): Springer.
10. Tzoulas, K., Korpela, K., and Venn, S., 2007, *Promoting Ecosystem and Human Health in Urban Areas Using Green Infrastructure: A Literature Review*, Landscape and Urban Planning, Vol. 81, No. 3, PP. 167–178.
11. You, H., 2016, *Characterizing the Inequalities in Urban Public Green Space Provision in Shenzhen*, China, Habitat International, No. 56, PP. 176-180.
12. Babapour Varjari, H., 2010, *Location-Spatial Analyses of Medical Centers in Rasht, Guilan*. (M.A), Islamic Azad University of Rasht, Rasht. *(In Persian)*
13. Behzadfar, M., and Ghazizdeh, N., 2011, *Residential Open Space Satisfaction Case Studied: Selected Residential Complexes in Tehran*, Honar Ha Ye Ziba: Memary Va Shahrsazi, Vol. 3, No. 45, PP. 15-24. *(In Persian)*
14. Einifar, A., and Ghazizdeh, S. N., 2011, *The Typology of Tehran Residential Building Based on Open Space Layout*, Armanshahr Architecture and Urban Development, Vol. 3. No. 5, PP. 35-46. *(In Persian)*
15. Ghazizadeh, N., 2011, *The Effect of Open Space Design of Residential Complex in Creating of Sense of Attachment to the Place-Case Study: Residential Complexes of Tehran*, (Phd), University of Tehran, Tehran. *(In Persian)*
16. Haji Sattari, P., Golmohammadi, S., and Sattari Sarbanqoli, H., 2015, *The Effect of Green Space and Landscape on People's Spirituality and Liviness in Housing Complexes Over 20 Units*, Paper Presented at the Sustainable Development of Urban Green Space Conference, Tabriz. *(In Persian)*
17. Kashfi, M. A., Hosseini, S. B., and Norouzian Maleki, S., 2012, *The Role of Public Spaces in High-Rise Residential Buildings in Increasing the Social Interactions of Residents, Case Study: Tehran International Tower*, Urban Management, No. 30, PP. 7-17. *(In Persian)*
18. Khan Sefidi, M., 2012, *Urban Green Space Planning Principles*, Iran's Municipalities and Village Administrators, Tehran.
19. Mohammadi, J., Zarabi, A., and Ahmadian, M., 2012, *Planning Prioritization of Green Spaces and Urban Parks Using AHP Method (Case Study: Miandoab City),* New Attitudes in Human Geography, Vol. 4, No. 2, PP. 41-62. *(In Persian)*
20. Mousa Kazemi, S. M., and Ali Akbari, S., 2010, *Biological Sustainability Analysis of Ilam City*, Emphasizing the Distribution of Green Space Land Use, Iranian Geographical Association, Vol. 8, No. 26, PP. 135-149. *(In Persian)*
21. Rahimi, H., 2010, *An Introduction to Principles of Urban Planning*, Parham, Tehran. *(In Persian)*

22. Saeid Nia, A., 2000, *Urban Green Space*, Iran's Municipalities and Village Administrators, Tehran. *(In Persian)*

23. Safari, H., and Khomeyrani, H., 2015, *The Effect of Open Spaces on Residents Satisfaction of Living Space in Residential Complexes (Case Study: Pardisan Residential Complex In Rasht)*, Paper Presented at the International Conference on Architecture, Urbanism, Art and Environment, Tehran. *(In Persian)*

24. Salehifard, M., and Alizadeh, D., 2008, *An Analysis of the Social and Psychological Dimensions of Green Spaces in Cities (with Urban Management Approach)*, Urban Management, Vol. 21, No. 3, PP. 19-33.

25. Sirirwardane, M., Gunatilake, J., and Sivanandarajah, S., 2016, Study of the Urban Green Space Planning Using Geographic Information Systems and Remote Sensing Approaches for the City of Colombo, Sri Lanka Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment (PP. 797-800): Springer.

26. Statistical Center of Iran, 2016, Population and Housing Census, Center for Statistics of Iran, Tehran. *(In Persian)*

27. Tarh-O-Kavosh Engineering Co, 2007, Rasht Master Plan (Vol. 8), General Directorate of Roads and Urban Development of Gilan Province, Rasht. *(In Persian)*

An Analysis of Variables of the Right to Urban Health (Case Study: Bojnourd, Iran)

Mohammad Ahmadi[1], Hossein Hataminejad[2*], Ahmad Pourahmad[3], Keramatollah Ziari[3], Saeed Zangane Shahraki[4]

1. PhD Candidate in Geography and Urban Planning, University of Tehran, Tehran, Iran
2. Associate Professor of Geography and Urban Planning, University of Tehran, Tehran, Iran
3. Professor of Geography and Urban Planning, University of Tehran, Tehran, Iran
4. Assistant Professor of Geography and Urban Planning, University of Tehran, Tehran, Iran

Received: 05 February 2019 Accepted: 17 July 2019

Extended abstract

Introduction

Health is a state of complete physical, mental and social well-being and not merely absence of disease or infirmity. Health is the result of a complex interaction between socio-economic conditions, the natural environment and the built environment as emerging on individual and social levels.

Despite the considerable advancements in today's healthcare, studies show the existence of a huge gap in the access to health and health outcomes. Health disparities, inequities and inequalities, especially in cities, are much sharper and deeper. In recent decades, especially in Third World countries, sectoral planning, ignoring of spatial planning and land use planning programs and paying less attention to rural areas have led to the centralization of services and facilities in cities, mass migration to urban areas and the urban rapid population growth. Rural immigrants often migrate to cities for economic reasons, such as unemployment. Due to lack of skills, literacy or capital, they are not incorporated into the formal section of the urban population and they often have to work in non-formal sectors and live in the suburbs or in non-formal regions. Lack of literacy, skills, capital, and occupation and a proper social status as well as living in the suburbs or non-formal regions are known as the most important factors leading to low levels of health and quality of life among citizens. Therefore, it can be said that urban health and urban health system can serve as key determinants of health equality and equity among citizens. Urban health includes social factors related to individual health, environmental health, healthy settlements, road traffic safety, healthy lifestyles, security, violence, food safety, appropriate recreational facilities and a sense of belonging to the community. A brief description of the current situation in Iran indicates major inefficiencies, inequalities and weaknesses in Iran's urban health system. Therefore, it is essential to recognize the status of this system and its evaluation as well as to analyze components and variables from a pathological perspective. The study and pathology of the structure of this system can be conducted through different aspects and dimensions. However, in recent years, urban scholars have occasionally used the idea of "the right to the city" in their studies. In 1967, the French philosopher and sociologist Henry Lefebvre introduced the idea of "the right to the city" in his book Le droit à la ville. In general, the right to the city means that everyone has uninhibited access to the city and its spaces and services free of discrimination based on gender, race, ethnicity, age, political or

* Corresponding Author, Email: hataminejad@ut.ac.ir

religious orientation, cultural personality or identity and social or economic status. Because of the importance of the right to urban health and the necessity of collecting and introducing its variables for measurement and presentation, the present study aims to identify and evaluate the right to urban health and its variables.

Methodology

The present study is based on a descriptive-analytical research method. The required data were collected via literature review and survey procedures (interviews). To examine the foundations, relevant articles, dissertations, books, plans and reports were collected and reviewed for the concepts and variables related to the subject. After studying the sources, 57 variables were identified for the right to urban health. For the final selection and rating of the variables, specialists and experts in the field were interviewed using the Delphi method. The interviews were conducted in two stages: In the first stage, it was conducted after the review of relevant sources and semi-structured interviews were held with experts, officials and specialists in urban and health affairs in Bojnourd city, Iran, to select the final variables. In the second stage, via three interview sessions, the experts and specialists were asked to rate the effects of each variable on each other. The results were formulated into N*N matrices.

The study population was selected via the snowball sampling method. Fifteen participants were selected and divided into two interview groups, G1 (n=7) and G2 (n=8), as calculated on the basis of expert opinions on the Delphi method and the principle of theoretical saturation. Finally, the resulting data were analyzed with the FLMICMAC software.

Results and discussion

According to the results of the study, a total of 57 variables were identified for urban health. These variables were reduced to 31 at the final stage of selection conducted with interviews using the Delphi method. The results of the analysis of the effects with the FLMICMAC software showed that the variables of proper income, education and information, social justice, social health, rules and policies, cultural health, healthy physical environments were the most influential variables, in order. The variables of social health, health engagement, social justice, mental health, social capital, security and safety, bodily health, cultural health and healthy physical environments were the most influenced variables of the right to urban health.

Conclusion

It can be stated that the right to health is one of the most basic and most important rights of citizens in the city, as it has been emphasized by numerous reports, charters, laws, approaches and world theories. The right to urban health stipulates that everyone with any attribute, socio-economic status or location of residence is entitled to full physical, mental and social health. The determinants of health are including proper income, education and information, security and safety, proper nutrition, proper employment, proper housing, safe drinking water, parks and green spaces, clean air, walkable sidewalks, responsible organization, health-oriented laws, cultural health, and etc. According to the results of this study, the realization of the right to urban health is highly affected by the variables of proper income, education and information, social justice, social health, rules and policies, cultural health, healthy physical environments and mental health. These variables are the most critical and most effective variables that determine any changes in the right to urban health.

Keywords: the right to the city, urban health, Bojnourd, FLMICMAC.

References

1. Annim, S., Simon, M., and Joshua, S., 2012, *Spatial Inequality and Household Poverty in Ghana*, Economic Systems, No. 36, PP. 1–29.

2. Barton, H., 2012, *The Status of Health in Urban Planning, Translated by Mohammad Taghizadeh Motlagh*, [Iranian Journal of] Studies in Urbanism, No. 3, PP. 27-37. *(In Persian)*
3. Barton, H., and Tsourou, C., 2010, *Healthy City Planning*, Translated by Mitra Attariyan, Tehran: Tehran Organization of Studies and Planning. *(In Persian)*
4. Bethune. R. et al., 2018, *Social Determinants of Self-Reported Health for Canada's Indigenous Peoples: A Public Health Approach*, Public Health, PP. 1-9.
5. Boer, R. W. J., and Vries, J. De., 2009, *The Right to the City as a Tool for Urban Social Movements: The Case of Barceloneta*, In the 4th International Conference of the International Forum on Urbanism, PP. 1321–1330.
6. Galobardes, B. et al., 2006, *Indicators of Socioeconomic Position (Part 1), J. Epidemiol*, Community Health, Vol. 60, No. 1, PP. 7-12.
7. Ghadami, M., Divsalar, A., and Gholamyan, M., 2010, *A Comparative Study of the Indicators of Urban Health on a National and Global Scale (Case Study: Urban Areas of Iran and Developed Countries),* Proceedings of the Fourth International Congress of the Islamic World's Geographers, Zahedan, Iran. *(In Persian)*
8. Godet, M., 2003, *The Art of Scenarios and Strategic Planning: Tools and Pitfalls*, Technological Forecasting and Social Change, Vol. 65, No. 1, PP. 3-22.
9. Golpir, A., 2017, *The Status of Urban Health in the Rules*, accessible via: http://www.evazfardlawyer.ir/index.php?todo=showarticles&aid=50230.
10. Gorane, S. J., and Kant, R., 2012, *Modelling the SCM Enablers: An Integrated ISM-Fuzzy MICMAC Approach*, Asia Pacific Journal of Marketing and Logistics, Vol. 25, No. 2, PP. 263-286.
11. Gupta, I., 2009, *Out-of-Pocket Expenditures and Poverty: Estimates From NSS 61 St Round*, Indrani Gupta Institute of Economic Growth Delhi.
12. Habibi, L., and Jafari Mehrabadi, M., 2010, *Future Studies and the Future of Metropolises with an Emphasis on Tehran Metropolis*, [Iranian] Geographic Quarterly of Zagros Outlook, Vol. 2, No. 6, PP. 97-110 *(In Persian)*
13. Habibi, M., and Amiri, M., 2015, *The Right to the City; The Existing City and the Desirable City; What It Is and What It Should Be*, Iranian Journal of Research in Anthropology, No. 2, PP. 9-30. *(In Persian)*
14. Hafeznia, M. R., 2009, *An Introduction to Research Methods in the Humanities*, Samt, Tehran. *(In Persian)*
15. Harpham, T., and Molyneux, C., 2001, *Urban Health in Developing Countries: A Review*, Progress in Development Studies, Vol. 1, No. 2, PP. 37–113.
16. Harvey, D., 1976, *Social Justice and the City*, Cambridge: Blackwell.
17. Harvey, D., 2001, *Spaces of Capital: Towards a Critical Geography*, Routledge (Vol. 22). New York: Routledge, https://doi.org/10.1016/s0962-6298(02)00091-4.
18. Harvey, D., 2008, *The Right to The City*, New Left Review, Vol. 53. No. 53, PP. 23–40.
19. Harvey, D., N.D., *Rebel Cities: From the Right to the City to the Urban Revolution*, New York: Verso.
20. Hassanzadeh, R., 2013, *Research Methods in Behavioral Science*, Savalan, Tehran. *(In Persian).*
21. Kandasamy, W.B., Smarandache, F., and Iianthenral, K., 2007, *Special Fuzzy Matrices for Social Scientists*, Infolearnquest, Ann Arbor.
22. Karlsdotter, Kristina, José J., Martín M., and Puerto López Del Amo González, M., 2012, *Multilevel Analysis of Income, Income Inequalities and Health in Spain,* Social Science and Medicine. Vol. 74, No. 7, PP. 1099–1106. http://dx.doi.org/10.1016/j.socscimed.2011.12.020.
23. Landeta, J., 2006, *Current Validity of the Delphi Method in Social Sciences*, Technological Forecasting and Social Change, Vol. 73, No. 5, PP. 467-482.

