International Journal of Political Science
ISSN: 2228-6217
Vol 14, No 4, Dec 2024, (pp. 131- 166)

Analysis of Water Governance in Zayandeh-Rud River Basin Using the Grounded Theory Method; a Case Study of Isfahan Province

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Received: 10 Nov 2024 ; Accepted: 20 Dec 2024

Abstract

Water scarcity and its impact on other socio-environmental aspects has become an undeniable issue which emphasizes the need to water resources management. One of the basins that have been severely affected by water governance issues is Zayandeh-Rud River Basin and Isfahan Province. The present study has been conducted as a qualitative study, with emphasis on the concept of governance and with the aim of identifying the causes and dimensions of the crisis in the Basin and in Isfahan province. To achieve this, the grounded theory method has been used in data analysis. Accordingly, have been interviewed in order to reach the theoretical saturation stage, 74 activists and stakeholders of this basin in 12 townships of Isfahan province (located in Upstream to the downstream of Zayandeh-Rud). Participants in this study are a diverse range of actors, including members of parliament, judicial officials, executive directors, security-law enforcement officials, religious-scientific figures, farmers, environmental and agricultural and natural resources experts, consultants, contractors and craftsmen. With open coding, 56 basic concepts have been identified and from these concepts, obtained 11 main categories which are mismanagement, increase of harvest, legal conditions, living conditions, trans-basin stations, technical view dominance, climate change, cyberspace, cultural factors, dominance Security look, strategies. Data analysis showed that from the perspective of research participants, due to shortcomings and weaknesses in governance, the policies pursued in this basin, lacked the necessary efficiency. And this inefficiency has led to a reduction in the legitimacy of the adoption and implementation of government policies, as the largest and most powerful actor in the Zayandeh-Rud River basin.

Keywords: Policy Making, Zayandeh-Rud River Basin, Water Governance, Grounded Theory

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Problem statement

Other than the air we breathe, water is the most basic biological need of humans. The consumption of this basic need has increased six times over the past hundred years and will increase by about 1% annually (UN, 2020), strongly affecting the agriculture and ecosystem-dependent livelihoods (UN, 2021)). Threats to this vital need can be followed by unpredictable consequences and reactions of stakeholders. Drought conditions are predicted to continue, aggravating the need to pay attention to the issues caused by the increasing water scarcity conditions. As one of the closed and low-rainfall basins of the Central Plateau, the Zayandeh-Rud Basin has faced the great challenge of water scarcity and its socio-environmental consequences, which have extended beyond the geography of this basin. This challenge is becoming a great challenge under the influence of the decreasing precipitation, increasing consumption and mismanagement of the existing resources by going beyond the merely technical-engineering issues as well as the geographical boundaries of that basin, which will affect a larger group of stakeholders and actors. The challenge of water resource management and its adverse effects on the political system has a long history so that some experts have attributed the fall of the Safavid dynasty to a change in the management of its agriculture-based economy by establishing a connection between the governance of water resources and the continuity of government (Nourian, 2019). As a matter of fact, if water is faced with the supply stability problem, it can become a challenge for the stability of the society because it is tangled with all socio-economic, environmental, and other issues of the society.

The formation of social protests (Esmaeili, 2020: 578) and the environmental challenges of the Zayandeh-Rud Basin (Niakooei and Zibaei, 2012), which will exacerbate with climate change (Massah Bavani and Morid, 2005: 43), have made the residents and users of the basin and observers of social issues think of the "central role of the government" (Gol Karami and Kaviani Rad, 2017: 114) and ask about the root of the problems of the Zayandeh-Rud Basin and whether it is really impossible to address and solve it, because "the water crisis can ultimately change the nature of politics and turn civility into primitiveness" (Moradi Tadi, 2017: 72). By defining the continuity of water flow as an indicator, this perspective has emphasized the efficiency of the policy-making system and the Sheikh Ba"a'I Scroll (932 A.H.) is one of the oldest and most obvious efforts made in this regard. Considering the research gap about water governance and policy making in the Zayandeh-Rud Basin and the need to explore the dimensions and effects of the water crisis in this basin, this study has tried to use the concept of governance and the Grounded Theory (GT) methods to provide an answer to the following questions, "What are the causes of the crisis in Zayandeh-Rud Basin from the point of view of its actors?" "What factors have exacerbated this crisis?" and "What are the reactions of the stakeholders and actors of this basin and how can it be managed?"

Research Literature

"Currently, the term "governance" is being used in the water management literature with a new application and with the aim of distinguishing the verb "governance" from its agentive noun, "government". In this application, "governance" has a responsibility beyond

"government" so that the position of the private sec"or and soc"al institutions has been clearly defined in studies and plans and their complementary relationship has been enhanced. With such an emphasis on governance issues, the focus is on how to regulate the relationship among the government, the private sector and social institutions so that the government can create and gain enough authority to make strategic decisions in the society. In other words, researchers try to change the traditional power structure and give more weight to the parallel institutions of the government in decision- and policy-making by separating the different sections of the government and distinguishing between the private and public sectors as well as between the government and civil society (Yazdani Zazerani, 2012: 111).

Although the term "governance", contrary to its concept, is new with a history dating back to the 1980s (Yazdani Zazerani, 2012: 112), it needs to be elaborated as the research method used in this study. It comes from the Greek word "kybernan – kybernetes", meaning to steer, guide or keep things together (Akbari, 2007: 149). In addition, there are many other definitions of governance, based on which "it is concluded that three main types of regimes participate in governance, which are: the government, civil society, and the private sector. The more these three parts can communicate with one another, the more governance will be realized" (Yazdani Zazerani, 2012: 118).

Governance is used in water-related systems as well. "In general, water governance refers to all systems involved in making decisions about the development and management of water resources. The focus of the water governance literature is on decision making about water (how, by whom and under what conditions). Therefore, both the way of making decisions regarding water allocation and regulation and the executive formal and informal institutions are the subject of analysis" (Youri *et al*., 2017: 1). Accordingly, "water governance is a range of political, social, economic, and administrative systems established for the development and management of water resources and water services at all scales (Rogers & Hall, 2003: 5).

