

*In the name of
God*



THE ROLE OF SOCIAL CAPITAL ON THE RESILIENCE OF RURAL SETTLEMENTS AGAINST FLOOD RISK (STUDY AREA OF MIAN JAM RURAL DISTRICT, TORBAT-E JAM CITY, KHORASAN RAZAVI PROVINCE. IRAN)

July 2021

Presenting author(s)

Ehsan Abdi

Masters' student in rural Geography of Ferdowsi University of Mashhad. Mashhad, Iran.

Khadijeh Bouzarjomehri

Associate Professor in Rural Geography, Ferdowsi University of Mashhad. Mashhad, Iran

Maryam Ghasemi

Assistant Professor in Rural Geography, Ferdowsi University of Mashhad. Mashhad, Iran



Introduction

- Occurrence of natural disasters such as floods and earthquakes in geographical areas, especially in rural areas, often have more devastating effects, Because rural areas are more vulnerable than urban areas due to their close relationship with the natural environment and limited power.
- Annual flood damage, in addition to casualties, destroys agricultural products, housing, infrastructure, buildings and machinery.
- Severe climate change, deforestation, rising sea levels and uncontrolled population growth are among the factors influencing the number and severity of natural flood disasters and the resulting greater vulnerability.



Introduction

- ❖ On the other hand, the existence of social capital in rural areas, which is the result of the communities' experiences of trial and error in solving problems, has provided valuable treasures, which has increased resilience in these areas.
- ❖ The basic idea of social capital is that family, friends and co-workers are very important assets that a person can use in critical situations.
- ❖ Therefore, in order to achieve correct and efficient resilience in order to reduce vulnerability in rural areas, it is necessary to plan and develop social capital and maintain social cohesion.



Introduction

- Studies have shown that in most communities, the economic losses caused by floods account for about 30% of the total damage caused by environmental hazards.
- Currently, floods are the most common in terms of occurrence and the most costly natural disaster in terms of damage.
- It should be noted that Iran, due to its geographical location and arid and semi-arid climate, although compared to other countries, the amount of rainfall is low and the average rainfall is about 250 mm, However, the rains are very heavy in some parts of the country, and considering the drought of nature, the occurrence of a rain immediately creates runoff and causes floods.



The main purpose and question of the research

- ❑ **Iran** is one of the **most flood-prone countries** in the world, and most of its annual funding has been spent on mitigating the effects of natural disasters.
- ❑ The study area, Torbat-e Jam, has a high potential for flood risk due to its **geographical location** in northeastern Iran and its **special climatic conditions**.
- ❑ Therefore, the purpose of this study is **to identify the role of social capital in flood resilience** and provide **suggestions for reducing vulnerability to this risk**.

Q. What is the social capital status of rural settlements in the region in the face of flood risk?



Materials and Methods

- The statistical population of the study includes the villages most at risk of floods. In consultation with local managers, 10 villages were selected whose names are listed in the following table.
- With Cochran's formula and **error less than 0.06**, the number of sample households equal to 240 cases was obtained in relation to each village and then a questionnaire was completed by the head of the household.

Table 1 The studied villages and their sample size in Mian Jam village

Village Name	Household Population	Number of Samples
Kariz nu sofla	201	24
Govi	126	17
Mian Sara	120	15
Nikpay	52	11
Bezd	753	88
Rezaabad	63	11
Haji abad	79	11
Jalil abad	185	21
Qala Nomirza	174	21
Langar	185	21
Total	1948	240

Cronbach's alpha indicators of research questionnaire

Questionnaire scales	Cronbach's alpha
Participation	0.718
Social cohesion	0.737
Social awareness	0.764
Social trust	0.721
Total	0.721

The Cronbach's alpha value of the questionnaire indices is more than 0.7 → the questionnaire has good reliability.