24. Lefebvre, H., 1996, *Writing on Cities*, Translated and Edited by Eleonore, K and Elizabeth, L. Blackwell Publishers. UK.

25. Lorig, K. R. et al., 2008, *Disease Evidence Suggesting That a Chronic Can Improve Health Status Program While Reducing Hospitalization*, Medical Care, Vol. 37, No. 1, PP. 5–14.

26. Lotfi, S., Mehdi, A., and Mahdian Behnamiri, M., 2013, *Measuring the Tendency of Inhabitants of the Four Areas of Qom to Sports and Physical Activities (Urban Health, Sustainable Development)*, [Iranian Journal of] Studies on Sport Management and Physical Activities, No. 17, PP. 129-154. *(In Persian)*

27. Maddah, H., and Roshanfekr, P., 2015, *The Right to the City from Theory to Practice*, Haft-Shahr Journal of Urbanism and Architecture, No. 49 and 50, PP. 58-73. *(In Persian)*

28. Majlis Research Center, 2004, *The World Health Report 2000*, Center for Economic Investigations, Deputy Chancellor's Office of the Islamic Consultative Assembly. *(In Persian)*

29. *Management and Planning Organization of North Khorasan Province*, 2018. *(In Persian)*

30. Manjengwa, J., Collen M., and Doreen T., 2016, *Understanding Urban Poverty in Two High-Density Suburbs of Harare, Zimbabwe*, Development Southern Africa, Vol. 33, No. 1, PP. 23–38, http://dx.doi.org/10.1080/0376835x.2015.1116376.

31. Marcuse, P., 2009, *From Critical Urban Theory to the Right to the City*, City, Vol. 13. No. 2 and 3, PP. 185–197.

32. Marcuse, P., 2012, *Whose Right (S) To What City, In Cities for People, Not for Profit*, Critical Urban Theory and the Right to the City, (N. Brenner, P. Marcuse, and M. Mayer, Eds.), London and NewYork: Routledge.

33. Maroufi, H., and Vahidi Borji, G., 2015, *Space and the Realization of the Right to the City: Identifying the Spatial Components of the Right to the City for Analyzing and Evaluating the Navvab Project in Tehran and La Défense In Paris*, [Iranian] Quarterly of Urban Research, No. 16, PP. 5-14. *(In Persian)*

34. Martínez, J., Gora Mboup, R. S., and Alfred, S., 2008, *Trends in Urban and Slum Indicators Across Developing World Cities, 1990-2003*, Habitat International, Vol. 32, No. 1, PP. 86–108.

35. Mberu Blessing U., Tilahun Nigatu Haregu, C. K, and Alex C. E., 2016, *Health and Health-Related Indicators in Slum, Rural, and Urban Communities: A Comparative Analysis*, Global Health Action, Vol. 9, No. 1, PP. 1–13.

36. Mehdi, A. et al., 2014, *Investigating and Analyzing Healthy Living and Access to Health Indicators in Suburban Neighborhoods (Case Study: Shadgoli Khan Neighborhood of Qom)*, [Iranian Journal of] Geography and Planning, No. 49, PP. 259-293. *(In Persian)*

37. Mitchell, D., 2003, *40 The Guilford Press Book Review: The Right to the City: Social Justice and the Fight for Public Space*, NewYork and London: The Guilford Press.

38. Naghdi, A., and Zare, S., 2011, *Living in the Suburbs as a Patter: A Threat to Sustainable Urban Development*, [Iranian] Specialized-Scientific Quarterly of Urban Studies, Vol. 1, No. 1, PP. 125-146. *(In Persian)*

39. Ouyang, W., Boyi, W., Li, T., and Xinyi, N., 2017, *Spatial Deprivation of Urban Public Services in Migrant Enclaves Under the Context of a Rapidly Urbanizing China: An Evaluation Based on Suburban Shanghai*, Cities, No. 60, PP. 436–445, http://dx.doi.org/10.1016/j.cities.2016.06.004.

40. Purcell, M., 2002, *Excavating Lefebvre: The Right to the City and Its Urban Politics of the Inhabitant*, Geojournal, Vol. 58, No. 2 and 3, PP. 99–108, https://doi.org/10.1023/b:gejo.0000010829.62237.8f

41. Purcell, M., 2014, *Possible Worlds: Henri Lefebvre and the Right to the City*, Journal of Urban Affairs, Vol. 36, No. 1, PP. 141–154, https://doi.org/10.1111/juaf.12034.

42. Rabbani, T., 2012, *The Application of Future Studies Approach and Strategic Thinking in Urban Development Planning*, Master's Thesis, Faculty of Geography, University of Tehran. *(In Persian)*

43. Radu. A. L., and Dimitriu, M., 2012, *Scoring Method Applied to Financing Programmes in the Context of Sustanable Development*, Procedia Economics and Finance, Vol. 3, PP. 527- 535.

44. Rafeian, M., and Alvandipour, N., 2015, *Conceptualization of the Idea of the Right to the City: Seeking a Conceptual Model*, Journal of Iranian Sociology, Vol. 16, No. 2, PP. 25-47. *(In Persian)*

45. Rasti, O., and Arezoomandan, R., 2011, *Migration, Marginalization and Their Effects on Urban Health (Case Study: Birjand),* Socio-Cultural Studies of Khorasan, No. 20, PP. 43-63. *(In Persian)*

46. Rezapur, A., Baghi, A., Adham, D., Ebadi Fard Azar, F., Bagheri Faradnebeh, S., Orumie'ei, N., Mirzai, S., Nakhaei, M., and Ghazanfari, S., 2016, *Inequality in Health Expenditures and Its Impoverishment Effects in the Urban Population of Kerman*, [Iranian] Journal of Health and Hygiene, Vol. 7, No. 2, Special Edition, PP. 146-157. *(In Persian)*

47. Rözer, J. J., and Volker, B., 2016, *Does Income Inequality Have Lasting Effects on Health and Trust?* Social Science and Medicine, No. 149, PP. 37–45.

48. Rydin, Y., 2012, *Healthy Cities and Planning*, Town Planning Review, No. 83, PP. 1-6.

49. Rydin, Y., Bleahu, A., Davies, M., Davila, J. D., Friel, S., Di Grandis, G., … Wilson, J., 2012, *Shaping Cities for Health: The Complexities of Planning Urban Environments in the 21st Century*, The Lancet, No. 379, PP. 2079–2108.

50. Safdari, R., Ghazisaeidi, M., and Zahmatkeshan, M., 2012, *Information Technology: S New Advancement in Urban Health Development*, Journal of School of Paramedicine, Tehran University of Medical Sciences (Peyavard Salamat), Vol. 6, No. 3, PP. 170-181. *(In Persian)*

51. Sarkar, C., Webster, C., and Gallacher, J., 2014, *Urban Built Environment Configuration and Psychological Distress in Later Life: Cross-Sectional Results from the Caerphilly Prospective Study (Caps), Healthy Cities, Public Health Through Urban Planning*, Edward Elgar.

52. Shamsipur, A. A., 2017, *An Analysis of te Spatial Distribution of Public Services from the Perspectove of Social Justice (Case Study: Bojnourd City),* Master's Thesis, Geography and Urban Planning, Islamic Azad University of Shirvan. *(In Persian)*

53. Shekarbeigi, A., and Zarifian, P., 2010, *The Role of Municipal Health Houses in Urban Health Management*, Sociological Studies of Iran, No. 1, PP. 144-168.

54. Simone, A. M., 2006, *The Right to the City*, Interventions: International Journal of Postcolonial Studies, Vol. 7, No. 3, PP. 321–325, http://www.tandfonline.com/doi/pdf/10.1080/13698010500268189.

55. Solar, O., and Irwin, A., 2010, *A Conceptual Framework for Action on the Social Determinants of Health, Geneva, Switzerland: WHO. Trust?* Social Science and Medicine, No. 149, PP. 37–45.

56. Talebian, H., Molaei, M. M., and Gharari, F., 2017, *A Structural Analysis by the Fuzzy Micmac Approach in Strategic Perspective (Case Study: Future Studies of Iran in 2015),* Bi-Quarterly Journal of Future Studies of Iran, Vol. 2, No. 1, PP. 75-104 *(In Persian)*

57. *UN Office of the High Commissioner for Human Rights (OHCHR) (A), Human Rights, Health and Poverty Reduction Strategies*, 2008, Issue No 5, UN Office of the High Commissioner for Human Rights (OHCHR) (B), Fact Sheet No. 31, The Right to Health, June 2008, No. 3.

58. Unesco and Un-Habitat, 2009, *Urban Policies and the Right to the City*, Rights, Responsibilities and Cities, Paris.

59. United Nations Development Programme (UNDP), 2018, *Sustainable Development Goals*.

60. Uslu, A. et al., 2009, *Public Health-Urban Landscaping Relationship and User's Perceptions*, Biotechnology and Biotechnological Equipment, No. 23, PP. 1399-1408.

61. Vaddiraju, A. K., 2016, *Urban Governance and the Right to the City*, Economic and Political Weekly EPW AUGUST, 6, 21–23.

62. Vearey, J. et al., 2010, *Urban Health in Johannesburg: The Importance of Place on Understanding Intra-Urban Inequalities on a Context of Migration and HIV*, Health and Place, Vol. 16, No. 4, PP. 694–702, http://dx.doi.org/10.1016/j.healthplace.2010.02.007.

63. WHO, 2005, *Human Rights*, Health and Poverty Reduction Strategies, No. 5, World Health Organization.

64. WHO, 2008, *Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health*, Final Report of the Commission on Social Determinants of Health. Geneva, World Charter on the Right to the City, available at: http://www.planningnetwork.org/01_news/world_charter_on_the_right_to_the_city.pdf

65. WHO, 2016, *World Health Statistics 2016: Monitoring Health for the Sdgs*, Sustainable Development Goals, WHO Press: Switzerland.

66. Zali, N., 2009, A Prospective Analysis of Regional Development Using the Baseline Scenario Approach (Case Study: East Azarbaijan Province), Ph.D. Thesis, Geography and Urban Planning, Tabriz University. (In Persian)

Spatial Evaluation of Access to Urban Free Spaces during the Post-Earthquake Periods Using Hub and Genetics Optimization Algorithms (Case Study: City of Gorgan)

Mohammad Hosein Saraei[1*], Mohammad Reza Rezaei[1], Mohsen Adeli[2]

1. Associate Professor of Humanities & Social Science, Department of Geography, Yazd University, Iran
2. PhD Candidate in Geography and Urban Planning, Yazd University, Iran

Received: 05 September 2018 Accepted: 17 June 2019

Extended Abstract

Introduction

Awareness of citizens' access to urban free spaces for temporary residence at post-earthquake period is one of the things that can be critical for crisis management. Identifying these points at pre-earthquake period can lead to decent and reasonable decision making by urban managers at an unstable and uncertain time of post-earthquake. In the present study, the process of access of Gorgan citizens to urban free spaces has been evaluated in the post-earthquake period. For this purpose, the genetic algorithm is used to solve a geospatial problem whose input data is derived from GIS. It should be noted, an important part of the comprehensive national planning process in developed countries is dedicated to the issue of preparedness and security against unexpected accidents. In Iran over the past century, 13 earthquakes of greater than 7 magnitudes have occurred. This is despite the fact that, in most cases the villages of Iran against earthquake of 5 magnitudes and the cities of Iran are also vulnerable to earthquake of 6 magnitudes. Given the fact that during the earthquake, the city structure makes significant changes, the expected functions of this structure also change. In this situation, the optimal locating of citizens in the appropriate places due to the interference of multiple spatial and temporal criteria is very complicated. On the other hand, for various economic, technical and administrative reasons, it is not possible to provide housing to meet the basic needs of the injured during the early hours and days after the earthquake crisis. Therefore, access to free urban spaces can greatly facilitate the process of temporary accommodation of injured people. These spaces can be used to distinguish areas with potential hazard from other areas and cause a decentralization of damages. In fact, due to some restriction including time, place, and resources, usually, the relief process is less accelerated in the early hours and days of the post-earthquake. If at a pre-earthquake time, there is no planning for emergency accommodation and access to free spaces, temporary accommodation will be done in a cross-sectional and experimental manner, so doing this scenario may have very bad results. If the existing buildings do not have the ability to protect residents of the city, the best option is to use the temporary placement process in free spaces. In the 2011, earthquake and tsunami in Japan, about 250,000 of injured people are located in emergency and temporary shelters. These free spaces, in addition to capacity criteria, should also provide safety and access to needed facilities. If the process of choosing these safe places occurs at a time before the earthquake, it can have a significant impact on improving the emergency evacuation process of the population. Simultaneous use of GIS and meta-algorithms can add the capabilities of both to solve the

* Corresponding Author, Email: msaraei@yazd.ac.ir

problem. In this process, the initial data are generated in the GIS environment and then in order to provide optimal solutions it is exported to meta-heuristics algorithm.