"Water governance" is by its very nature a political process, in the sense that creating a balance between competing interests about who deserves what services, how to provide services and who pays for them, as well as decisions about how to protect the water resources all require a political choice (Youri *et al*., 2017). Water governance systems are usually a reflection of the political realities at the national, provincial and local levels. It is, therefore, impossible to completely separate water governance from society governance. While the definitions of governance are relatively uncontroversial, the components of good governance are highly controversial. Some believe that different groups have different perspectives towards "ideal governance" under the influence of their ideology. Some believe that good governance can be realized mainly by removing restrictions to ensure the smooth market operation and minimizing the role of the government, and they consider bad governance to result from incompetent markets and a big government. Some others consider good governance to be characterized by transparency, accountability and the decision-making right at the lowest levels (Miremadi, 2017: 126). Any discussion on the water governance of Zayandeh-Rud requires knowledge about the shortcomings of water policy-making in this basin and the policies required to overcome these shortcomings, because the inability of governments in performing the affairs coordinately has given rise to the concept of governance (Yazdani Zazerani, 2012, 111).

Literature Review

The previous studies on the topic of water management have rarely focused on the policy making and the relationship between politics and society so that there is a research gap in this regard. For example, there has been no independent study to identify the reasons for the water crisis in Isfahan province, as the major

part of the Zayandeh-Rud Basin, based on the governance framework. The water management literature includes the following studies.

1- Abbas Hatami and Susan Nourbakhsh (2019) conducted a study entitled "Semantic Reconstruction of the Water Crisis in the East of Isfahan Based on Grounded Theory", to understand the meaning of water crisis among farmers in the three cities Ziar, Ezhieh and Varzaneh in the east of Isfahan province. They concluded that the farmers of these cities consider a direct and close connection between water crisis and "water mismanagement" which is the result of the monopolistic functioning of the government.

2- The Zayandeh-Rud River Integrated Management Office of the Ministry of Energy (2018) performed a study entitled "Integrated management of Zayandeh-Rud water resources with Iran-German research and development cooperation for a better future" with the cooperation of some government agencies and companies as well as the International Research Center of the German government in the water sector, in which they offered a solution for the integrated management of water resources. Despite the efforts made to achieve this aim with high-level coordination, this study limited the concept of integrated management to the creation of new structures, coordination between executive institutions and inattention to other stakeholders, without considering the fundamentals of governance. Other stakeholders were considered for the sake of building trust and implementing the decisions made.

3- Ameneh Yadegari *et al*. (2018) conducted a study entitled "Institutional Analysis of Water Governance Structure in Iran: A Case of Zayandeh-Rud Basin", in which they divided the water institution into three components of laws, policies and organizational management to investigate the institutional structure for dealing with water shortage. They concluded that the organizational and administrative management of the water sector was more effective than the laws and policies of this sector.

4- Majid Vahid and Saeed Akhavan (2017) performed a study entitled "The Comparative Investigation of the Performance of the Eight & Ninth Administrations in Islamic Republic of Iran with Emphasis on the Water Resources Policy Making; The Case Study: The Crisis of Water Resources in Isfahan Province". Assuming a distinction between the 9th and 10th administrations and seeking to define the policies according to the theoretical framework of sustainable development, the researchers reviewed the government's approvals adopted during the mentioned period regarding the water crisis of this province, coming to the conclusion that the policies adopted by the two administrations have been almost identical and that they have tried to create development by targeting less developed areas through construction projects such as water transfer.

5- Maryam Esmaeilifard and Hasan Kaveh Firouz (2016) conducted a study entitled "Pathology of the Water Policies in IR Iran". Reviewing the historical issue of water in Iran, they analyzed its qualitative and quantitative aspects as well as its sectoral and extra-sectoral challenges. Moreover, the relationship of water with some political, social, and economic issues such as development issues, ethnic-religious gaps, women's participation, security issues, etc. were emphasized and recommendations were provided to policy makers. They concluded that achieving sustainable development requires a consensus among the sectors of agriculture, industry, trade, health and treatment, environment etc. in changing the basis of water management from demand-orientation to supply-orientation.

6- Seyed Hasan Hosseini Abri (1998) conducted a study entitled "Traditional Management of Zayandeh-Rud Water, a Discussion on the Indigenous Knowledge of Iran", in which they reviewed the water

management of Zayandeh-Rud River in the past, especially during the Safavid period and Sheikh Baha'i's Scroll and provided decision-makers with recommendations for people's participation in the current management of this river's water. However, an important feature of the research, which can be analyzed from the perspective of natural geography and rural development, in addition to its historical affiliation, is the lack of a theoretical framework for the realization and implementation of the proposed solutions. Moreover, the researcher investigated the two factors of "government – bureaucrats" and "people" regardless of components such as power and effectiveness.

7- Esmaeil Mohammadjani and Nazanin Yazdani (2014) performed a study entitled "Analysis of Water Crisis Conjecture in Iran and the Exigent Measures for its Management", in which they addressed the concept of supply and demand in the management of water resources, especially in the agricultural sector. They concluded that failure to adopt appropriate policies due to the structural problems of the agricultural sector, population growth, etc. would decrease the coefficient of self-sufficiency in agricultural products despite the pressure it places on water resources.

8- Seyed Jalaleddin Mirnezami and Ali Bagheri (2017) conducted a study entitled "Assessing the Water Governance System for Groundwater Conservation in Iran. Using the Contextual Interaction Theory, they assessed the water governance system for groundwater conservation, concluding that the structure of water governance is extremely weak in terms of extent and coherence, and that it is impossible to improve the condition of groundwater resources without focusing on its amendment and improvement.

9- Saman Moghimi Benhangi *et al*. (2018) carried out a study entitled "Assessment of the Official Water Institution in Iran Corresponding to the Mechanisms Governing the Emergence of Agricultural Water Demand Based on the Social Learning Framework" to evaluate the governance structure from the perspective of social learning. They concluded that, from the point of view of the learning capacity of the official institution in the water governance structure, the current institutions have not yet been challenged and thus the system still does not have the ability to understand other perspectives. In fact, the spirit governing the laws prior to the Islamic Revolution comes up with various definitions in the current laws.