Social capital indicators

Participation

Social trust

Social
cohesion

Social
awareness

Results

- Among the heads of households, **86.7%** were **men** and **13.3%** were **women**.
- 62.1% had a sixth grade elementary degree and the rest either had a high school diploma or did not finish high school.

Results

Frequency of all types of flood damage hazards in the region (in the last 5 years)

Damage type	Frequency	Frequency Percentage
Injuries and physical damage	72	30
Home demolition	48	30
Farm demolition	89	37.1
Loss of livestock	31	12.9
Total	240	100

Descriptive statistics of social capital variables

Descriptive indicators of social capital variables

Dimensions / components	Average	Standard deviation
Social capital	3.5	0.3
Participation	4	0.4
Social cohesion	4.4	0.4
Social awareness	3.1	0.6
Social trust	2.7	0.2

Average social capital indicators

Social participation indicators	Average
Participation in helping the flood victims	3.66
Cooperation with the Housing Foundation in the use of durable materials	3.82
Willingness to invest in building sustainable housing	4.41
Participation in meetings to reduce flood risk	4.38
Cooperation with rural people in building sustainable housing	3.63
Participation in Jihadist programs during floods	3.66
Participation in construction and infrastructure projects related to flood risk	4.12

Social cohesion	Average
The level of empathy with the villagers during the flood	4.86
The extent of kinship in going back to normal	4.61
The effect of intimacy and friendship between residents on increasing the social cohesion	5.66
Financial assistance from relatives and friends to compensate the damages	3.53
The effect of religious beliefs on people's cooperation with each other	4.37

Average social capital indicators

Social trust	Average
Trusting in flood donations from responsible institutions	4.18
Creating discrimination for receiving flood-specific resilience credits	2.37
Trust the health house service in the event of a flood	2.23
Trust in the services of village managers at flood risk	4.25

Social awareness	Average
Awareness and experiences of flood prediction	2.75
Awareness and experiences in dealing with and reducing flood risk	2.72
The effect of social networks (mobile and internet) in informing about floods	2.9
Efforts by local institutions and officials to report floods	3.43
Efforts by local institutions and authorities to find ways to deal with the floods	3.2
knowledge of how to build flood-resistant housing	2.65
Red cross's actions and performance at the time of flood	3.8
Actions and performance of the Crisis Management Organization during a flood	3.87
Use of traditional architectural principles and techniques in reducing flood damage	2.51

Answering the research question

Q: What is the status of social capital in the face of flood risk in rural settlements of the study area?

Dimensions / components	Average	T-test	Significance level	Result
Social capital	5.3	6.3	0.001	Above average
Participation	4	5.34	0.001	Above average
Social cohesion	4.4	6.59	0.001	Above average
Social awareness	1.3	4.2	0.018	Above average
Social trust	7.2	-2.19	0.001	Below average

One-sample t-test was used to answer the research questions.

- These findings show that in the dimension of social capital, the components of participation, social cohesion and social awareness are more than average and significant (significance level is less than 0.05) and the component of social trust is lower than average and significant (significance level is less than 0.05).

Suggestions

- **Increasing local knowledge and awareness of villagers about flood risks**, through Islamic councils of villages
- **Providing suitable bases** for the participation of the villagers in the event of floods by setting up **flood maneuvers** operationally and educationally among all the villages prone to flood
- **Organizing crisis management meetings** on the subject of floods at the village level by local managers under the supervision of upstream departments (district and governorate)
- **Construction of coastal walls** in parts of the **canals** that pass by rural residential areas
- **Construction of a durable earth or concrete dam** in the upstream basin of Bazd village
- **Combating the extinction of forest species** such as mountain barberry and juniper in the highlands of Bazd and Rounj
- Appropriate **attention** should be paid in **determining the guard or herdsmen to prevent overgrazing** of livestock in upstream pastures of watersheds
- **Paying attention** to the **warnings and advice** of the **elders** when there are apparently no signs of rain and flood, but they **predict possible heavy rains**