Methodology

This paper is a practical study with descriptive and analytical method. The data of this research have been gathered by documental and surveying. Regarding the nature of the research, at the beginning, we performed the process of collecting and preparing the required data. The allocation of free spaces to demographic blocks has been accomplished in two distinct but integrated formats. One of these steps is performing the allocation process using ArcGIS 10.3 software. In another part, the allocation process with hub problem subject is based on the genetic algorithm and in the MATLAB 2016 software environment. The objective function of both steps is to minimize the cost of transmission, and such things include capacity of free spaces, accessibility, and maximum coverage is the constraints of the problem. The free spaces that used in this research are considered as two separate scenarios. In Scenario 1 (non-flexible scenario), only the public free spaces of the city are structurally able to accommodate the temporary population. Accordingly, 48 units of lands with an area of about 25 hectares were selected as temporary accommodation options. In the second scenario (flexible scenario), the process of the land selection was easier and the non-public parts were also considered as components with a population potential. In this scenario, 153 units of land with an area of 39 hectares were considered as selective options.

Result and Discussion

In solving the allocation problem using the genetic algorithm, by applying changes to the problem-solving parameters, we considered six different alternatives with the lowest cost of population transfer from demographic block centers to free spaces.

Conclusion

Most likely, with the allocation of blocks with more populations to closer free spaces, the process of minimizing the cost of transferring from the centers of the demographic blocks to the free spaces is accomplished. But doing this process may have other social implications. According to the specific cultural conditions governing the community and the mental fragility of individuals at this particular time, more citizens tend to reside as close to their current location as possible.

The results of the research include the amount of the population with accesses and non-accesses to free spaces. The distance of the citizens' transferring to free spaces is calculated according to the spatial and temporal distance. Accordingly, the average distance from demographic blocks to free spaces for non-flexible and flexible scenarios, including road obstruction, is 487 and 514 meters, respectively. This issue in the flexible scenario is, respectively, 731 and 642 meters. Similarly, the transfer time for the first mode is 64 and 73 seconds, and for the second mode it will be 158 and 126 seconds. In the first case, 24 and 35 percent of the city's population is covered by free spaces and this amount for the second mode is 32 and 47 percent, respectively. The results of hub problem solving using the genetic algorithm are similar to the flexible scenario without considering the blocking roads.

Keywords: earthquake, free spaces, hub problem, genetic algorithm, Gorgan City.

References

1. Adeli, M., Ziyari, K., and Givehchi, S., 2018, Evaluation of GORGAN Citizens Vulnerability Against Earthquake Disaster Using GIS and Meta-Heuristic Algorithms, Human Geography Research. DOI: 10.22059/Jhgr.2018.234542.1007469. (In Persian)

2. Adewole, Ph., Akinwale, A., and Otunbanowo, K., 2011, A Genetic Algorithm for Solving Traveling Saleman Problem, International Journal of Advanced Computer Science and Applications (IJACSA). Vol. 2, No. 1. PP. 26-29.

3. Ahad Nezhad, M., Meshkini, A., and Nouri, B., 2007, Evaluation of Vulnerability of Rural and Informal Residents from Earthquakes Using Geographic Information Systems (Case Study: Zanjan City), The First Urban GIS Conference, North University. (In Persian)
4. Asghari Zamani, A., 2014, Evaluation of the Quality of Access to Urban Free Spaces During Natural Disasters (Case Study: Tabriz City), Journal of Geography and Planning, Vol. 18, No. 48, PP. 16-1. (In Persian)
5. Azizi, M. M., and Homafar, M., 2012, Seismic Pathology of Urban Roads, Case Study: Karmandan Area, Karaj, Journal of Fine Arts, Architecture and Urban Development, Vol. 17, No. 3, PP. 5-15. (In Persian)
6. Behrou, R., and Guest, J. K., 2017, Topology Optimization for Transient Response of Structures Subjected to Dynamic Loads, In 18th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference (P. 3657).
7. Behrou, R., Lawry, M., and Maute, K., 2017, Level Set Topology Optimization of Structural Problems with Interface Cohesion, International Journal for Numerical Methods in Engineering, Vol. 112, No. 8, PP. 990-1016.
8. Behzadi, S., and Alesheikh, A. A., 2008, Developing a Genetic Algorithm for Solving Shortest Path Problem, Wseas International Conference on Urban Planning and Transportation (UPT'07), Heraklion, Crete Island, Greece, July, PP. 22-24.
9. Bin Jubeir, M., Almazrooie, M., and Abdullah, R., 2017, Enhanced Selection Method for Genetic Algorithm to Solve Traveling Salesman Problem, Proceedings of the 6th International Conference on Computing and Informatics, ICOCI 2017 25-27April, 2017 Kuala Lumpur, Universiti Utara Malaysia (http://www.uum.edu.my), PP. 69-76.
10. Building and Housing Research Center, 2006, Preparation and Compilation of Earthquake Scenario in Gorgan, Earthquake Section, Third Chapter, PP. 66. (In Persian)
11. Cavuoti, S., Garofalo, M., Brescia, M., Paolillo, M., Pescape, A., Longo, G., and Ventre, G., 2013, Astrophysical Data Mining with GPU a Case Study: Genetic Classification of globaler cluster, printed submitted of New Astrophysical, , PP. 1 -29,
12. Central U.S Earthquake Consortium, 2000, Earthquake Vulnerability of Transportation System in the Central United States, Compiled by the Central U.S Earthquake Consortium.
13. Chen W., and Scawthorn C., 2002, Earthquake Engineering Handbook, CRC Press, Florida.
14. Cooray P. L. N. U. and Thashika D., 2017, Rupasinghe. Machine Learning-Based Parameter Tuned Genetic Algorithm for Energy Minimizing Vehicle Routing Problem, Journal of Industrial Engineering. Vol. 2017 (2017), Article ID 3019523, 13 Pages.
15. EMDAT., 2017, The OFDA/CRED International Disaster Database, Universite Catolique De Louvain-Brussels-Belgium, [Accessed 2017 Jan 1], http://www.emdat.be/emergency Shelter Location, Journal of Natural Disasters, Vol. 24, No. 2, PP. 8-14.
16. Eshraghi, M., 2006, Locating Temporary Accommodation Sites of Earthquake-Affected Populations Using Geographic Information Systems (Tehran 2nd District), Tehran, Second International Conference on the Integrated Management of Crisis Management In Natural Disasters. (In Persian)
17. Ghotbeddini, M., Metkan, A. A., Ali Mohammadi, A., and Mirbagheri, B., 2012, Implementation of Ant Colony Optimization Algorithm (ACO) in Locating Temporary Shelters After Earthquake (Case Study: Kerman City), Master's Degree Dissertation, Department of Remote Sensing and GIS, Faculty of Earth Sciences, Shahid Beheshti University, Tehran. (In Persian)
18. Givehchi, S., Attar, M. A., Rashidi, A., Hesari, E., and Nasabi, N., 2013, Locating Temporary Post-Earthquake Settlement Using GIS and AHP Technique. Case Study: District 6 of Shiraz, Urban and Regional Studies and Research, Vol. 5, No. 7, PP. 101-118. (In Persian)
19. Gog, A., Dumitrescu, D., and Hirsbruner, B., 2007, New Selection Operator Based on Genetic Relatedness for Evolutionary Algorithms, IEEE Congress on Evolutionary Computation, PP. 4610-4614.

20. Governorate of Golestan Province, 2017, The Results Abstract of General Census of Population and Housing in 2017 At Golestan Province, Planning and Budget Organization, Department of Statistics and Information, PP. 1-20. (In Persian)

21. Haleh, H., Esmaeili A., and Abadi, D., 2015, Improvement of Imperialist Colony Competitive Algorithm Using the Colonial Learner's Operator and Its Application to Solving the Travelling Salesman Problem, Journal of Development Evolution Management, No. 22, PP. 55-61. (In Persian)

22. He, S., Zhang, L., Song, R., Wen, Y., and Wu, D., 2009, Optimal Transit Routing Problem for Emergency Evacuations, The Nataional Acadmies of Sciences Engineering Medicine, Transportation Research Board. Accession Number: 01128717, Report/Paper Numbers: 09-0931.

23. John, A., Arunadevi, J., and Mohan, V., 2009, Intelligent Transport Route Planning Using Genetic Algorithm in Computation Algorithm, European Journal of Scientific Reasearch, ISSN 1450-216X. Vol. 25. No. 3, PP. 463-468.

24. Khomr, Gh., Saleh Gohari, H., and Hosseini, Z., 2014, The Feasibility of Urban Sprawl Location Using Model (IO) and Method (AHP) (Case Study: 13 Districts of Kerman City), Quarterly Journal of Urban Planning, Vol 2, No. 7, PP. 29 - 54. (In Persian)

25. Kumar, J., Arunadevi, J., and Mohan., V., 2009, Intelligent Transport Route Planning Using Genetic Algorithms in Path Computation Algorithms, European Journal of Scientific Research, Vol. 25, No. 3, PP. 463-468.

26. Ma, D.X., Chu, J.Y., Wang, Z., Chen L.L., 2015, Study on Location Model of Disaster Emergency Shelter Based on Multi-Objective Programming, Journal of Natural Disasters, Vol. 24, No. 2, PP.1-7, DOI: 10.13577/J.Jnd.2015.0201.

27. Mandekar, U. H., and Aher, P. B., 2013, Solving the Traveling Saleman Problem Using an Evolutionary Algprithm, International Journal of Computer and Technology, Vol. 4., No. 1, PP. 33- 35.

28. Masum, A. K., Shahjalal, M., Faruque, F., and Sarker, I. H., 2011, Solving the Vehicle Routing Problem Using Genetic Algorithm, (IJACSA). International Journal of Advanced Computer Science and Applications. Vol. 2, No. 7, PP. 126 – 131.

29. Mavrovouniotis, M., Müller Felipe M., and Yang, Sh., 2016, Ant Colony Optimization with Local Search for Dynamic Travelling Salesman Problems, Ieee Transactions on Cybernetics, Vol. Xx, No. Yy, PP. 1 -14.

30. Mokhtarzadeh, S., Sargolzaei, Sh., and Bidram, R., 2010, Methodological Assessment of Earthquake Road Vulnerability, National Earthquake Conference and Vulnerability of Vital Sites and Roads. (In Persian)

31. Nappi, M. M .L., Souza, J. C., 2014, Disaster Management: Hierarchical Structuring Criteria for Selection and Location of Temporary Shelters, Nat Hazards. 75:2421–2436. Doi:10.1007/S11069-014-1437-4, On Multi-Objective Programming, Journal of Natural Disasters, Vol. 24, No. 2, PP. 1-7.

32. Narooei, K., and Aghaei Zadeh, I., 2017, Locating the Temporary Residental Site for Earthquake in Cities (Case Study: Zahedan City), Journal of Geography and Urban Space Development, Vol. 4, No. 1, PP. 155-173. (In Persian)

33. Nikpour, A., Lotfi, S., and Reza Zadeh, M., 2017, Analysis of the Relationship Between City Form and Accessibility Index (Case Study: Babolsar), Quarterly Journal of Spatial Planning (Geography), Vol. 7, No. 3, PP. 85- 106. (In Persian)

34. Raichaudhuri, A., and Jain, A., 2010, Generic Algorirhm Based Logistics Route Planning, International Journal of Innovation, Management and Technology, Vol. 1, No. 2, PP. 205-208.

35. Saadatseresht, M., Mansourian, A., and Taleai, M., 2009, Evacuation Planning Using Multiobjective Evolutionary Optimization Approach, European Journal of Operational Research, 198, 305–314. Doi: 10.1016/J.Ejor.2008.07.032.

36. Sallabi, O., 2009, An Improved Genetic Algorithm to Solve the Traveling Salesman Problem, World Academy of Science, Engineering and Technology, International Science Index Vol. 3, No. 4, waste.org/publication/ 15802. PP. 388-391.

37. Samadzadegan, F., Abbaspour, A., and Pahlavani, P., 2006, Locating Emergency Accommodation Places of Citizens in Unexpected Accidents Using Smart Space Information Systems, Tehran, Spatial Information Technology Conference and Natural Disaster Management. (In Persian)

38. Shariat Mohaymeni, A., Maadi, S., and Babaei, M., 2012, Using the Colonial Competition Algorithm for Locating Medical Emergency Centers, Sixth National Congress on Civil Engineering, Semnan University. (In Persian)

39. Sherali, H. D., Carter, T. B., and Hobeika, A. G., 1991, A Location-Allocation Model and Algorithm for Evacuation Planning Under Hurricane/ Flood Conditions. Transportation Research Part B: Methodological, Vol. 25, No. 6, PP. 439-452.