10- Mohammad Mehdi Esmaeili (2019) conducted a study entitled "Water Supply Crisis in Zayandeh-Rud Basin; Social Issues and Solutions to Manage it (Demonstrations of 2010 to 2013)" to explore why reason for the crisis in the management of water resources and its effect on the social dissatisfactions of farmers. They concluded that providing a scientific and proper land use plan, the integrated management of Zayandeh-Rud, the establishment of the inter-provincial water planning counsel, the improvement of the cropping pattern, the implementation of water transfer plans, the prevention of new loadings and the use of new technologies in water desalination are among the solutions to prevent the water-related social tensions on this basin.

A review of the literature shows that the previous studies on the nature and dimensions of the water crisis have focused on technical perspectives. Besides, they have adopted a one-dimensional or sectional approach in the geography of the research and failed to consider the Zayandeh-Rud Basin to include several counties (and even provinces) with conflicting interests. This study is indeed an attempt to collect data from a wider and more diverse range of actors in the Zayandeh-Rud Basin, including members of the Islamic Consultative Assembly, judicial officials, executive directors, security-disciplinary officials, religious-scientific figures, farmers, environmental,

agricultural and natural resources experts, consultants, contractors and craftsmen who form the components of the governance system. It focuses on the shortcomings caused by the lack of a comprehensive approach to the diverse interests of the stakeholders and the expansion of the geographical scope of the basin to the province level (which is the basis for the adoption and implementation of policies) to provide a more accurate and in-depth understanding of the problem considering the opinions, demands and interests of this diverse range of participants. It is hoped that it will pave the way for further research in this regard and help approximate the final form of the governance system.

Methodology

Since this study seeks to analyze the nature and dimensions of the policy-making crisis in the Zayandeh-Rud Basin from the perspective of the stakeholders, it has adopted a qualitative research method. "Qualitative research consists of a set of activities such as observation, interview and extensive participation in research activities, each helping the researcher collect first-hand information about the research topic" (Tayebi Abolhasani, 2019: 69). The "Grounded Theory (based on a systematic approach) is a qualitative and systematic method for developing a theory that describes a process, action or interaction on a basic but small subject at the level of a general concept" (Creswell, 2005, p.396). In this method, data are collected through semi-structured interviews with stakeholders and actors. For this purpose, the GT was used as a qualitative method that is able to explain the dimensions and the nature of water governance in Isfahan province. According to some researchers, the ideas derived from this strategy are considered a framework for scrutinizing and understanding scientific facts and a framework for action (Sadevand *et al*., 2021, 249). Perhaps "the most important justification for the use of the GT method is to investigate and study unknown areas or those areas where we seek a new perspective in a known situation" (Hasrati, 2006: 79).

In this method, first all the information obtained from the research process was collected, then open coding was used to identify the hidden concepts in the collected information line by line, which resulted in the identification of more than 90 initial concepts from the information. In the next step and as axial coding, the identified concepts were reduced into major categories considering data replication and 56 categories were identified. At this stage and considering the overall stages of the research, the core category was discovered using the axial (selective) coding of the obtained categories so that the core category could explain the relationship between the categories by relying on the accurate and logical analysis of the data. As we approached the final form of GT, integrating the obtained categories that show the causes, conditions, contexts and strategies mentioned by the participants made it possible to present the paradigmatic model of the research.

The sample was selected using the purposive sampling method. This sampling method uses special individuals to facilitate the theorizing process (Gall, 2003). Samples were selected from a diverse range of actors (as Table 1 shows) until the theoretical saturation stage. The selected places and individuals had a close practical and theoretical relationship with water governance and policymaking or were directly influenced by the policies without participating in the policy-making process. Data were collected using both a questionnaire and a semi-structured interview. For this purpose, after documentary studies and interviews with some experts, the research questions were designed. Then, the collected information was analyzed after several initial

samples were interviewed and the results were presented to professors familiar with the research method and topic. After the data collection and analysis processes were confirmed and the findings were matched with the identified concepts and categories, the data collection was put into operation and the research was continued under the supervision of the professors. In a qualitative study, the following six factors are regarded as the main criteria of validity and reliability: the philosophical underpinning of the research, approach or methodology, data collection method, the researcher's statement about his/her relationship with the participants and the phenomenon under study, interpretation and presentation of the report, and recommendations on the professional application of the research results (Rezapour Nasrabad, 2017: 495). To ensure the validity of the research, the researchers had the university professors supervise all stages of the research, including the design of interview questions, data collection and analysis, etc. moreover, to measure the reliability of the results, they presented the general findings of the research to some participants and referred to the raw and primary data to compare and confirm the theory developed from the research.

Table (1). Research participants

education	**job**	Interviewee code	education	**job**	Interviewee code
Master's degree	Farmer and gardener	**p38**	Master's degree	Security-disciplinary	**p1**
Master's degree	Farmer and gardener	**p39**	Master's degree	Security-disciplinary	**p2**
BS	Farmer and gardener	**p40**	Master's degree	Security-disciplinary	**p3**
BS	Farmer and gardener	**p41**	Ph.D.	Security-disciplinary	**p4**
BS	Farmer and gardener	**p42**	Ph.D.	Security-disciplinary	**p5**
diploma	Farmer and gardener	**p43**	Ph.D.	Security-disciplinary	**p6**

diploma	Farmer and gardener	**p44**	BS	Agriculture Jihad official	**p7**
diploma	Farmer and gardener	**p45**	Master's degree	Agriculture Jihad official	**p8**
diploma	Farmer and gardener	**p46**	BS	Agriculture Jihad official	**p9**
diploma	Farmer and gardener	**p47**	Master's degree	Agriculture Jihad expert	**p10**
Middle school	Farmer and gardener	**p48**	Master's degree	Agriculture Jihad expert	**p11**
Middle school	Farmer and gardener	**p49**	Ph.D.	Scientific figure	**p12**
reading & writing	Farmer and gardener	**p50**	Ph.D.	Scientific figure	**p13**
reading & writing	Farmer and gardener	**p51**	seminary	Friday Prayer Imam of the city	**p14**
illiterate	Farmer and gardener	**p52**	seminary	Friday Prayer Imam of the city	**p15**
illiterate	Farmer and gardener	**p53**	seminary	Friday Prayer Imam of the city	**p16**
illiterate	Farmer and gardener	**p54**	seminary	Friday Prayer Imam of the city	**p17**
illiterate	Farmer and gardener	**p55**	seminary	Friday Prayer Imam of the city	**p18**
illiterate	Farmer and gardener	**p56**	BS	Environmental expert	**p19**

