

Research Paper

Recognition of social powers and its relationship with the formation of cooperative behavior in conflict management of water resources in Doroudzan dam watershed, Fars province

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ABSTRACT

A decline in watersheds or their uneven distribution can affect social relationships among the residents in watershed areas and lead to their conflicts. Due to a lack of water in *Doroudzan* watershed as a crisis, it seems that social relationships and communication patterns among the residents will be adversely affected. The aim of this research is to manage conflicts over the water resources in *Doroudzan* watershed with a focus on social relations and to determine the strengths and weaknesses of the social relation networks. In this regard, 260 local stakeholders of the water resources in the irrigated villages in *Doroudzan* dam downstream were selected as the statistical population using Morgan table. The required data were collected through questionnaires, and the cooperation networks among the people were investigated in order to solve the problem of water shortage. Based on the results of this research, trust and cooperation ties were the key factors identified. They are known as social power, key factors in decision making and better performance of co-management, and a resolution to water conflicts. Also, according to the results of Kruskal Wallis statistical test, there is a significant difference between the social status of the people and the approaches adopted in conflict management of the water resources in the studied area.

Key words:

Social power,
Water resources
conflict, *Doroudzan*
watershed, Social
network analysis,
Centrality

Extended Abstract

1. Introduction

Water is a vital resource that matters not only to life but also to human relationships. However, there is an unequal access to water by societies and groups. This has led to a lot of severe consequences. One of these consequences is the increase in

water conflicts, sometimes even with violence. Therefore, management and development of water resources are essential for sustainable agriculture in areas facing water scarcity. Nowadays, one of the most effective approaches to resource management, including water resources, is the participatory management approach. The approach is based on adaptation, which emphasizes solving conflicts related to common resources using sociological theories, including social capital. One of the most important sociological factors affecting the resolution of disputes

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and conflicts among exploiters is the emergence of power. Social powers are local leaders that cannot easily be identified in the network, but the social network analysis method helps us identify these people and use their power to implement the participatory approach of water resources management. Due to the conflicts and disagreements over the use of water resources in the *Doroudzan* dam watershed, the present study seeks to detect the local stakeholders, identify the key stakeholders and social powers, and examine their relationship with the formation of cooperative behavior in the conflicts management of water resources at the downstream of the *Doroudzan* dam watershed.

2. Methodology

In this study, using the USINET6.507 software, network indicators were calculated. One way to measure a social network indicator is to consider the number of relationships that an actor has set up to collaborate with other people on the network. This kind of communication is called 'the entrance grade'. Another method that can be used to analyze network penetration is to measure the capacity of an actor to play an intermediate role in the network. The power of each actor in the network is measurable individually and at the micro level of the network. By occupying central positions in a network, actors become able to influence other people in the network. Also, to determine the conflict management strategies for the use of water resources by the local stakeholders in the study area, the self-assessment test was conducted. It consisted of 28 items on how to deal with situations of conflict. The response to each item was designed on the 5-option Likert scale. A rating key was used to determine how each stakeholder was placed in three possible strategies for conflicts over water resources. Kruskal Wallis statistical test was used to examine the relationship between social powers and the type of cooperative behavior. The study area was *Doroudzan* dam watershed located in Fars province.

3. Results

In connection with the partnership link among the water users of Fath-Abad village, the actor Mr-Za proved to have the highest output degree of 63.04% in the local stakeholder network. Next to him, the actors Sa-Ke and Mn-Ro had the highest degree of output centrality of 60.87. In connection with the partnership link among the water users of Kuh-sabz village, the activists As-Ka and Fa-Ka had the highest level of output centrality of 93.33% in the local stakeholder network. In connection with the linkage among the water users of Koshkak village, the actors Ah-Za and Jaf-Za had the highest degree of out-

put centrality of 78.57% in the local stakeholder network. Non-parametric Kruskal-Wallis test and the SPSS software were used to analyze the relationship between the actors' social position and their confrontational situation in the water resources field. Based on the results, it can be said that the social status of each actor is of influence on his behavior in coping with conflicts in the field of water resources.

4. Discussion

Because social powers are the local leaders who are often hidden in the network and cannot be easily identified, the social network analysis method helps identify these people and use their power to solve conflicts among operators and develop trust in the network as the most important management tool. All this occurs according to the pattern of participation relationships. Based on the results of Kruskal Wallis statistical test, there was a significant relationship between the social status of individuals and the approaches adopted for management of conflicts over water resources in the study area. On this basis, social powers can be said to play a key role to create and strengthen cooperative behavior in conflict situations and disputes over water resources.

5. Conclusion

This research aimed at the management of conflicts over water resources in *Doroudzan* watershed with a focus on social relations and the strengths and weaknesses of those relations in the network. The required data were collected through questionnaires, and the cooperation network among people was investigated in order to solve the problem of water shortage based on results of this research. Also, trust and cooperation ties were studied, and the key actors were identified. They are known as social powers and key actors in decision making, whose better performance and co-management would resolve water conflicts. Based on the results of Kruskal Wallis statistical test, there was a significant difference between the social status of the people and the approaches adopted in conflict management in the water resources in the studied area. On this basis, social powers play a key role in creating and strengthening cooperative behavior in conflict situations and disputes over water resources.

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Conflict of Interest

The authors declared no conflicts of interest

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