40. Shie, I., Habibi, K., and Ismail, K., 2010, Evaluation the Vulnerability of Urban Communication Networks Against Earthquakes Using GIS and IHWP, Bagh-E-Nazar, Vol. 7, No. 13, PP. 35-48. (In Persian)

41. Taqavi, A., 2010, Reflects the Social Changes in the Spatial Structure of the Ancient City of Gorgan During the Islamic Era, Iranian Social Studies Journal, No. 11. (In Persian)

42. Tzeng, G. H., and Cheng, H. J., 2007, Multi-Objective Optimal Planning For Designing Relief Delivery Systems, Transportation Research Part E, Vol. 43, No. 6, PP. 673-686.

43. Tzung Pei, H., Yuan Ching, P., WenYang, L., and ShyueLiang W., 2017, Empirical Comparison of Level-Wise Hierarchical Multi-Population Genetic Algorithm, Journal of Information and Telecommunication, Vol. 1, No. 1, PP. 66–78. (http://dx.doi.org/10.1080/24751839 .2017.1295662.

44. Widener, M. J., and Horner, M. W., 2011, A Hierarchical Approach to Modeling Hurricane Disaster Relief Goods Distribution, Journal of Transport Geography, Vol. 19, No. 4, PP. 821-828.

45. Zhao, X., Graham, C., and Wei, X., 2017, Solving the Earthquake Disaster Shelter Location-Allocation Problem Using Optimization Heuristics, Analytical Modeling and Simulation, Proceedings of The 14th ISCRAM Conference – Albi, France, May 2017. 50 -62.

46. Xu, W., Zhao, X., Yunjia, Ma., Ying, Li., Qin, L., Wang, Y., Du, J., 2018, A Multi-Objective Optimization Based Method for Evaluating Earthquake Shelter Location–Allocation, Geomatics, Natural Hazards and Risk, 2018, Vol. 9, No. 1, PP. 662–677. https://doi.org/10.1080/19475705.2018.1470114.

47. Xu, W., et al., 2014, Collaborative Modelling-Based Shelter Planning Analysis: A Case Study of the Nagata Elementary School Community in Kobe City, Japan. Disasters, No. 38, PP.125–147. Doi:10.1111/Disa.12033.

48. Yuan Y., Liu Y., Zhu, S. H., Wang, J. B., 2015, Maximal Preparedness Coverage Model and Its Algorithm for Emergency Shelter Location, Journal of Natural Disasters. Vol 24, No. 02, Pages 8 -14.

49. Yung Lung L., Ming Chin Ho., Tsung Cheng H., and Cheng An T., 2007, Urban Disaster Prevention Shelter Vulnerability Evaluation Considering Road Network Characteristics, 2nd International Conference on Urban Disaster Reduction.

50. Zhao, X., Xu, W., Yunjia, Ma., and Hu, F., 2015, Scenario-Based Multi-Objective Optimum Allocation Model for Earthquake Emergency Shelters Using a Modified Particle Swarm Optimization Algorithm: A Case Study in Chaoyang District, Beijing, China, Plos One 10 (12): E0144455. Doi: 10.1371/Journal.Pone.0144455.

51. Zhou, C., Zheng, J., and Li, W., 2008, An Improved Heuristic Crossover Operator for TSP, Fourth International Conference on Natural Computation, Jinan, Print ISBN: 978-0-7695-3304-9, INSPEC Accession Number: 10398337, pp. 541-545. doi: 10.1109/ICNC.2008.514.

Brand Equity Analysis of Urban Tourism Destination (Case Study: Marivan City)

Seyed Eshaq Jalalian[1*], Mehdi Saidi[2], Mohammad Waysian[3]

1. Assistant Professor of Geography and Urban Planning, Payame Noor University, Tehran, Iran
2. PhD Candidate in Urban Planning and Design, University of Science and Technology Iran
3. MA in Geography and Urban Planning, Kharazmi University, Tehran, Iran

Received: 24 November 2018 Accepted: 10 August 2019

Extended Abstract

Introduction

Tourism, in recent decades, is considered as a fundamental driving at the current competitive age worldwide. The tourism is one of the factors playing an important role in development of public order or disorder. The development of tourism activities can cause outbreak deep changes in most of objective and subjective indexes and the major economic, social, cultural and environmental features of target societies. Different cities of the world make efforts to recognize their role at the national and international level. Meanwhile, each of the results tries to play an active and effective role based on their distinguished characteristics. The urban compatibility is the subject which attracted special attention during the recent years. It takes a city several decades to apply the marketing techniques. The urban branding is a factor which has close relationship with the city function and is one of the significant factors in the definition of identity and personality of city. It causes entailing the good mental picture for the city. There are many attractions and tourism destinations where comprehensive and effective planning was not performed for them.

Marivan city is a notable example; although there are various touristic destinations in Marivan with no effective practices in the area of its brand equity. The focus on the brand equity of tourism destination is of the most importance. Several ingredients and indices form the brand equity that their impression and correlations are still in doubt in the study area. Thus, the present paper aims to answer the question of what is the link between the key ingredients of tourism destinations and their impressions.

Methodology

The present research is an applied study and applies a quantitative method. By the use of documentary and library studies, the key elements of target brand equity of tourism were classified into brand picture, brand awareness, perceived qualities and fidelity. For the study of situations existing in every mentioned element, the indexes and expertized questions were formulized and the data related to every index in the study scope were collected by the use of questionnaire. The Partial Least Squares Structural Equation Modeling (PLS- SEM) was applied in Smart- PLS for the purpose of relationships between the research elements. The structure of research model based on mentioned elements as the latent variables and indexes defined for each of them were regarded as the observable variables. Based on Partial Least Squares Structural Equation Modeling, the number of required questionnaires is ten times the number of

* Corresponding Author, Email: jalaliyan_e@yahoo.com

observable variables of the element which has the most number of variables in comparison to the other elements and an extra variable was taken into account for further confidence and, accordingly, 120 questionnaires were used for field study and collecting the data related to observable variables. The reliability of questionnaire by test of Chronbakh's Alpha was obtained more than 0.7 and this confirms the reliability of questionnaire. In the process of modeling, the composite model was used for the study of observable variables in the elements of brand picture and perceived quality; and the reflective model in the structural model was used for the elements of brand awareness and fidelity. The effectiveness of brand picture on the brand awareness and fidelity is relatively strong that this indicates the proper and appropriate performance of indexes of elements of brand picture in Marivan. Therefore, it can be said that, in the study scope, the beautiful nature and landscape, proper weather, lake and mountains, attractive historical attraction, attractive cultural attraction, hospitable people, attractive local food, appropriate purchase facilities, proper commercial situation, peaceful and calm environment and the unique handicrafts in the target brand equity are of special importance.

Results and discussion

Results show the coefficients of direct effect of perceived quality on brand awareness, brand awareness on loyalty, brand image on loyalty and brand image on awareness was 0.326, 0.326, 0.649 and 0.662, respectively. Moreover, the coefficients of the indirect effect of brand image on loyalty as well as perceived quality on loyalty were 0.215 and 0.106, respectively. With regard to the given structural modeling, the most total effect (0.864) was found for the brand image. Brand image and perceived quality have total effect coefficients of 0.326 and 0.864, respectively, directly and indirectly, and anticipate 0.92.5 and 0.92.9 (%) of the total variance of brand awareness and loyalty.

Conclusion

The least effectiveness of elements in the structural model of research is related to the effectiveness of elements of brand awareness on the fidelity. In this regard, it can be said that the management of tourism affairs has had no proper performance and the management of tourism affairs of city, for the purpose of development of mentioned element, should provide the situation for improvement of indexes of resolving power in comparison to the other destinations, features of tourism destination, ability for reminding the symbol and logo of destination and determination for purchase as the priorities of management and planning. Thus, the effort should be made to improve all the indexes of brand equity and fidelity to brand among the tourists traveled to Marivan city. With regard to this matter that the tourists are not able to test their selections physically, their decision- makings are more based on the mental pictures that they make before the selection of product or the services presented by the destination. Therefore, it is suggested that the influential managers and authorities in this case should try to make a valuable picture from this city as tourism destination by the use of marketing tools specially the propaganda including posters, media advertisements, holding the festivals, conference and expertized meetings.

Keywords: brand equity, ingredients, structural equation modeling, Marivan City.

References

1. Chekalina, T., Fuchs, M., and Lexhagen, M., 2018, *Destination Brand Promise: The Core of Customer-Based Brand Equity Modeling*, Tourism Analysis, Vol. 23, PP. 93–107.
2. De Oliveira Santos, G. E., and De Moura Engracia Giraldi, J., 2017, *Reciprocal Effect of Tourist Destinations on the Strength of National Tourism Brands*, Tourism Management, Vol. 61, PP. 443-450.
3. Ekinci, Y., Sirakaya Turkc, E., and Preciado, S., 2013, *Symbolic Consumption of Tourism Destination Brands*, Journal of Business Research, Vol. 66, No. 6, PP. 711-718.

4. Frías Jamilena, D. M., Sabiote Ortiz, C. M., Martín-Santana, J. D., and Beerli Palaci, A., 2018, *The Effect of Cultural Intelligence on Consumer-Based Destination Brand Equity*, Annals of Tourism Research, Vol. 72, PP. 22-36.

5. Kaushal, V., Sharma, S., and Reddy, G. M., 2018, *A Structural Analysis of Destination Brand Equity in Mountainous Tourism Destination in Northern India*, Journal Tourism and Hospitality Research, Preview Number, PP. 1-13.

6. Kim, Y. H., Li, H., and Nauright, J., 2018, *A Destination Development by Building a Brand Image and Sport Event Tourism: A Case of Sport City USA*, Journal Sport in Society, Vol. 21, No. 8, PP. 1196–1203.

7. Maja Konečnik, R., 2010, *Extending the Tourism Destination Image Concept into Customer-Based Brand Equity For A Tourism Destination*, Journal Economic Research Ekonomska Istrazivanja, Vol. 23, No. 3, PP. 24-42.

8. Martins, M., 2015, *The tourist Imagery, The Destination Image and the Brand Image*, Journal of Tourism and Hospitality Management, Vol. 3, No. 2, PP. 1-14.

9. Munazza, S., and Imran, S., 2019, *Customer-Based Brand Equity and Destination Visit Behavior in the Tourism Industry: The Contingent Role of Social Media*, Quality and Quantity International Journal of Methodology, First Online 01, PP. 1–22.

10. Rodríguez Molina, M. A., Frías-Jamilena, D. M., Del Barrio-García, S., and Castañeda García, J. A., 2019, *Destination Brand Equity-Formation: Positioning by Tourism Type and Message Consistency*, Journal of Destination Marketing and Management, Vol. 12, PP. 114–124.

11. Tran, V., Nguyen, N., Tran, P., Tran, T. and Huynh, T., 2019, *Brand equity in a tourism destination: a case study of domestic tourists in Hoi An city, Vietnam*, Tourism Review, Vol. 74, No. 3, PP. 704-720.

12. Trung Tran, V., Phuc Nguyen, N., Kim Tran, P., Tran, T. N., and Phuong Huynh, T. T., 2019, *Brand Equity in a Tourism Destination: A Case Study of Domestic Tourists in Hoi An City*, Vietnam, Tourism Review, Vol. 74, No. 3, PP. 704-720.

13. Bahari, J., Farahani, B., Bahari, Sh., Bazleh, M., and Bahari, H., 2017, *Evaluation of Brand Equity in Tourism Destination from Viewpoint of Domestic Tourists (Case Study: Tabriz City)*, Geogrophical Quarterly of Tourism Space, Vol. 6, No. 24, PP. 73-100. *(In Persian)*

14. Ghaffari, M., and konjkav Monfared, A., 2018, *Effect of Social Responsbilities on Development of Brand Equity of Tourism Destinations, Case Study: Isfahan City*, Two- Quarterly of Tourism Social Studies, Vol. 6, No. 11, PP. 139-162. (In Persian)

15. Ghasemi, M., and Najarzadeh, M., 2015, *Study of Factors Effective on Brand Fidelity and Its Relationship with Oral Commendation to Others, Case Study: Tourists of Entrance of Isfahan City*, Urban Tourism Quarterly, Vol. 2, No. 2, PP. 153-165. *(In Persian)*

16. Hemmati, R., and Zahrani, D., 2014, *Study of Factors Effective on Foreign Tourists' Satisfaction and Fidelity to Isfahan as Tourism Brand*, Journal of Tourism Planning and Development, Vol. 3, No. 10, PP. 182-204. *(In Persian)*

17. Hesam, M., and Karimi, S., 2016, *Evaluation and Prioritization of Tourism Destinations Based on Brand Equity From Tourists' Viewpoint, Case Study: Province of Gilan Province*, Quarterly of Geogrophy, Vol. 14, No. 49, PP. 337-353. *(In Persian)*

18. Hoseyn Nezhad, Z., Nezami, Sh., and Rahimniya, F., 2018, *Efeect of Discovering and Polishing Strategies on Brand Picture and Client's Commitment to Brand Perfrmance*, Quarterly of Strategic Management Researches, Vol. 24, No. 68, PP. 13-36. *(In Persian)*

19. Imani Khoshkhoo, M., and Ayoobi Yazdi, H., 2010, *Factors Effective on Brand Equity in Tourism Destination of Yazd city*, Quarterly of Tourism Management Studies, Vol. 5, No. 13, PP. 113-137. *(In Persian)*