illiterate	Farmer and gardener	**p57**	Master's degree	Environmental expert	**p20**
BS	Consultant and contractor	**p58**	Master's degree	IRIB employee	**p21**
BS	Consultant and contractor	**p59**	BS	IRIB employee	**p22**
BS	Consultant and contractor	**p60**	BS	IRIB employee	**p23**
Ph.D.	Consultant and contractor	**p61**	Ph.D.	Mobarakeh Steel Company's deputy director	**p24**
Ph.D.	Member of the Islamic Consultative Assembly	**p62**	Master's degree	Mobarakeh Steel Company's deputy director	**p25**
Dr	Member of the Islamic Consultative Assembly	**p63**	Master's degree	Mobarakeh Steel Company's employee	**p26**
Ph.D.	Member of the Islamic Consultative Assembly	**p64**	Ph.D.	Steel Company's deputy director	**p27**
Master's degree	Member of the Islamic Consultative Assembly	**p65**	Master's degree	Steel Company's deputy director	**p28**

Master's degree	Director General of the Provincial Governor Office	**p66**	Master's degree	Steel Company's employee	**p29**
Master's degree	City governor	**p67**	BS	Craftsman	**p30**
Master's degree	City governor	**p68**	diploma	Craftsman	**p31**
معادل P.H.D	City governor	**p69**	diploma	Craftsman	**p32**
Master's degree	City governor	**p70**	diploma	Craftsman	**p33**
Master's degree	City deputy governor	**p71**	Ph.D. Student	Prosecutor of the city	**p34**
Master's degree	City deputy governor	**p72**	Ph.D.	Deputy Justice of the province	**p35**
Master's degree	Expert of the Provincial Governor Office	**P73**	Ph.D.	Chief justice of the city	**p36**
Master's degree	Expert of the Provincial Governor Office	**P74**	Master's degree	Chief justice of the city	**p37**

The research sample consisted of 74 effective decision makers regarding the Zayandeh-Rud water crisis as well as those whose proposed strategies or sometimes social status had an effect on the Zayandeh-Rud water crisis management. The participants were scattered in the counties of Isfahan, Khomeini Shahr, Najaf Abad, Shahin Shahr and Meymeh,

Mobarakeh, Falavarjan, Lenjan, Chadegan, Borkhar, Fereidan, Fereydunshahr, Buin and Miandasht. The opinions of the participants of Harand, Jarqavieh and Varzaneh were also examined before the establishment of the governor office and the creation of new counties in Isfahan city. To select the participants, we tried to consider the opinions of actors such as the IRIB and security-disciplinary figures in the center of the province. We also used the opinions of actors such as craftsman and contractors who were more concentrated in the western regions of the province, and collected the opinions of farmers and gardeners, especially with a focus on their trade union representatives. The mission of the research necessitated the maximum use of all the capacities of the counties, including members of the Islamic Consultative Assembly, religious figures, university professors and scientific figures. However, there were different levels of response and cooperation of actors although all the counties of the province were the scope of the research topic.

Considering the geographical scope of the research, a total of 60 participants were interviewed in the first stage and during several interview stages and the obtained concepts were replicated. However, considering the need to achieve theoretical saturation at the mentioned geography level, 12 more interviews were conducted with different ranges of stakeholders and actors, and the replication of the obtained concepts confirmed the theoretical saturation of the research.

Findings

In the research process, after classifying the obtained information into 120 concepts, a total of 56 initial concepts were obtained in the open coding stage. The abstract concepts were transformed in the next stage and the initial concepts could be defined as 11 main categories. Next, the core category, which is considered the central category of the research, was obtained from these categories as the product and result of the research process. This process is shown in Table 1.

Research categories

1. Causes of the crisis

1-1. Mismanagement

Human reasoning faculty makes him capable of thinking and solving problems, but in the case of water issue, management issues have acted as a barrier for the proper actualization of this capacity. The **overdose of decision-making institutions, the lack of communication among the stakeholders and between the policy makers and stakeholders, the lack of transparency, failure to make use of the existing capacities, and ultimately the lack of trust** have led to **ineffective management**. In such conditions, managers are not able to communicate with stakeholders, gain their trust, convince them and solve the problem due to their inadequate knowledge about the nature of the problem and lack of a long-term and all-encompassing perspective. One of the participants said in this respect, "**Managers can solve this problem if they want, but they get paid at the end of the month and we don't matter to them at all**." Another participant who was among the city's officials said, "**Farmers only come to us to make accusations. We say there is no water, but they don't accept it.**" Considering the fundamentals of water governance and the need for the communication and participation of all stakeholders in the decision-making process, such comments show that there has been no governance in the Zayandeh-Rud Basin and consequently there has been no bargaining and people have not been convinced. The separation of the Zayandeh-Rud Basin is another instance of mismanagement and extension to its sub-units, which has increased the competition for the exploitation of resources and led to the neglected protection of the resources despite the conflicting interests of the provinces of this basin. A participant mentioned this

important point and said, "**As long as the upstream and downstream management of the basin lies in two provinces, we cannot manage the water crisis because it leads to a double standard.**" Another clear instance of mismanagement that can help solve the water problem is the lack of communication with scientific figures and the use of their opinions. These figures, who have scientific and expert opinions in their field of activity, have received no attention yet, as one of the participants said in this regard, "**No manager or official has yet come to see me for a solution to the water problem"**.

