

## Social Analysis of the Aq Qala County Flood Based on Politicized Institutional Analysis and Development (PIAD) Framework

Sepideh Sadat Hosseini Rostami<sup>1</sup>, Kianoosh Zakerhaghighi<sup>2\*</sup> , Hossein Zabihi<sup>3</sup>

1. Ph.D. Candidate, Department of Urban Planning, South Tehran Branch, Islamic Azad University, Tehran, Iran

2. *Corresponding Author*, Professor, Department of Urban Planning, South Tehran Branch, Islamic Azad University, Tehran, Iran

3. Associate Professor, Department of Urban Planning, Science and Research Branch, Islamic Azad University, Tehran, Iran

### Article Info

#### Article type:

Research Article

#### Article history:

Received: 31 May 2024

Revised: 15 August 2024

Accepted: 29 August 2024

#### Keywords:

Community-Based

Approaches, Flood,

Institutional Analysis, PIAD.

### ABSTRACT

Floods are now recognized as complex and multifaceted phenomena. With the emergence of new driving forces and factors, and a shift toward non-physical and non-engineering paradigms, a variety of approaches and strategies intertwined with human activities have developed for flood management. Community-based approaches are one of the well-known approaches in the field of Crisis and natural disaster management which shows the importance of the position of social groups and communities in the cycle of disaster management for the enhancement of community empowerment and participatory management. While these approaches offer numerous benefits in reducing the negative impacts of disasters, they also face challenges such as insufficient inter-sectoral cooperation, lack of resources, and limited decision-making authority at the local level. In the last three decades, institutionalism and neo-institutionalism have become pioneering theories in the field of sustainable urban management for sustainable urban management, including the management of risks such as destructive urban floods as a frequent and harmful risk. By emphasizing the role of institutions in lawmaking, inter-organizational coordination, and public awareness, these theories offer solutions to reduce community vulnerability to hazards such as floods. They aim to create appropriate structures and foster cooperation among all stakeholders. The purpose of this research is to examine the structural and institutional capacities and shortcomings of Aqqala County in disaster management, focusing on the 2019 flood and adopting with community-based approach. A mixed-methods research (quantitative and qualitative) utilizes the Political Institutional Analysis Development (PIAD) framework as a comprehensive tool for institutional analysis. Data for this study were collected through a researcher-developed questionnaire and a survey of 400 residents of Aqqala County in 2023. These data were compared with secondary data from credible national social sources collected during the 2019 flood. The socio-institutional analysis deficiencies the social dimensions supporting the need for serious revisions to public sphere the of society in the long-term, community-oriented, participatory, and sustainable management of urban floods.

**Cite this article:** Hosseini Rostami, S. S., Zakerhaghighi, K., & Zabihi, H. (2025). Social Analysis of the Aq Qala County Flood Based on Politicized Institutional Analysis and Development (PIAD) Framework. *Journal of Natural Environmental Hazards*, 14(43), 19-22. DOI: 10.22111/jneh.2024.48894.2048



© Kianoosh Zakerhaghighi  
DOI: 10.22111/jneh.2024.48894.2048

Publisher: University of Sistan and Baluchestan

\* Corresponding Author Email: [zakerhaghighi@iauh.ac.ir](mailto:zakerhaghighi@iauh.ac.ir)

## INTRODUCTION

The increasing damages caused by urban floods worldwide, despite ongoing management efforts, clearly highlight the need to revisit the existing approaches. Traditional engineering-focused and centralized methods alone are insufficient to address the complexities of this phenomenon, as they overlook the social, economic, and environmental factors influencing flood risk and fail to leverage the capacities of local communities. Moreover, climate change and the growing uncertainties emphasize the necessity of adopting flexible and adaptive approaches in flood management. Therefore, evaluating the effectiveness of community-based approaches that prioritize active local participation and utilize indigenous capacities holds significant importance. Given the unique characteristics of Aq-Qala County, which faces specific challenges in flood management, this research can contribute to providing localized and effective solutions for reducing flood risk.

The research literature in the field of disaster management increasingly emphasizes the importance of community-based approaches and the role of institutions in reducing vulnerability. Studies such as those by Clement et al. (2006) have highlighted the significance of social capital and citizen participation in enhancing community resilience to disasters. Additionally, the works of Maskrey (2011) and Bowman & White (2012) have examined the practical experiences of community-based approaches while also addressing the challenges and limitations associated with their implementation. Building on these theoretical and empirical foundations, the present study delves deeper into the role of institutions as a moderating factor in the effectiveness of community-based approaches. While previous studies have predominantly focused on the direct role of community participation, this research seeks to explore the intermediary and moderating role of institutions in this process. Furthermore, by focusing on Aq-Qala County, this study contributes to the existing body of literature on urban flood management in this region and serves as a basis for local policy-making. In line with the research objectives, the following questions have been formulated to guide the study:

What are the social indicators reflecting community characteristics in the PIAD model, and how can they be measured?