20. Jafari, V., Najarzadeh, M., and Kyani Fayzabadi, Z., 2017, *Study of Factors Effective on Brand Equity of Tourism Destination, Case Study: Savadkooh City*, Journal of Tourism Planning and Development, Vol. 6, No. 20, PP. 75-93. *(In Persian)*

21. Karroubi, M., Vafaie, A., and Seyyedi, P., 2017, *Factors Effective on General Satisfaction with Moderating Role of Brand Equity of Tourism Destination, Case Study: Tourists Visiting from Golestan Palace in Tehran*, Quarterly of Tourism and Development, Vol. 6, No. 10, PP. 1-22. *(In Persian)*

22. Koozegar kalji, L., Aghaei, P., and Mohammadi, H., 2017, *Effect of Tourism Brand Equity on Fidelity of Tourists of Museum, Case Study: National Museum of Iran*, Quarterly of Tourism and Development, Vol. 6, No. 11, PP. 190-207. *(In Persian)*

23. Kyani Feyzabadi, Z., 2018, *Factors Effective on Fidelity to Tourism Destination with Moderating Role of Tourists' Satisfaction, Case Study: Kashan City*, Urban Tourism Quarterly, Vol. 5, No. 4, PP. 105-120. *(In Persian)*

24. Mahmoudi Pachal, Z., Zareai, Qh., and Bashokouh Ajirlo, M., 2017, *Presentation of Model of Client-cintered Brand Equity in Saraein Tourism Destination*, Quarterly of Tourism and Development, Vol. 6, No. 3, PP. 116-138. *(In Persian)*

25. Najarzadeh, M., Ebrahimi, S., and Golestaneh, R., 2019, *Using Tourism Brand for Creating Travel Motivation with Moderating Role of Atttitude toward Tourism Destintion*, Quarterly of Tourism Management Studies, Vol. 14, No. 45, PP. 139-166. *(In Persian)*

26. Nazari, M., Mira, S., and Esmaili, S., 2018, *Effect of Price Development on Brand Equity, Case Study: Travel Agencies of Tehran City*, Quarterly of Tourism Management Studies, Vol. 13, No. 41, PP. 57-82. *(In Persian)*

27. Ramazanzadeh, M., Akbaryan Ronizi, S., Ramazanifar, H., and Heydari, Z., 2015, *Development of Tourism in Coastal Cities of and Social Security, Case Study: Tonekabon City*, Researches of Geogrophy of Uran Planning, Vol. 3, No. 3, PP. 309-324. (In Persian)

28. Rezghi, M., Shahabyan, P., Modiri, A., and Ahmadyan, R., 2018, *Evaluation of Indexes Effective on Brand Equity of Target Brand in Historical Cities of Iran From Foreign Tourists*, Viewpoint, Urban Tourism Quarterly, Vol. 5, No. 4, PP. 137-152. *(In Persian)*

29. Shirkhodaei, M., Nejat, M., Esfidani, M., and Shahi, M., 2015, *Study of Efeect of Brand Prominence on Brand Fidelity of Tourism Destination*, Quarterly of Tourism Management Studies, Vol. 10, No. 32, PP. 111-129. *(In Persian)*

30. Tajzadeh Namin, A., and Esmail Moshrafi, F., 2013, *Prioritization of Elements of Brand Equity in Tourism Destination from Viewpoint of Domestic Tourists*, Quarterly of Tourism Management Studies, Vol. 8, No. 24, PP. 35-58. *(In Persian)*

31. Torkestani, M., Bakhshizadeh Borj, K., and Jahadi, P., *2018, Mapping Association Networks of Kish Free Zone's Tourist Branding Using Brand Conceptual Mapping Method*, Quarterly of Tourism Management Studies, Vol. 13, No. 42, PP. 41-65. *(In Persian)*

32. Zareai, Gh., Bashokouh Ajirlo, M., and Mahmodi Pachal, Z., 2018, *Analysis of Comprehensive Correlation of Dimensions of Client- centered Brand Equity of Saraein Tourism Destination*, Quarterly of Tourism Management Studies, Vol. 13, No. 42, PP. 161-185. *(In Persian)*

The Spatial Analysis of Resilience of Old Neighborhoods in Central Areas of Tabriz City

Ali Shamaei[1*], Farzaneh Sasanpour[1], Rahman Ali Hosseini[2]

1. Associate Professor of Geography and Urban Planning, University of Kharazmi, Tehran, Iran
2. PhD Student in Geography and Urban Planning, University of Kharazmi, Tehran, Iran

Received: 08 December 2018 Accepted: 21 July 2019

Extended Abstract

Introduction

Cities and metropolitan areas represent dense and complex systems of interconnected services. As such, they are faced with an increasing number of issues that lead to disaster risk. As part of an ideal, strategies and policies can be developed to deliberation to render cities resilient and livable. In the new era, due to the rapid population growth and rapid growth of cities, urban neighborhoods have not had the opportunity to adapt to the new needs of urban neighborhoods, and have been largely unsuccessful in meeting the diverse needs and demands of citizens, failing to deliver the necessary problems. The emergence of gaps and the lack of homogeneity in urban neighborhoods are consequently increased with dissatisfaction of a wide range of urban residents in their residential environment. Central Context Neighborhoods also emerged as a result of changes in the modern era, with people moving to new neighborhoods with a modern shape and structure outside the central contexts. The old neighborhoods within the central texture of Tabriz, is considered the heartbeat of the city. With diverse functions of social life and identity and vitality, the neighborhoods have now lost their function and quality at many levels, and in some cases inefficient urban textures are at risk and vulnerable to social harm. They are vulnerable to natural and man-made hazards due to the age and exhaustion of building materials, low-winding, winding passages and infrastructure. This situation reduces the likelihood of crisis relief and resilience in times of crisis and emergencies.

Methodology

This descriptive-analytical study aimed to identify the status of resilience in four dimensions of resilience (physical, economic, social and environmental) and its sub-indices, using ELECTRE and AHP methods. The data have been gathered by questionnaires to have the views of experts in the central part of Tabriz. We have used statistical sources, maps, studies and questionnaires to gather information of each of the indices. ArcGIS and Excel applications were used to analyze the data. Then, the information obtained was evaluated using the Electrode Method for each neighborhood. In order to gain the weight of the indices, the Hierarchical Analysis System (AHP) using Expert Choice software and the views of experts and related experts were used to enter information into the Electre Solver software. The community of experts interviewed was used according to their consensus.

Results and discussion

The Tabriz City as the study area has 24 districts. The old maps of the neighborhoods, the old

* Corresponding Author, Email: shamai@khu.ac.ir

barracks of the city, the existing historical documents and maps and the reports of the studies of the master plan of Tabriz are based on the 1919 localities. At first, the four dimensions of resilience were studied with the help of library documents and resources and the views of other researchers and experts, and the indices are needed to measure resilience. Finally, the final score for the resilience level of each neighborhood was obtained. The results obtained from the Electra model show that the leveling and overall status of neighborhoods in terms of resilience level, high level of resilience in Mansour, Aharab, Maghsoudieh and Daneshara neighborhoods, critical condition of Gajil, Baghshamal, Maralan and Serkhab and non-resilience of Vijoyeh, Davahy and Garaghaj come in handy. Socio-economic dimensions achieved the lowest score among the four dimensions of resilience. This necessitates more attention to the physical refurbishment of urban buildings.

Conclusion

It can be concluded that based on field studies and observations, high age of buildings and burnout, poor quality of buildings, impermeability and low width of passageways, high building and population density due to fragmentation and other components of urban resilience measurement are all inefficient in most neighborhoods. Instability of the physical and economic dimensions of the textures has led to other instabilities of resilience. The physical and economic resilience approach of sustainable neighborhoods with the economic upbringing strategy can be an effective prescription for enhancing resilience of the old texture neighborhoods and to overcome this situation.

Keywords: central city, urban resilience, spatial analysis, neighborhood, Tabriz City.

References

1. Adger, W., 2000, *Social and Ecological Resilience; Are They Related?*, Progress in Human Geography, Vol. 24, No. 3, PP. 347-364.
2. ADPC, 2007, *CBDRM Field Practitioners' Handbook*, Asian Disaster Paperedness Center, Thailand.
3. Agudelo, V., and Claudia, M., 2012, *Harvesting Urban Resources Towards More Resilient Cities, In: Resources*, Conservation and Recycling, Vol. 64, No. 5, PP. 3-12.
4. Ahern, J., 2013, *Urban Landscape Sustainability and Resilience*, The Promise and Challenges of Integrating Ecology with Urban Planning and Design, Vol. 28, No. 6, PP 1203–1212.
5. Alexander, D. E., 2013, *Resilience and Disaster Risk Reduction*, An Etymological Journey Natural Hazards and Earth System Science, Vol. 13, No. 11, PP. 2707-2716..
6. Anna, V., and Miltiadis, D., 2018, *Rescaling and Refocusing Smart Cities Research: From Megacities to Smart Villages*, Journal of Science and Technology Policy Management.
7. Barton, H., Grant, M., and Guise, R., 2003, *Shaping Neighborhoods: A Guide for Health, Sustainability and Vitality*, Spon.
8. Beatley, T., and Newman. P., 2013, Biophilic Cites Are Sustainable, Resilient Cites Sustainability, Vol. 39, No. 5, PP. 3328-3345.
9. Bryant Brya, S. L. 2006. Community Foudations the Asset- Based Development of An Australian Community Organisation as a Foundational Source for Sustainable Community Development. A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy. School of Management Business Portfolio MIT University.
10. Christophe, B., Lyla. M., Gordon, M., Terry, C., Jaideep, G., and Thomas, T., 2017, *Resilience as a Policy Narrative: Potentials and Limits in the Context of Urban Planning*, Climate and Development, Stockholm Environment Institute.
11. Cutter, S. L., Burton, C. G., and Emrich, C. T., 2010, *Disaster Resilience Indicators For Benchmarking Baseline Conditions*, Journal of Homeland Security and Emergency Management.

12. Folker, C., 2006, *Resilience: The Emergence of a Perspective for Social Ecological Systems Analyses*, Global Environmental Change.

13. Gearchange, M., 2013, *Resilience and Organizational Institutionalism From a Cross Cultural Perspective*, An Exploration Based on Urban Climate Change Adaptation in Vietnam, Vol. 67, No. 1, PP. 25 46.

14. GodsChalk, D., 2007, *Urban Hazard Mitigation: Creating Resilient Cities*, Natural Hazards Review.

15. Holling, C., 1973, *Resilience and Stability of Ecological Systems*, Annual Review of Ecology and Systematics, Vol. 4, No. 1,. PP. 1- 23.

16. Karol, E., & Brunner, J., 2009, Tools for measuring progress towards sustainable neighborhood environments. Sustainability, 1(3), 612-627. Karrholm, M., Nylund, K., and Fuente, P., 2014, *Spatial Resilience and Urban Planning*, Addressing the Interdependence of Urban Retail Rreas, Vol. 36, No. 3, PP. 121-130.

17. Kontokosta, E., and Malik, A., 2018, *The Resilience to Emergencies and Disasters Index: Applying Big Data to Benchmark and Validate Neighborhood Resilience Capacity*, Sustainable Cities and Society, Vol. 36, PP. 272-285.

18. Liao, K., 2012, A *Theory on Urban Resilience to Floods-A Basis for Alternative Planning Practices*, Ecology and Society, Vol. 17, No. 4, PP. 26- 48.

19. Mayunga, J., 2007, *Understanding and Applying the Concept of Community Disaster Resilience a Capital- Based Approach*, Academy for Social Vulnerability and Resilience Building, Munich, Germany.

20. Meerow, S., P.Newell, J., and Stults, M., 2016, *Defining Urban Resilience: A Review*, Landscape and Urban Planning, Vol. 147. PP. 38-49.

21. Meerow, S., and Stults, M., 2016, *Comparing Conceptualizations of Urban Climate Resilience in Theory and Practice*, Sustainability. No. 8, PP. 2-16.

22. Mileti, D. S., 1999, *Disasters by Design: A Reassessment of Natural Hazards in the United States*, Natural Hazards and Disasters, Joseph Henry Press, Washington, DC.

23. Norris, H., and Stevens, P., 2007, *Community Resilience and the Principles of Mass Trauma Intervention, Psychiatry*, Interpersonal and Biological Processes, Vol. 70, No. 4, PP. 320-328.

24. Norris Stevens, B., and Wychepfef Fe, K. F., 2008, Community Resilience as a Metaphor Theory Set of Capacities and Strategy for Disaster Readiness, Am J Community Psycho, Vol. 41, No. 1 and 2, PP. 127-150.

25. Pfefferbaum, R., Kilom, Ki., and Gurwitch, R., 2005, *Building Resilience to Mass Trauma Events, In L. Doll, S. Bonzo, J. Mercy, and D. Sicct (Eds.)*, Handbook on Injury and Violence Prevention Intervention Kluwer Academic Publishers, NewYork.

26. Priemus, H., 2005, *Urban Renewal: Neighborhood Revitalization and the Role of Housing Associations*, Ottawa: Caledon Institute.

27. Rose, A., 2004, *Defining and Measuring Economic Resilience to Disasters*, Disasters Prevention and Management,. Vol. 13 No. 4, pp. 307-314.