Table (2). Axial codes extracted on the concept of mismanagement

Open code No.	Open codes with the removal of replicated data	Axial code
1	Separation of the regional water companies of Isfahan and Chaharmahal and Bakhtiari provinces	Separation of the basin
2	Separation of spillway and riffle	
3	Division of the river	
4	The supremacy of political boundaries over the geography of the basin in the 9th and 10th administrations	
5	Lack of attention to land use	Lack of attention to land-use planning
6	Lack of attention to the environmental results of policies	
7	Lack of knowledge about the geography of the basin	
8	Failure to submit part of the affairs to the stakeholders	Failure to use the capacity of stakeholders
9	Ignoring the opinions of stakeholders	
10	Control and monitoring using stakeholders (water police)(	
11	Non-transparency of the decision-making process	Non-transparency
12	Distribution of financial resources	

13	Lack of responsibility	
14	Unwillingness of managers to hear the demands directly	Misunderstanding of the demands and claims
15	Lack of knowledge about the threats and opportunities	
16	Inaccurate predictions	

1-2. Over-harvesting

The increased rate of consumption caused by new and irregular loadings over the past years has caused an imbalance between water supply and its harvesting rate. This imbalance, which is the result of over-harvesting for drinking, agriculture and industry, has exacerbated the crisis in water resources, especially from the west to the east of the province. One of the participants said in this regard, "**The existing resources could meet the current needs, but the increased area under cultivation and over-harvesting in the upstream left no water to flow in the river.**" Another participant also said, "**If there is no water, why are licenses still issued for factories, industrial town and new towns? Aren't these new loadings?**" The over-harvesting is not limited to new loadings; it includes the reduction of illegal harvesting as well. One of these harvests is done using the Azadegan and Sarasiab streams[1]. Other participants mentioned this point in this way, "**Azadegan and Sarasiab streams are examples of illegal water harvesting because the pieces of land irrigated by these two streams were handed over to the government years ago.**"

1 . Before entering the dam, these two streams are separated from Zayandeh-Rud and transfer 5 m3/s of water to Ali Ab village in Chadegan city and Azadegan village in Ben County. However, about 500 hectares of the lands of these two villages have been owned by the Regional Water Company of Isfahan province because they are within the limits of the dam reservoir. According to local experts, one-tenth of this amount, i.e. 500 L/s is enough for cultivation of the rest of the land. With this measure, the input of Zayandeh-Rud Dam will increase by more than 4 m3, which will be more than 126000000 m3 for one year. With this amount of water, it is possible to meet the needs of farmers twice a year or to prevent the drop of the water level behind the dam (which reduces the water quality).

Table (3). Axial codes extracted on the concept of over-harvesting

Open code No.	Open codes with the removal of replicated data	Axial code
1	**Ben-Borujen water transfer project**	New loading
2	*31 projects of Chaharmahal and Bakhtiari province*	
3	*Water transfer to industrial towns*	
4	*Construction of Mobarakeh Steel Company*	Construction of water-consuming industries
5	*Construction of Sepid Dasht Steel Company*	
6	Construction of petrochemical plants	
7	*Leveling the lands located in the heights*	Increased area under cultivation
8	*Construction of gardens and farms in Chaharmahal and Bakhtiari province*	
9	*The increased number of consumers due to the birth and migration to the Zayandeh-Rud Basin*	Population growth
10	*Increased demand for drinking*	

2. Contextual Factors

2-1. Legal conditions

Overdose of decision-making and policy-making institutions in the water issue has led to the approval of numerous yet unenforceable laws in this basin. This will not only reduce the credibility and authority of the decision-making system, but it will also cause different and conflicting functions of the executive institutions. In such conditions where the laws have no compliance with the farmers' demands due to influence by the conditions of lack of governance, they create double or multiple standards, thereby failing to convince the stakeholders and comply with the standards of justice in the laws. A participant said in this regard, "**All make decisions, all are aware, all have knowledge, and all have meetings and approvals, but the approvals actually remain on paper because no one follows what has happened.**" Another participant said in this regard, "**Transferring water in the same way is faced with two different responses from the same organization, how is it possible? The sub-units of the same institution in two provinces have issued two different verdicts for the same project, one considering it illegal and the other considering it legal, how is it possible? How many laws do we have? Why was the property of one organization, which is the public treasury, destroyed by another organization? What is the basis for the decisions made?**" Disregard for the legal foundations of water rights and shares is also an instance of disregard for the religious foundations of the laws. One of the participants said in this regard, "**If we agree with Imam [Khomeini] (RA) as the founder of the Islamic Revolution, we should respect his views on the issue of water.**"

Table (4). Axial codes extracted on the concept of legal conditions

Open code No.	Open codes with the removal of replicated data	Axial code
1	*The involvement of an overdose of organizations in the management of water resources*	*Overdose of decision-making centers*
2	*Failure to apply the integrated management of water resources*	
3	*Existence of conflicting rules*	*Overdose and conflict of laws*
4	*The existence of abundant laws and directives*	

5	*Laws that are not subject to legal protection due to conflict with legal principles*	*Laws that are not enforceable*
6	*Notification of policies without credits*	
7	*Legislation regardless of the social conditions*	*Laws inconsistent with the realities of the basin*
8	*Legislation regardless of the conditions of the policy implementation environment*	
9	*Ignoring the legal principle of water rights*	
10	*Decisions that do not serve the interests of the stakeholders and are not supported by them*	*Laws over which actors have no consensus*
11	*Legislation without regard to collective wisdom*	
12	Snap decisions	*Ignoring the upstream rules*
13	*Decision making outside the legal limits*	
14	Arbitrary decision-making	

2-2. Livelihood conditions

Water is not a luxury item, but something upon which the livelihood of a large group of stakeholders depends, and any water flow obstruction means interruption in their livelihood. Another factor that aggravated the crisis in the Zayandeh-Rud Basin was the livelihood conditions of the stakeholders, especially farmers and gardeners. This group, whose livelihood is totally dependent on the flow of water in the river bed mainly due to their old age and lack of job skills, will have no source of income when the river dries up. One of the

participants referred to the inflation and his decreased financial ability, "I have been farming since I could tell between my left and right hands, and I don't know anything else to do. I paid the cost of my daughter's and son's marriages, but now I have to serve as a worker to buy bread although no one will give an old worker anything to do. I am completely helpless. Who should help me?"