What insights, considerations, and institutional and managerial outcomes can be derived from a socio-institutional analysis of flood management in Aq-Qala County, particularly in the city of Aq-Qala?

## Data and Methods

The methodological approach of this study is mixed-methods (quantitative and qualitative), with an interdisciplinary orientation and reliance on institutional measurement frameworks. The research adopts descriptive-analytical and inferential-explanatory approaches. Data collection is conducted through a combination of library research, including a review of theoretical and applied literature in the fields of neo-institutionalism and natural disasters, particularly urban flood management. The primary tools for data collection include a researcher-designed quantitative questionnaire and a secondary analysis of documents and national flood reports.

The study focuses on Aq-Qala County, specifically the city of Aq-Qala, which is one of the high-risk flood-prone areas in Golestan Province. The Political Institutional Analysis and Development (PIAD) framework serves as the primary analytical tool driving the research.

The findings will be presented analytically in two main areas: institutions and floods, and their points of intersection, with a particular focus on applying the political institutional assessment framework based on the variable of community characteristics.

## Results and Discussion

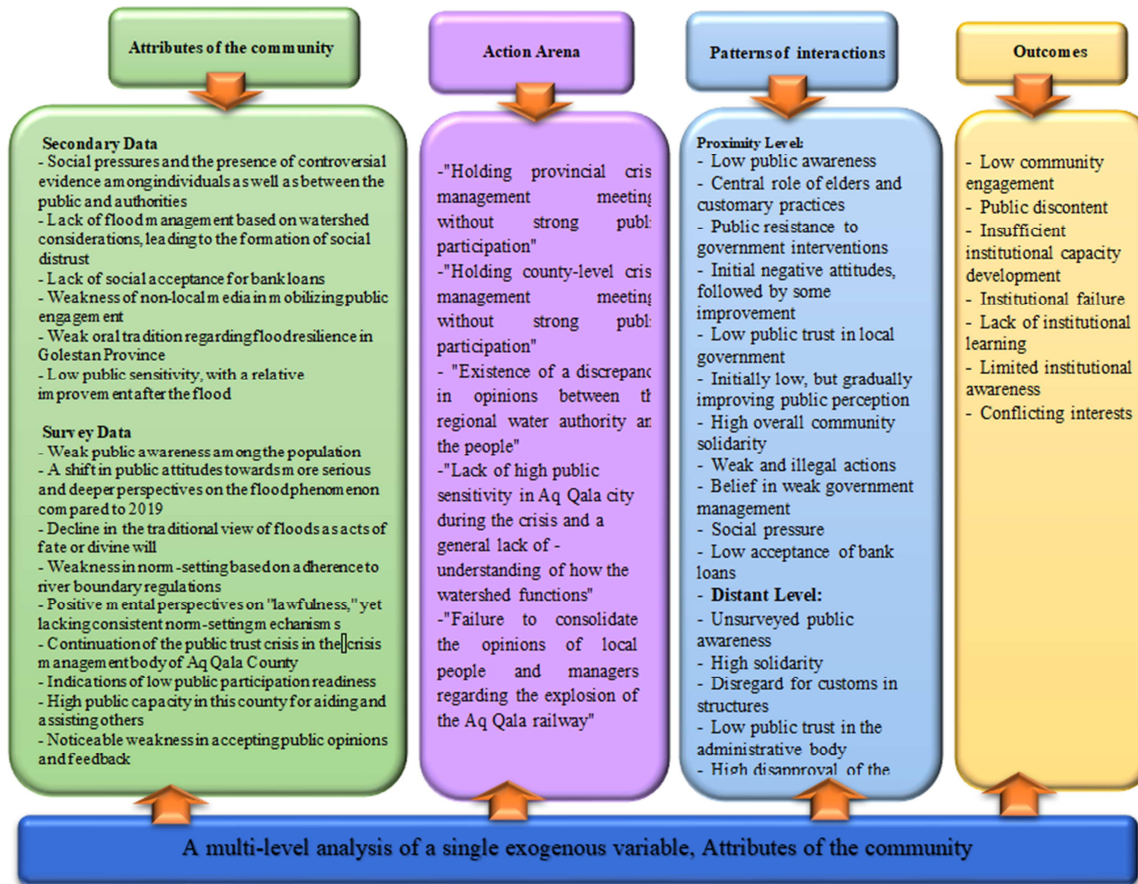


Figure 10: Institutional analysis model of comprehensive coordinates in the comprehensive framework of PIAD