28. Roseland, M., 1997, *Eco-City Dimensions: Healthy Communities, Healthy Planet*, East Haven. CT: New Society Publishers.

29. Sharifi, A., and Yamagata, Y., 2018, *Resilience Oriented Urban Planning, Global Carbon Project Tsukuba International Office National Institute Ffor Environmental Studies Tsukuba Japan*, Part of the Lecture Notes in Energy Book Series., LNEN, Vol. 65. PP. 3-27.

30. Suárez, M., Gómez Baggethun, M., Benayas, J., and Tilbury, D., 2016, *Towards an Urban* Resilience Index: A Case Study in 50 Spanish Cities, Sustainability, Vol. 8, No. 8, PP. 1-19.

31. Vale, L. J., and Campanella, T. J. 2005. The Resilient City: Trauma, Recovery, and Remembrance. MIT World Series.

32. Wheeler, S. M., 2004, *Planning for Sustainability*, Routledge, London and NewYork, P. 248.

33. Windle, G., 2011, *What Is Resilience? A Review and Concept Analysis*, Reviews in Clinical Gerontology, Vol. 21, No. 2, PP. 152-169.

34. Zhou, H. W., Jingai, W., and Junhong, J., 2010, *Resilience to Natural Hazards, A Geographic Perspective*, Natural Hazards, Vol. 53, No. 1, PP. 21-41.

35. Pourjafar, M. R., 2009, Basics of Old Town Texture Improvement and Modernization, Payam Publication, Tehran. (In Persian)

36. Chapman, D., 2005, Creation of Neighborhoods and Places in the Human Environment, Translators: Manouchehr Tabibian and Shahrzad Faryadi, Institute of Publications and Printing of Tehran University. (In Persian)

37. Haeri, M. R., 1992, Design of the Iranian Metropolitan Area: A Typological Study of Urban Textile in Iran, Iran Letter No. 4, PP. 707- 722. (In Persian)

38. SasanPour, F., Ahanghari, N., and Haji Nejad, S., 1396, Evaluation of the Resilience of the 12th Metropolitan Area of Tehran Against Natural Hazards, Spatial Analysis of Natural Hazards Publications, Vol. 4, No. 3, PP. 85- 98. (In Persian)

39. Abbaspour, I., 2014, The Role of Urban Management in Neighborhood Sustainability (Case Study of Saqez Area-Shahrak and Sharif Abad Neighborhoods), Master's Thesis, University of Gilan. (In Persian)

40. Azizi, M. M., 2006, Sustainable Residential Neighborhood (Case Study: Narmak), Honar Haye Ziba Publications. No. 27, PP. 35- 46. (In Persian)

41. Gholami, Y., Heydari Sarshjani, R., Salimi, Z., and Brahman, V., 2018, Planning with Urban Awareness Approach, Publications of the Professors of Kashan University. (In Persian)

42. Ghiyai, M. H. et al., 2013, Analytical Framework And Methodology of Regeneration of Historical Textures and Neighborhoods, Case Study: Shah Kerman Market Square, Faculty of Science and Engineering, Vol. 3, No. 6, PP. 1- 26. (In Persian)

43. Lynch, K., 1997, The Theory of Good City Shape, Translator: Hossein Bahreini, Tehran University Publications. (In Persian)

44. Statistical Center of Iran, 2006, Detailed Results of the Population and Housing Census. (In Persian)

45. Mashhadzadeh Dehghani, N., 1994, An Analysis of the Features of Urban Literature in Iran, Iran University of Science and Technology. (In Persian)

46. Padir Consulting Engineers. 2009. Study Of Seismic Geotechnical Microzonation In Tabriz. Employer: Housing And Urban Development Organization Of East Azarbaijan Province. (In Persian)

47. Razavi Environment Consulting Engineers, 2006, Development and Development Studies (Comprehensive) of Tabriz City, Social Studies Report, Available Stage, First Edit. (In Persian)

48. Mirzaei, E., 2014, Application of Resilience Approach in Urban Planning to Reduce the Effects of Natural Disasters, Case Study: Sanandaj City, Master's Thesis Urmia University. (In Persian)

The Spatial Analysis of the Indicators Explaining Resilience in the Transportation Infrastructure (Case Study: Ahwaz Metropolis, Iran)

Mostafa Mohammadi Dehcheshmeh[1*], Hadi Alizadeh[2], Davod Abasi Gojani[3]

1. Assistant Professor of Geography and Urban Planning, Shahid Chamran University, Ahvaz, Iran
2. PhD in Geography and Urban Planning, Shahid Chamran University, Ahvaz, Iran
3. Practitioner in passive defense, passive defense institute of IRI, Iran

Received: 12 April 2018 Accepted: 30 July 2019

Extended abstract

Introduction

Cities as the most complicated spatial spheres, despite the acceleration of innovation and efforts to develop and excellence, are faced with numerous infrastructure and superstructure challenges. The inclusion of safety and security indexes in spatial planning shows the importance of this area in the process of dynamism and prosperity of spatial areas, including cities. This security and space protection is against damage and disasters that can provide urban threats and crises in urban development processes. The injuries in both human and natural areas can make living in cities more vulnerable to disasters and disrupt the living conditions in these areas. On the other hand, the disasters that have occurred in the cities in recent years and the complexity of their dimensions indicate the increasing vulnerability and dangers of these threats in cities. Therefore, it is necessary to have new attitudes towards threats and strategic measures in this regard. What is, nowadays, considered as a concept for urban planning exposures against human and natural threats is the issue of resilience? Resilience is an approach that evaluates the capacity of tolerance and sustainability of the situation against accidents, threats and challenges. These conditions can be imagined in the form of various components such as social, economic, infrastructural, physical, cultural and environmental dimensions in its macro perspective. The pursuit and necessity of the research topic has shown its importance from two aspects. The first aspect is related to the concept and nature of resilience, due to its importance in analyzing the capacity of tolerance and reliability of arterial infrastructure in the field of urban transport as the communication arteries of the Ahwaz metropolis. On the other hand, the metropolis of Ahwaz is one of the most challenging areas in need of resilience in accidents and crises on the other. This planning process from reducing vulnerability to the strength and reliability of infrastructure flows can be regarded as one of the ineffective defense strategies and even crisis management for disasters and incidents.

Methodology

The present study has a descriptive-analytic method in terms of target design and methodology. In order to collect descriptive data, the research method has been used in the form of documents in the form of book house studies and reference sources in relation to the subject matter. To analyze the data, a survey was carried out using a questionnaire. The process of collecting and compiling analytical data of the research has been in two stages. Due to the lack of standards and indicators for the purpose of reshaping the arterial transport infrastructure in a targeted

* Corresponding Author, Email: m.mohammadi@scu.ac.ir

Delphi method (consensus or initial confirmation and consensus and final approval). The main source of information layers is also extracted from the map of 1:15000 landuse in the metropolitan area of Ahwaz. The ArcGIS 10-3 software and the similarity model to the Fuzzy Ideal Option (FTOPSIS) has been used for space analysis and spatial mapping of the transport infrastructure in the Ahwaz metropolitan area.

Results and Discussion

Based on the Delphi method and using expert opinions, it has been found that there are 5 explanatory drivers for explaining urban regeneration in the arterial infrastructure. In fact, Delphi-based propagators show that the propagation of texture affects the quality and life of the network and is effective in identifying the damage and network resilience. The pattern of the network design is based on the standardization of the network in terms of its design and its degree of resistance and design stability against threats and risks. The propagator of network consumption is based on the amount of pressure on the network and the identification of high-vulnerability points. Network topology refers to the recognition of the significance and value of the network hierarchy in terms of their resilience, and ultimately the degree of network confinement that refers to the structural aspect of buildings with the width of the passages or arteries, and an important discussion in the resilience of the arteries.

Conclusion

Resilience is a strategic approach to non-operating defense and maintaining sustainability conditions for underlying performance systems and structures. This approach has been considered today in many developed countries to protect the resources and infrastructure of development against natural and humanitarian crises. In the present article, in the present paper, we tried to identify the propellants explaining the fluctuations in urban transportation in the spatial range of the Ahwaz metropolitan area to their spatial analysis and identification of critical points. This study could be an absolute test for future research on the development of these propulsion and assessment of the resilience of arterial infrastructure, including the arterial energy infrastructure in the city.

Keywords: transportation, arterial infrastructure, resiliency, Ahvaz metropolis.

References

1. Ajibade, I., 2017, *Can a Future City Enhance Urban Resilience and Sustainability? a Political Ecology Analysis of Eko Atlantic City, Nigeria,* International Journal of Disaster Risk Reduction, No. 26, PP. 85-92
2. Berke, Ph., and Campanella, T., 2006, *Planning for Postdisaster Resiliency,* The Annal of the American Academy of Political and Social Science, No. 604, PP. 192-207.
3. Bruneau, M., Chang, S. E., and Eguchi, R. T, 2006, *A Framework to Quantitatively Assess and Enhance the Seismic Resilience of Communities,* Earthquake Spectra, No. 19, PP. 737–752.
4. Callaghan, G., and Colton, J., 2008. *Building Sustainable and Resilient Communities: A Balancing of Community Capital,* Environment, Development and Sustainability, No. 10, PP. 931–942.
5. Cimellaro, G., 2016, *Urban Resilience for Emergency Response and Recovery: Fundamental Concepts and Applications,* Springer Publication.
6. Collier, P., and Venables, A., 2016, *Urban Infrastructure for Development,* Oxford Review of Economic Policy, No. 32, PP. 391–409.
7. Dhar, T., and Khirfan, L., 2017, *A Multi-Scale and Multi-Dimensional Framework for Enhancing the Resilience of Urban Form to Climate Change*, Urban Climate, No. 19, PP. 72-91.
8. Gernay, T., Selamet, S., Tondini, N., and Elhamikhorasani, N., 2016, *Urban Infrastructure Resilience to Fire Disaster: An Overview*, Procedia Engineering, No. 61, PP. 1801-1805.

9. Gonzales, P., and Ajami, N., 2017, *An Integrative Regional Resilience Framework for the Changing Urban Water Paradigm,* Sustainable Cities and Society, No. 30, PP. 128-138.

10. Greeshma, P., and Kumar, K., 2016, *Disaster Resilience in Vulnerable Cities Through Neighbourhood Development: A Case of Chennai,* Procedia Technology, No. 24, PP. 1827-1834.

11. Huang, W., and Ling, M., 2018, *System Resilience Assessment Method of Urban Lifeline System for GIS*, Computers, Environment and Urban Systems, No. 71, PP. 67-80.

12. Meerow, S., Newell, J., and Stults, M., 2016, *Defining Urban Resilience: A Review,* Landscape and Urban Planning, No. 147, PP. 38-49.

13. Ng, S., Xu, F., Yang, Y., Lu, M., and Li, J., 2018, *Necessities and Challenges to Strengthen the Regional Infrastructure Resilience Within City Clusters,* Procedia Engineering, No. 212, PP.198–205.

14. Ouyang, M., Osorio, L., and Min, X., 2012, *A Three-Stage Resilience Analysis Framework for Urban Infrastructure Systems*, Structural Safety, No. 36 and 37, PP. 23-31.

15. Patel, R., and Gleason, K., 2017, *The Association Between Social Cohesion and Community Resilience in two Urban Slums of Port Au Prince, Haiti,* International Journal of Disaster Risk Reduction, No. 27, PP. 161-167.

16. Sharifi, A., and Yamagata, Y., 2016, *Resilient Urban Form: A Conceptual Framework*, Springer Publication.

17. Spaans, M., and Waterhout, B., 2017, *Building Up Resilience in Cities Worldwide – Rotterdam as Participant in the 100 Resilient Cities Programme,* Cities, No. 61, PP. 109-116.

18. Tamvakis, P., and Xenidis, Y., 2012, *Resilience in Transportation Systems*, Procedia - Social and Behavioral Sciences, No. 48, PP. 3441-3450.