Table (5). Axial codes extracted on the concept of livelihood conditions

Open code No.	Open codes with the removal of replicated data	Axial code
1	Increased prices and cost of living	Inflation and high prices
2	Decrease in purchasing power	
3	Lack of stable income	
4	The dried-up wells	Impossibility of cultivation
5	Water-consuming crops and no presentation of alternative species	
6	Lack of knowledge about the time and amount of possible release of water	
7	Cutting off the river water flow	
8	Unfair distribution of water in the eastern and western regions of the province	Drying up of the gardens
9	The impossibility of supplying the water needed by gardens and to send portable tanks there	
10	Impossibility of education and lack of physical ability	Lack of job skills
11	Inability to be employed in production centers	

12	Lack of skills in non-agricultural fields	

2-3. Extra-basin attitudes

One of the effective factors in decision-making is the mindset of policy makers towards the environment of the problem. In some cases, mentalities and preconceptions, as a determining factor in how to solve the problem, act as an obstacle to discovering the facts and understanding the dimensions of the problem. One of the attitudes of the national policy makers, which has greatly affected the issues of the Zayandeh-Rud Basin, is the concept of "**privileged Isfahan**". The association of the name of Isfahan with **wealth, large industries, tourism, cleverness, lobbying**, etc. has hindered understanding the reality of the livelihood crisis and the damages caused by the bad economic situation of the marginal residents of Zayandeh-Rud, from spillway to riffle. One of the participants said in this regard, "In Tehran, Isfahan province is considered equivalent to Isfahan city and everyone considers Isfahan to be wealthy and green. **If an official coming from Tehran is taken to Hasse, Darak, Fereidan and the east of the province instead of a luxury hotel, he/she will understand that not all parts of Isfahan benefit from steel and iron foundry. The air is more polluted than Tehran, the quality of the drinking water has dropped drastically, and a large population is covered by support institutions. However, a more accurate decision is made in Tehran**."

Table (6). Axial codes extracted on the concept of extra-basin attitudes

Open code No.	Open codes with the removal of replicated data	Axial code
1	Wealthy people of Isfahan	Privileged Isfahan
2	Excessive absorption of government credits	
3	Abundance of large industries in Isfahan	Industrial Isfahan
4	Overdose of production centers and industrial towns	
5	Jokes about the thrift and clever people of Isfahan	Smart Isfahani people
6	Fulfillment of demands at the cost of reducing the share of other provinces	
7	Isfahan's capacity to attract investors and tourists	

8	Ability of Isfahani people to convince and negotiate with policy makers	Lobbying people of Isfahan
9	Preventing attention to other deprived areas	
10	Employment of Isfahani people in high managerial-military levels	The influence of Isfahani people in various layers of national management
11	The significant role of Isfahani people in making policies and laws	

2-4. Dominance of the technical perspective

Despite the complex, multidimensional and interdisciplinary nature of the water issue in the Zayandeh-Rud Basin, the dominant perspective is the engineering perspective with emphasis on the implementation of transfer projects in order to increase water supply. In such conditions, most of the actors will automatically be removed from the decision-making process due to lack of technical knowledge. Meanwhile, the lack of completion or the impossibility of implementing the projects as well as social, economic, security-related and environmental problems all indicate the failure of this perspective. However, the dominance of a non-engineering perspective with a focus on policy-making issues as a need in the complex and multidimensional conditions of the human environment will make it possible to attract greater participation and mobilize the facilities of all stakeholders in the management of water resources, thereby convincing stakeholders and enhancing their sense of common benefits. One of the participants who held this perspective said, "**If we can put the Kuhrang 3 Project into operation or bring water from the Persian Gulf, the farmers will make no protest for the next 50 years**." However, another participant who criticized the dominance of the engineering perspective said, "**If we don't reform the management, water transfer will not solve the problem because we have limitations in the amount of water and capital for water transfer. Besides, water transfer will also affect the place from which the water is transferred**". In other words, this participant held the view that the use of this method will transfer the crisis from the water transfer destination to its source.

Table (7). Axial codes extracted on the concept of dominance of the technical perspective

Open code No.	Open codes with the removal of replicated data	Axial code
1	The only way to save the basin is to complete the water transfer projects.	Mere emphasis on the implementation of water transfer projects

2	The best management of the basin is that which ends in the transfer of water to the basin.	
3	Lack of knowledge about the interests of each of the actors and social groups involved in the water issue	Inattention to the demands of the stakeholders
4	Increasing the water supply will solve the social issues and meet the demands of different classes.	
5	If there are enough credits, the rest of the issues will be resolved.	Efforts to attract credits
6	Providing the financial credits will lead to the implementation of the project and supply of water.	
7	Examining the reason(s) for the crisis in the basin has received little attention.	Ignoring the views of social science experts
8	Social science has had nothing to offer.	
9	The basin's issues have been disregarded by social science professors.	
10	Policymakers do not feel the need to solve the problem.	

3. Influential factors

3-1. Climate change

One of the reasons mentioned to explain the problem in the Zayandeh-Rud Basin is **climate change and the drought** resulting from it. On the other hand, some people believe that climate change and drought are considered the main reason for the crisis in the Zayandeh-Rud Basin. One of the participants mentioned this reason as follows, "**When we have not had rain and there is no water, how can we respond to the demand for water**". However, drought is a two-faceted problem in the sense that some participants in the research believe that an increase in the rainfall can help solve the problem; otherwise, the imbalance in the basin will be problematic. However, the reality is that drought has only been a factor for disclosing the management deficiencies. The management of water resources in many parts of the world that have been struggling with water shortage, but have not suffered a crisis, confirms this claim. One of the participants said in this regard, "**If it rains well and the water behind the dam is enough to reach everywhere, then we don't need officials,**

representatives, meetings, decisions and so on and so forth. Why should they take salaries from our pockets for what brings us no interests?"