## Conclusion

The case study of Aq Qala reveals that in the realm of exogenous variables and, Attributes of the community, there have been shifts in the sphere of action due to the dependent nature of informal institutions and citizens' subjective perspectives. However, the means of fostering widespread public trust among the Sahra Turkmens remains elusive. Components such as the perception of flood risk during crisis management have yielded negative feedback. This is a result of weak interactions and communication between responsible organizations and the people, leading to institutional gaps between formal and informal institutions, and causing harmful consequences such as a lack of capacity building, low social participation, public dissatisfaction, and institutional conflicts. This is despite the high potential of intrinsic solidarity among the Turkmens, which has been overlooked.

In contrast, institutional approaches focused on structures and regulations can complement community-based approaches to address existing challenges. Institution building provides a legal framework for the participation of local communities and enables the equitable allocation of resources through needs-based budgeting. Furthermore, institutions strengthen local decision-making capacity by creating participatory decision-making structures and effective communication channels. Implementing educational and support programs for civil society also contributes to changing attitudes and beliefs, while clear and enforceable laws and regulations provide a framework for monitoring and evaluation.

## REFERENCES

### References (in Persian)

- Keihka, Z., Bazrafshan, J., Ghanbari, S., & Keikha, A. (2020). Analysis of Resilience of Sistan Rural Communities Against Environmental Hazards. *Journal of Natural Environmental Hazards*, 9(23), 1-18.[in Persian]
- Motavasali, Mahmoud (2021). *Economic Development, Concepts, Theoretical Foundations, Institutional Approach and Methodology*, Tehran: Samt Publications, 12th Edition.. [in Persian]
- National Flood Report (2019). National Report of the Special Flood Commission, Volume of the Crisis Management Working Group, Tehran: Published under the supervision of the University of Tehran.[in Persian]
- National Flood Report (2019). National Report of the Special Flood Commission, Volume of the Social, Cultural, and Media Working Group, Tehran: Published under the supervision of the University of Tehran.[in Persian]

### References (in English)

- Clement, F. (2010).” Analysing decentralized natural resource governance: proposition for a “politicized” institutional analysis, and development framework, *Policy Sci*, 43:129–156.
- Clements, B., et al. (2006). Social capital and resilience: A review. *Ecology and Society*, 11(1), 32.
- Hartmann, T. & P. Driessen (2017) The flood risk management plan: towards spatial water governance. *Journal of Flood Risk Management*, 10, 145-154.
- hosseini rostami, S. S., & Zakerhaghighi, K. (2022). Theoretical Analysis of the Politicized Institutional Analysis and Development (PIAD) framework with the approach of urban flood management. *International Journal of Urban Management and Energy Sustainability*, 4(1), 62-78.
- Gaillard, J. C. and Mercer, J., 2013. From knowledge to action: Bridging gaps in disaster risk reduction. *Progress in Human Geography*, 37 (1), 93–114
- Jessop, B. (2001). Institutional re(turns) and the strategic–relational approach. *Environment and Planning A* 33, 1213–35.
- Lassa, J. A., Boli, Y., Nakmofa, Y., Fanggidae, S., Ofong, A., and Leonis, H., 2018. Twenty years of community-based disaster risk reduction experience from a dryland village in Indonesia. *Jambá: Journal of Disaster Risk Studies*, 10 (1).
- Ostrom, E. (2007). Institutional rational choice: An assessment of the institutional analysis and development framework. In *Theories of the policy process* (pp. 21-64). Colorado: Westview Press. <https://doi.org/10.4324/9780367274689-2>
- Tanwattana, P., 2018. Systematizing Community-Based Disaster Risk Management (CBDRM): Case of urban flood-prone community in Thailand upstream area. *International Journal of Disaster Risk Reduction*, 28, 798–812.
- Van den Hurk, M., Mastenbroek, E., & Meijerink, S. (2014). Water safety and spatial development: An institutional comparison between the United Kingdom and the Netherlands. *Land Use Policy*, 36, 416-426.
- Papathoma-Köhle, M. A. R. I. A., & Thaler, T. (2018). *Institutional vulnerability* (pp. 98-124). Cambridge University Press.