19. Windle, P., 2004, *Delphi Technique: Assessing Component Needs*, Journal of Perianesth Nurs, No. 19, PP. 46-47.

20. Ahmadi, F., Nasiriani, Kh., and Abazari, P., 2009, *Delphi Technique, A Tool in Methodology*, Iranian Journal of Education in Medical Science, Vol. 8, No.1, PP. 175-185. *(In Persian)*

21. Amiri, M. J., Sepehrzad, B., Moarab, Y., and Salehi, I., 2017, *Assessment of Natural-Structural Resilience of Urban Land Use (Case Study: Tehran District 1)*, Journal of Geographical Research, No. 1, PP. 137-138. *(In Persian)*

22. Partovi, P., Behzadfar, M., and Shirvani, Z., 2016, *Urban Design and Social Resilience, Case Study: Jolfa District in Isfahan*, Journal of Architecture and Urbanism Letter, No. 17, PP. 99-116. *(In Persian)*

23. Pourshahabi, V., Pourkiani, M., Zayandehroodi, M., and Sheykhi, A., 2017, *Provide a Native Model for Promoting the Development Level of Sistan and Baluchestan Province with a Sustainable Development Approach,* Public Management Research, No. 38, PP. 117-143. *(In Persian)*

24. Hataminejad, H., Farhadikhah, H., Arvin, M., and Rahimpour, N., 2017, *Investigating the Effective Dimensions on Urban Resilience Using Interpretative Structural Model (Case Study: Ahvaz City),* Quarterly Journal of Knowledge Prevention and Crisis Management, No. 1, PP. 35-45. *(In Persian)*

25. Ramezanzadeh Lasbouei, M., Asgari, A., and Badri, S. A., 2014, *Infrastructure and Resilience Against to Natural Disasters with an Emphasis on Flood, Studied Region: Cheshmeh Kileh Tonekabon and Sardarabad Kelardasht*, Spatial Analysis of Environmental Hazards Journal, No. 1, PP. 35-52. *(In Persian)*

26. Salmani Moghaddam, M., Amir Ahmadi, A., and Kavian, F., 2014, *Application of Land Use Planning for Increasing Urban Resilience Against Earthquakes Using GIS (Case Study: Sabzevar City)*, Quarterly Journal of Geographical Studies in Arid Zones, No. 17, PP. 17-34. *(In Persian)*

27. Salehi, I., Aghabaabi, M. T., Sarmadi, H., Farzad Behtash, M. R., 2011, *Investigation of Environmental Resilience Using the Causality Network Model*, Journal of Environmental Studies, No. 59, PP. 99-112. *(In Persian)*

28. Zarghami, S., Teimouri, A., Mohammadian Sosemem, H., and Shamaie, A, 2016, *Assessment and Evaluation of Resilience of Urban Neighborhoods Against Earthquake Cace Study: Central Part of Zanjan City*, Quarterly Journal of Urban Planning and Research, No. 17, PP. 77-92. *(In Persian)*

29. Farzad Behtash, M. R., Kaynezhad, M. A., Pirbabaei, M. T., and Asghari, A., 2013, *Assessment and Analysis of the Resiliency Components of the Metropolis of Tabriz*, Journal of Fine Arts, No. 18, PP. 33-42. *(In Persian)*

30. Mobaraki, O., Lalepour, M., and Afzali Gorouh, Z., 2017, *Assessment and Analysis of the Dimensions and Components of Resilience in Kerman City*, Geography and Development Quarterly, No. 47, PP. 89-104. *(In Persian)*

31. Namjouyan, F., Razavian, M. T., and Sarvar, R., 2017, *Urban Resilience, A Binding Framework for Managing Cities' Future*, Geographical Territory Magazine, 55, PP. 81-95. *(In Persian)*

Quantitative Spectrum of the Urban Vulnerability against Earthquake (Case Study: Yazd City)

Neda Naseri[1], Elias Mavedat[2*], Parastoo Garmsiri[3], Kourosh Momeni[4], Saeed Maleki[5]

1. MA in Architecture, Faculty of Architecture and Urban Planning, Jundi-Shapur University of Technology, Dezful, Iran
2. Assistant Professor of Architecture, Faculty of Architecture and Urban Planning, Jundi-Shapur University of Technology, Dezful, Iran
3. Master Student of Architecture, Isfahan University of Art, Isfahan, Iran
4. Associate Professor of Architecture, Faculty of Architecture and Urban Planning, Jundi-Shapur University of Technology, Dezful, Iran
5. Professor of Geography, Shahid Chamran University of Ahvaz, Iran

Received: 02 March 2018 Accepted: 06 March 2019

Extended Abstract

Introduction

In recent decades, urban planners have undergone dramatic changes in their fields of expertise through the advent of technology and urban globalization. One of the issues that urban planners consider in this area is urban health, as one of the most fundamental preconditions of the global community for human-centered planning. In this research, the earthquake is an example of a daily practical experience of the urban crisis. The purpose of the research is to increase the variable to reduce the damage to the urban crisis.

Therefore, because of the need for further information to reduce the crisis, it involves uncertainty in the occurrence of many unforeseen events. Therefore, as much as the degree of uncertainty increases, the complexity of the goals increases. Consequently, our perceptions continue to increase the complexity of knowledge and insights. In this research, the most important problem is to reduce the error factor for crisis management using a modeling method. The second issue is to control the complexity of issues that has been examined by the COPRAS method.

One of the topics of interest to urban planners is "safety planning" issues in cities. This is one of the most basic assumptions of the international community for human-centered planning. Reducing vulnerability to natural hazards in critical areas has become a principal issue in crisis management.

Methodology

This present study is a developed-applied approach with combined research methods including library, field, descriptive, and analytical techniques. It should be noted that this research has been done to simulate the Bootstarp pattern in two software VPLS and AMOS-SPSS. The SmartPlS software has also been used to model structural equations in social-physical elements. The COPRAS statistics were used to measure vulnerability (VI). It should be noted that GRAFER, EQS, EXCEL and ArcGIS software have been used to complete the analysis of the findings.

In this research, the Bootstrap sample $x_1^*, x_2^*, \dots\dots\dots, x_n^*$was initially used by bootstrap statistical references with the software EQS and PLS 1000. The frequency$T^* = T(x_1^*, K, x_n^*)$ of

* Corresponding Author, Email: mavedate@yahoo.com

repetition has been calculated using the method. It is worth mentioning 26 variables with B repeat times, separated by all three urban areas of Yazd.

Results and discussion

Based on the explanation and efficiency of the bootstrap simulation model, the results show that using the simulation of the given data, the possibility of determining the vulnerability in both (social and physical) indicators reduces the error. An expression increases the confidence coefficient. One of the benefits of Bootstrap simulation is a good way to control the stability of the results. In the study, the data weights in relation to the regions obtained a higher reliability coefficient using simulations. Thus, the area of Yazd city using the BootStrap has a confidence coefficient of 0.95.

Table 1. Factors and their weight

Factor Loading, Residual and Weights				
Construct	Mean	Stdev	Residual	Weight
R1	7493.770385	27219.511234	0.000000	1.000000
R2	11116.646154	31694.163768	0.000000	1.000000
R3	12325.575769	37154.044446	0.000000	1.000000
W	0.027917	0.044263	0.000000	1.000000

Source: Writer; R: Yazd urban area; W: weight.

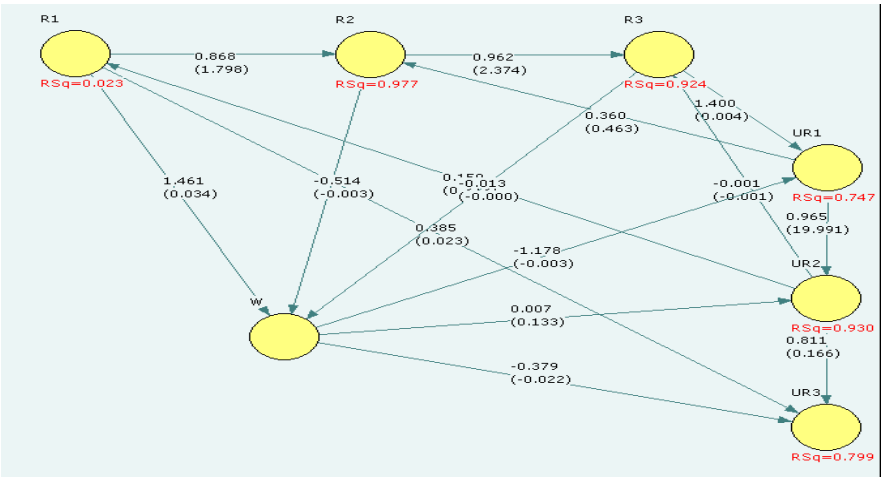

Fig. 1. Structural Equation Grid and BootStrap Simulation

In the complex of structural variables and their facade, the least dispersion, the index is not spaced apart in this set. The structure shows the variables of buildings with the symbol of brick and stone.

In the complex of structural variables in terms of physical-physical damage, calculations show that the variables of buildings with an area of less than 100 to 200 square meters have no distribution and dispersion. In average, they indicate the vulnerability of this index in Yazd. The variables combine gender and literacy social vulnerability of the complex variables.

Conclusion

The results show that the vulnerability of building physical variables with an area of 100 to 200 square meters does not have any distribution and dispersion. They show the vulnerability of mean index in the Yazd. The variables of living in social vulnerability represent the lowest coefficient of dispersion and habitat variables in the group. The results weighted in relation to the areas with the use of simulators have gained more confidence.

Keywords: modeling, earthquake, vulnerability, Yazd.

References

1. Alawi, S. A. et al., 2016, *Ranking of Rural Areas Based on Satisfaction with Quality of Life Using Coopers Decision Model*, Journal of Human Geographic Research, Vol. 47, No 3, PP. 129-144. *(In Persian)*
2. Asgari, A., 2011, *Space Exploration Analysis with GIS, Publication*, Processing and Urban Planning, Tehran, Iran. *(In Persian)*
3. Azar, D., and Rain, D., 2007, *Identifying Population Vulnerable to Hydrological Hazards In San Juan*, Puerto Rico, Geojournal, 69 (1e2).
4. Bani Assadi, M. et al., 2005, *Retrofitting of Bootstrap Sampling Method in Logistic Regression*, Journal of Faculty of Medicine and Institute of Public Health Research, Vol. 4, No. 1, PP. 9-18. *(In Persian)*
5. Birkmann, J., 2005, *Danger Need Not Spell Disaster*, United Na University, Institute for Environment and Human Security.
6. Cannon, T., 2000, *Vulnerability Analysis and Disasters*, Floods.
7. Cannon, T., 2003, *Social Vulnerability, Sustainable Livelihoods and Disasters, London: Department for International Development*, Government of the United Kingdom.
8. Cannon, T., Twig J., and Rowell, J., 2003, *Social Vulnerability, Sustainable Livelihoods and Disasters, London: Department for International Development DFID*; Government of the United Kingdom.
9. Center for Statistics of Iran, 2006, *Statistical Yearbook of Yazd Province*. *(In Persian)*
10. Chakraborty, J., Maantay, J. A., and Brender, J. D., 2011, *Disproportionate Proximity to Environmental Health Hazards: Methods, Models, and Measurement*, American Journal of Public Health, 101(S1).
11. Chakraborty, J., Tobin, G. A., and Montz, B. E., 2005, *Population Evacuation Assessing Spatial Variability in Geophysical Risk and Social Vulnerability to Natural Hazards*, Natural Hazards Review, Vol. 6, No. 1, PP. 23-33.
12. Christopher, T., 2000, *Social Vulnerability in US Metropolitan Areas: Improvements in Hazard Vulnerability Assessment*, University of South Florida.
13. Cutter, S. L., 2012, *Hazards Vulnerability and Environmental Justice*., Routledge.
14. Cutter, S. L., Boruff, B. J., and Lynn Shirley, W., 2003, *Social Vulnerability To Environmental Hazards*, Social Science Quarterly, Vol. 84, No. 2, PP. 242-261.
15. Cutter, S., Mitchell, M., and Scott S., 2002, *Revealing the Vulnerability of People and Places: Case of Georgetown County*, South Carolina, Annals of the Association of American Geographers, No. 90, PP. 713-737.
16. Cutter, S. L., Boruff, B. J., and Shirley, W. L., 2003, Social Vulnerability to Environmental Hazard, SOCIAL SCIENCE QUARTERLY, Vol. 84, No. 2, PP. 242-261.
17. ECHO, 1999, *The Geography of Disasters, Geography in Humanitarian Assistance*, European Community Humanitarian Office.
18. Gefen, D., and Straub, D., 1997, *Gender Differences in the Perception and Use of Email: An Extension to the Technology Acceptance Model*, MIS Quarterly, Vol. 2, No. 4, PP. 389–400.
19. Hatami Nezhad, H. et al., 2015, *Evaluation and Evaluation of Urban Tourism Sites Case Study of Urmia*, Journal of Tourism Planning and Development, Third Year, No. 9, PP. 151-168. (In Persian)
20. Iran Panah, N., and Aslani, T., 2012, *Bootstrap Method in GARCH Models, Proceedings of Third Conference of Financial Mathematics*, Semnan University. *(In Persian)*

21. Iran Panah, N., and Mohammadzadeh, M., 2005, *Bootstrap Method of Separate Block in Spatial Statistics*, Tarbiat Moallem University Science Journal, Vol. 5, No. 4, PP. 281-294. *(In Persian)*

22. Iran Panah, N., and Tavassoli, H., 2012, *Bootstrap Prediction for the Probability of Mortality in Iran*, Journal of Science, Kharazmi University, Vol. 12, No. 1, PP. 155-169. *(In Persian)*

23. Kalantari Khalil Abadi, H., Hatami Nejad, H., and Agha Safari, A., 2008, *The Vulnerability of Historical City of Yazd to Earthquake*, Sepehr Magazine, No. 16. PP. 71-87. *(In Persian)*

24. Katherine, S. et al., 2015, *A Method for Creating High Resolution Maps of Social Vulnerability in the Context of Environmental Hazards*, Applied Geography, Vol. 63, PP. 89-100.

25. Krishnamurthy, P. K., and Krishnamurthy, L., 2012, *Social Vulnerability Assessment Through GIS Techniques: A Case Study of Flood Risk Mapping in Mexico*, Springer Netherlands Geospatial Techniques for Managing Environmental Resources.