Table (8). Axial codes extracted on the concept of climate change

Open code No.	Open codes with the removal of replicated data	Axial code
1	Precipitation, especially in the form of snow, has decreased compared to the past.	Decrease in precipitation
2	Rainstorms that have mostly caused destruction and damage	
3	The drying up of springs	Drought
4	Lowering of the underground water level and death of aquifers	
5	Subsidence	
6	Desertification and haze particle generation	
7	Increase in greenhouse gases	Global warming
8	The increase in average temperature over the past years	
9	Increased evaporation	

3-2. Cyberspace

One of the influential factors in the water crisis management of Zayandeh-Rud Basin is the cyberspace. Cyberspace is not considered an independent actor, but a tool for other actors. Influenced by non-supervisory conditions, it has become a venue for raising various extremist and divisive issues with no scientific support. In such conditions, each of the actors and stakeholders who find no opportunity to participate in policy-making or are faced with a non-transparent space limiting their interests, considers the space favorable to unilaterally raise their demands. Public sensitivities towards the water issue, together with visual appeals and concern about others' activities, have increased the significant role of this space.

A significant number of the participants emphasized the destructive role of cyberspace and looked for the special function of this space in complicating the problem and unreal conflict of interests. One of the participants said in this regard, "**We may make a decision for water management that is in the interest of a group of people, but the same group evaluate our decision based on cyberspace**". This comment shows that if a decision is regarded in cyberspace as a bad action, it will not be accompanied by positive feedback, in which case it is cyberspace that has had a greater impact in introducing a favorable status with an unknown origin and for an unknown motivation. Another participant said in this regard, "**What I have seen from the cyberspace about the water issue is the denial of everything by all; there is only conflict and hatred towards each other. If we ask them to gather and think about the problem, no one will appear, but if we ask them to gather to destroy so-and-so place, curse so-and-so, they have deprived us of our rights and so on and so forth, then everyone will come.**"

Table (9). Axial codes extracted on the concept of cyberspace

Open code No.	Open codes with the removal of replicated data	Axial code
1	Dissemination of unreal content in cyber space	Dissemination of rumors
2	You will not be asked for a document for any false information.	
3	The louder you express your views, the more important you sound.	Ochlocracy

4	Disregard for long-term interests	
5	Excitement and abuse of public sentiments	
6	Tendency to the dominance of crisis conditions among stakeholders and lack of rationality	
7	Some people want to be seen at any cost.	Gaining fame
8	If you get known, you can gain benefits.	
9	Destructive content is welcome more.	Sowing discord
10	Criticizing others and creating division	
11	Some people want to gain more influence by attracting more followers.	Power sharing
12	Some who are not stakeholders also like to comment for meetings.	
13	Representation of stakeholders by virtual actors	

3-3. Cultural components

Culture has socio-political dimensions. This means that we need to reform the culture of consumption patterns (especially agriculture) on the one hand. One of the participants said in this regard, "**Our water consumption will decrease only when our culture is reformed**

and we find water valuable. Agriculture occurs through flood irrigation and industry lacks efficiency". On the other hand, culture needs to be reformed so that all stakeholders (as part of the governance system and political culture) can participate in the policy-making process. The more the culture element is improved, the greater possibility of bargaining and peaceful expression of demands, consolidation of interests, modification of the consumption pattern, etc. One of the participants said in this regard, "**Most of the meetings to which we are invited are fruitless, they [other stakeholders] stubbornly insist on their own words; they don't listen to our words and problems**."

Table (10). Axial codes extracted on the concept of cultural components

Open code No.	Open codes with the removal of replicated data	Axial code
1	Rice cultivation is attractive to farmers because of its high profit margin.	Improving the cropping pattern
2	Farmers have no knowledge about less water-consuming but profitable species.	
3	The proper use of water should be taught in schools.	Modifying the consumption patterns
4	Investment in wastewater treatment	
5	Using new technologies to reduce water consumption in industries	
6	Stakeholders should learn the legal and peaceful ways of expressing their demands.	Training to participate in the policy-making process
7	Strengthening civil institutions as intermediaries between the government and people	

8	Gaining the trust of stakeholders to participate in decisions	
9	It is necessary not to think and make decisions locally.	Strengthening the national perspective
10	Water resource management is not a provincial issue.	
11	Natural resources, including water, belong to the future.	Protecting the water resources
12	Controlling the outlet of dams	
13	Control of harvesting from underground resources	
14	Refusing to harvest from deep water	

3-4. Dominance of security attitudes

The Zayandeh-Rud Basin encountered security problems from the early 2010s, which continued in the following years in the form of various demonstrations. The continuation of such conditions, which have gone beyond the political boundaries of the province, has led policy-makers to develop a challenging and threatening attitude towards this basin. When such an attitude dominates considering the security issues, the problem will not be identified in its entirety, the solutions will be limited more and the minimum results will be applied without the participation of the stakeholders and observance of the redistribution of interests, which does not necessarily require general and justice-oriented policies, because these conditions are associated with a lack of transparency and accountability. One of the participants said in this regard, "**Whether the farmers gather or not, whether there is a security issue in the province or not, what the center expects for maintaining security, what potential threats will arise if there is a gathering and it gets out of control, that the drinking water should be provided easily and the public should not get into trouble and a thousand other security questions should be considered when making a decision for the Zayandeh-Rud Basin**." Since this type of attitude (which can be confirmed by a variety of instances including gatherings, violent actions and destruction) is held by a limited number of people and institutions involved in the policy-making process, the duration and intensity of its influence is a function of the requirements of the decision-

making time and can be regarded as effective and temporary conditions.

Table (11). Axial codes extracted on the concept of security attitudes

Open code No.	Open codes with the removal of replicated data	Axial code
1	Riots of 2012 and 2013	Riots and conflicts
2	Gatherings of farmers in recent years	
3	Tendency to exert pressure on the government through gatherings, riots and conflicts	
4	Destruction of the Isfahan-Yazd water transmission line	Destruction of the water transition line
5	Destruction of water transfer facilities to steel industries	
6	Calls by counter-revolutionaries	Abuse of the conditions by counter-revolutionary currents
7	Efforts by counter-revolutionaries to create riots and crisis	
8	Extensive release of farmers' gatherings by counter-revolutionary networks	
9	Farmers' disappointment about the problem's being solved	Increased likelihood of violence
10	Farmers' reduced tolerance threshold	