26. Maleki, S., and Mavedat, E., 2013, *Seismic Vulnerability Spectrum Evaluation in Cities Based on Severe Severity Scenarios Using TOPSIS, MD and GIS Models (Case Study: Yazd City*), Journal Geography and Environmental Hazards, No. 5, PP. 127-143. *(In Persian)*

27. Mavedat, E., 2015, *Zoning and Measuring the Impact of Towns Against Earthquakes*, Master's Thesis, Assistant Professor Saeed Maleki, Shahid Chamran University of Ahvaz. *(In Persian)*

28. Mavedat, E., and Maleki, S., 2015, *Spectrum and Spatial Evolution of Physical and Social Damage of Cities Against Earthquake Using VIKOR and GIS Techniques*, Geography and Urban-Regional Journal, No. 11, PP. 85-103. *(In Persian)*

29. Mehrshahi, D., and Mehrnehad, H., 2004, *Morphotectonic and Major Logic of Fault in Yazd Province*, Quarterly Journal of Geographic Research, No. 72, PP. 7-24. *(In Persian)*

30. Mulliner, E., Smallbone K., and Vida M., 2013, *An Assessment of Sustainable Housing Affordability Using Multiple Criteria Decision Making Method*, Omega the International Journal of Management Science, Vol. 41, No. 2, PP. 2-11.

31. Pourtaheri, M. et al., 2015, *Evaluation of Physical Vulnerability of Rural Settlements Against Earthquake Natural Hazards Using The Cooper Decision Making Model*, Journal of Planning and Space Design, Vol. 18, No. 3, PP. ???. *(In Persian)*

32. Rivard, S., and Huff, L., 1988, *An Empirical Study of Users as Application Developers*, Information and Management, Vol .8, No. 2, PP. 89-102.

33. Salami, A., 2003, *A Review of the Monte Carlo Simulation*, Journal of Economic Research, Vol. 3, PP. 117-138. *(In Persian)*

34. Sepehr, A.. 2012, *Investigating University Acceptance Indicators by Electro Algorithm (ELECTRE)*, Journal of Welfare and Social Development Planning, No. 10, PP. 227-249. *(In Persian)*

35. Shepard, C. C. et al., 2012, *Assessing Future Risk: Quantifying the Effects of Sea Level Rise on Storm Surge Risk for the Southern Shores of Long Island*, NewYork, Natural Hazards, No. 2, PP. 724-745.

36. Smith, K., 2000, *Environmental Hazards, Assessing Risk and Reducing Disaster*, 3rd Ed

37. Statistics Center of Iran, 2011, *Selection of Statistical Results*. *(In Persian)*

38. Susan, L., Bryan J., and Lynn Shirley W., 2003, *Social Vulnerability to Environmental Hazards*, Social Science Quarterly, Vol. 84, No. 2, PP. 242-261.

39. Susan, L. et al., 2001, *A Place-Based Model for Understanding Community Resilience to Natural Disasters*, Global Environmental Change 18.

40. Weichselgartner, J., 2001, *Disaster Mitigation: The Concept of Vulnerability Revisited*, Disaster Prevention and Management, Vol. 10, No. 2, PP. 85-95.

Explaining the Effective Factors on Livability of Urban Areas of Isfahan

Reyhaneh Mohrekesh[1], Hamid Saberi[2*], Mahdi Momeni[3], Mehri Azani[2]

1. PhD Candidate in Geography and Urban Planning, Islamic Azad University, Najafabad Branch, Najafabad, Iran
2. Assistant Professor of Geography and Urban Planning, Islamic Azad University, Najafabad Branch, Najafabad, Iran
3. Associate Professor of Geography and Urban Planning, Islamic Azad University, Najafabad Branch, Najafabad, Iran

Received: 20 February 2019 Accepted: 31 July 2019

Extended Abstract

Introduction

Different approaches and concepts have been proposed to solve the problem of cities. The livability is one of the concepts discussed in connection with urban planning. Livability refers to the degree to which the needs of a society are met, based on the needs and capacities of the people of that society. A livable city is not just about meeting physical needs. The main goal of a livable city is to increase the general level of citizens' satisfaction with the city. Given the position of Isfahan as the third-largest city in Iran and the arrival of domestic and foreign tourists, attention to urban livability is an inevitable necessity about the metropolis of Isfahan.

Methodology

The current approach to the present study is based on the applied purpose and based on descriptive-analytical nature. Data have been gathered using a questionnaire. The sample size has been determined 384 people by the Cochran formula. The 5-level Likert spectrum technique was used to explain the effective factors on the livability. The model of structural equations was used to understand the relationship between variables and to fit the overall model, the chi-square, GFI, and AGFI indices, and the remaining root means square (which is one of the most important indicators). SPSS software was used to analyze the data. In this study, the relationship between the independent variable (physical livability index) and dependent variable (economic, social, environmental and social indicators) has been investigated. The physical characteristics of the 15 areas of the city of Isfahan have been considered so that from the regions, 3 regions and from each region 2 neighborhoods were examined and approximately 65 questionnaires were filled in each study area. The selection of these areas has been made according to the division of the city into three parts of north, center, and south. From the northern regions of the 8th district, we used a new planned symbol. In the central areas of the region, the region was selected with the symbol of developmental stimulus. Among the southern parts of the region, 5 districts were considered by different people of different ethnic groups. The purpose of this study was to identify the social, economic and environmental livability and investigate housing quality in these areas. In the final step, we want to satisfy the general satisfaction of citizens in addition to meeting the their physical needs.

* Corresponding Author, Email: hamidsaberi2000@gmail.com

Results and discussion

Physical features have reduced the livability, both in terms of security and in terms of participation, dialogue and neighborhood collaboration. Economic livability has had a significant impact on social livability. Physical livability affects access to infrastructures and educational facilities, the quality of sidewalks, the performance of public transportation, and access to communal spaces for leisure time, in particular, its environmental impact. It can be said that there is a significant relationship between the physical index and environmental index. Among the four variables, physical, social, economic, and housing, only two physical and economic indicators have an impact on environmental livability. The status of environmental indicators is weak. Finally, the results indicate that among the five main indicators, social and environmental livability leads to dependence, sustainability, and identity and sense of belonging to the neighborhood. Other indicators do not play an effective role in creating identity and feeling of belonging to the neighborhood. In other words, the economic and physical condition among people has lost much of its importance. Social affairs have led to the integration of residents, the identity and sense of belonging to the neighborhood as function of cultural and social factors, such as ethnicity, race, and religion.

Conclusion

The results show that the physical indices have a significant impact on economic viability. It is significantly related and the physical index affects environmental impacts with a meaningful relationship with beta (0.32). However, this index has an effective role on social, identity and housing.

Keywords: livability, Physical index, identity of sense of belonging, Urban neighborhoods, Isfahan City.

References

1. Cho, S. N., and Hwang, E. J., 2016, *A Study on Gender Differences of the Conditions in a Livable City*, Korean Journal of Sociology, Vol. 50, No. 2, PP. 231-259.
2. Dongsheng, Z., 2018, *Assessment and Determinants of Satisfaction with Urban Livability in China, Key Laboratory of Regional Sustainable Development Modeling, Institute of Geographic Sciences and Natural Resources Research*, Chinese Academy of Sciences, Beijing 100101, China, University of Chinese Academy of Sciences, Beijing 100049, China, Cities, No. 79, PP. 92-101.
3. Del Mar Martínez-Bravo, M., Martínez-del-Río, J., & Antolín-López, R. 2019. *Trade-offs among urban sustainability, pollution and livability in European cities*. Journal of Cleaner Production, Vol. 224, PP. 651-660.
4. Erickson, J., 2016, *Livability and Creativity: Civic Innovations at the Intersection of Arts, Culture, and Planning*, Urban and Environmental Policy and Planning, Tufts University, Advisor: Barbara Parmenter, Phd, Reader: Jonathan Witten, Esq.
5. Hu, L., Bentler, P. M., and Kano, Y., 1992, *Can Test Statistics in Covariance Structure Analysis Be Trusted?* Psychological Bulletin, No. 112, PP. 351-362
6. Kostas, M., 2017, *Is Compact City Livable? The Impact of Compact Versus Sprawled Neighbourhoods on Neighbourhood Satisfaction*, Urban Studies, First Published.
7. Kozaryn Adam Okulicz, V., Rubia, R., 2018, *Livability and Subjective Well Being Across European Cities*, Applied Research in Quality of Life, First Online, PP. 1–24, https://doi.org/10.1007/s11482-017-9587-7.
8. Lennard, S. H. C., and Lennard, H. L., 1987, *Livable Cities: People and Places: Social and Desingn Principles for the Future of the City California*, USA: Godolier Press, P. 166.
9. Saitluanga, B. L., 2014, *Spatial Pattern of Urban Livability in Himalayan Region: A Case of Aizawl City, India*, Social Indicators Research, Vol. 117, No. 2, PP. 541-559.

10. Shabanzadeh Namini, R., Loda, M., Meshkini, A., & Roknedineftekhari, A. 2019. *Comparative evaluation of livability indicators of the metropolitan Tehran's districts.* International Journal of Urban Sustainable Development, Vol. 11.No1. PP. 48-67.

11. Veenhoven, R., and Ehrhardt, J., 1995, *The Cross National Pattern of Happiness: Test of Predictions Implied in Three Theories of Happiness*, Social Indicators Research, Vol. 34, No. 1, PP. 33 68.

12. Woodward, S., 2013, *Material Culture. Oxford, UK: Oxford Bibliographies in Anthropology*, Doi:10.1093/Obo/9780199766567-0085.

13. Yan, H, H., XunGang, Z. H., 2012, *AHP Base D Evaluatio N System Model of Livable Cities*,, Interdiscplinary Journa L of Contemporary Research in Business, Vol. 3, No. 12, PP. 34-40.

14. Irandost, K., IsaLo, A., and Shah Moradi, B., 2015, *Livability Index in the Urban Environment (Case Study: The Central Holy City of Qom),* Quarterly Journal of Urban Economics and Management, Vol. 4, No. 13, PP. 101-118. *(In Persian)*

15. Khazaei Nejad, F., 2015, *Residue Analysis in the Central Part of Tehran, In the Area of 12 Neighborhoods*, Faculty of Geographical Sciences, Kharazmi University, Tehran, Doctoral Dissertation on the Guidance of Dr. Simin Tullayi and Mohammad Soleimani *(In Persian)*

16. Pahlavan Sharif, S., and Sharif Nia, H., 2018, *Structural Equation Modeling with Amos*, First Edition, Artin Medicine, Tehran. *(In Persian)*

17. Taghvaie, M., and Kiumarsi, H., 2012, *Application of Techniques and Models of Tourism* Planning and Management Moazami Press, Isfahan. *(In Persian)*

18. Heydari, M. T., 2015, *Analysis of the Livability of Urbanized Tissues (Case Study: Worn Tissue of the Central Section of Zanjan City)*, Ph.D., Kharazmi University of Tehran. *(In Persian)*

19. Dadashpour, H., Azizi, D., and Asgharzadeh, P., 2015, *Measuring the Capacity of Urban Neighborhoods in Tehran Metropolis, Case Studies: Harandi Towns, Takhty and Koars*, Geoscience and Development of Urban Space, Vol. 3, No. 2, PP. 53-68. *(In Persian)*

20. Rezvani, M., Khorasani, Mo., and Molaei Golichi, M., 2016, *Analysis of the Effect of Individual Variables on Perceived Livability in Villages Around the City*, Journal of Geography and Regional, Development, No. 25, PP. 159-182. *(In Persian)*

21. Zyari, K., Meshkini, A., and Anbarloo, A., 2017, *Urban Spatial Analysis with Emphasis on Livability Approach (Case Study: Waste Texture in Zanjan City)*, Journal of New Research on Geosciences, Architecture and Urbanization, No. 10, PP. 265-287. *(In Persian)*

22. Sajasi Kheidari, H., Sadeghloo, T., and Mahmoudi, H., 2019, *Ranking of Villages Based on Livability Indicators (Case Study: Nezam Abad Village, Azadshahr City),* Human Geography Research, Vol. 50, No. 1, PP. 129-144. *(In Persian)*

23. Ali Babaei, Y., 2012, *Amos Statistical Software Training Pamphlet (AMOS) In Simple Language*, Teacher Lesson Study Methods Advanced (Quantitative) Phd. P. 51. *(In Persian)*

24. Ghasemi, V., 2010, *Structural Equation Modeling in Social Research with the Application of Amos Graphic*, First Edition, Sociologists, Tehran. *(In Persian)*

25. Ghasempour, A., and Amjadi Malaii, A., 2017, *The Livability of Urban Spaces*, First Time Edition, Publisher of Speakers, Tehran. *(In Persian)*

26. Ghanbari, M., Shokouhi, M., Rahnama, M., and Kharazmi, O., 2017, *Mashhad Metropolis Resititubility Based on Health Index,* Journal of Gorgan University of Medical Sciences, Vol. 20, No. 4, PP. 97-107. *(In Persian)*

27. Kalantari, Kh., 2006, *Processing and Data Analysis in Socio-Economic Research*, Second Edition, Sharif Printing, Tehran. *(In Persian)*

28. Momeni, M., and Qiyomi A., 2006, *Analysis of Statistical Data Using SPSS*, New Publishing House, Tehran. *(In Persian)*