11	Immediate supply of farmers' demands in case of radical measures	

4. Strategies and reactions

The strategies and actions adopted by the actors of this basin are a wide range of actions taken by the policy makers and the target community in response to the current conditions and mainly from a passive position. The peaceful solutions adopted by people affected by the governance method include **writing petitions, selling cattle, selling the framing land and gardens, digging unauthorized wells, creating illegal access and water harvesting, changing land use, migration and marginalization**, especially in Isfahan metropolis, and **being covered by support institutions and getting false jobs**. Note that the term "peaceful" is not synonymous with "longing"; rather, it implies the absence of direct and severe security consequences. One of the participants said in this regard, "**We shouted and wrote letters a lot, but no one heard our voices. Nothing can we do in these conditions. I have no choice but to sell my land**." Another participant said, "**My only source of income was agriculture, but I have been living in Hasse (a marginal neighborhood in the east of Isfahan) for a few and I am covered by the Imam Khomeini Relief Foundation**". Another strategy adopted by the farmers is to leave Iran and engage in agriculture in other countries, which will lead to the transfer of agricultural knowledge and experience to a foreign country and ultimately, the loss of the international market for agricultural products in the future. One of the farmers said in this respect, "We went to Khuzestan, Bushehr, Bandar Abbas, Mashhad and other cities for farming, but currently some farmers are farming in Iraq, Georgia, Turkmenistan and some other countries." **As soon as the people of those countries learned how to grow wheat, barley, corn, saffron, pomegranate and summer vegetable as well as greenhouse work, they will no longer need us and will produce and even export themselves**."

However, some other stakeholders and actors have adopted different violent strategies, such as rioting, **destruction of dams**, especially industries' accesses and **destruction of the Isfahan-Yazd water transmission line**, and have been radicalized or they have turned to illegal activities such as **drug trafficking**. One of the participants said in this regard, "**This water is our right and if required, we'll gather every day and get our right at any price.**" However, refusing to consider the views of other actors and to clarify their decisions and probably aiming to postpone the occurrence of a crisis, policy-makers have decided to take measures such as controlling the riots and providing limited financial aid or temporary release of water, which will by no means lead to a change in the conditions of the Zayandeh-Rud Basin. One of the participants said in this respect, "**By compensating part of the farmers' losses through a drought compensation fund, it is possible to restore security to the Zayandeh-Rud Basin**." Another participant also said, "**Farmers are provoked by certain people; if they face legal action, there will be no such anti-security events**".

They may also adopt other peaceful strategies as well. One of the participants said about this possibility, "**Farmers can be organized a cooperative so that they can build a**

greenhouse on their own land. Its water can be supplied from the Yazd pipeline. Its cost can be supplied through a drought compensation fund, government aid, low-interest loans, the collected small capital of farmers, etc. This will help provide the security of the Yazd pipeline as well.

Table (12). Initial concepts, main categories and the core category

Core category	Main categories	Initial concepts
Efficiency and Legitimacy Crisis	Mismanagement	Separation of the basin, disregard for land-use planning, failing to use the capacity of stakeholders, lack of transparency, lack of proper understanding of demands and opinions
	Increased rate of harvesting	New loadings, construction of water-consuming industries, increase in the area under cultivation, population growth
	Legal conditions	Overdose of decision-making centers, overdose and conflict of laws, laws without executive support, laws inconsistent with the realities of the basin, laws over which actors have no consensus, ignoring the upstream laws
	Livelihood conditions	Inflation and high prices, impossibility of cultivation, drying up of gardens, lack of job skills
	Extra-basin unreal attitudes	Privileged Isfahan, Industrial Isfahan, Smart people of Isfahan, Isfahani people's lobbying, Isfahani people's influence in various layers of national management
	Dominance of the technical perspective	Mere emphasis on implementation of water transfer projects, ignoring the demands of the stakeholders, trying to attract credits, disregard for the opinions of social science experts
	Climate change	Decrease in precipitation, drought, global warming
	Cyberspace	Dissemination of rumors, ochlocracy, gaining fame, sowing discord, sharing power
	Cultural factors	Improving the cropping patterns, modifying the consumption patterns, training to participate in the policy-making

		process, strengthening the national perspective, protecting the water resources
	Dominance of the security perspective	Riots and conflicts, destruction of the water transition line, abuse of the conditions by counter-revolutionary currents, increased likelihood of violence
	Strategies	Riots and demonstrations, destruction of structures, false and illegal jobs, sale of land, change of land use, migration, marginalization, digging illegal wells, farming in other countries, illegal access and harvesting, limited financial aid

Source: Research Findings

Core category of the research: efficiency and legitimacy crisis

"**Efficiency and Legitimacy Crisis**", as the most abstract category of the research, shows the result of all the processes analyzed in this study as the causes, conditions and contexts of the crisis in the Zayandeh-Rud Basin.

The water scarcity problem in this basin has a long history. The first policy to solve this problem is known as Sheikh Bahai's Scroll in 923 AH. (1517 AD), which is still known as a legal document today and is cited in legal courts. Sheikh Bahai prepared this document in response to the tensions and conflicts caused by the water scarcity problem of his period for water distribution among the residents and users of Zayandeh-Rud. "According to this scroll, the entire water of the river is divided into 33 general shares and 275 smaller shares among 7 blocks, extending from about 70 km west of Isfahan to 120 km east of it" (Hosseini Abri, 2009: 5). To achieve this goal, Shah Abbas I developed another plan and wanted to split the mountain. For this purpose, he sent Moheb Ali Beika-allah, the supervisor of the royal houses and the caretaker of the Khaseh Mansion, to Kuhrang in 1027 AH (1617 AD) to discuss the issue of connection to water. According to the report given by Moheb Ali Beika-allah to Shah Abbas I, they should level three thousand cubits of the height and one hundred- and fifty-cubits thickness of the mountain so that the spring can be connected to Zayandeh-Rud (Etemad al-Saltanah, 1985, vol. 2: 97). These efforts indicate the need for the water issue to be considered the government.

However, at that time, the water-based conflicts in this basin did not extend to the issue of efficiency and legitimacy and create a complex and multi-dimensional situation in combination with other social divisions, as they did in the current situation. One of the reactions of decision-makers and policy-makers, which has a history of more than 5 centuries, is water transfer. However, the issue of "water transfer has been the focus of attention since the Safavid era and the Kuhrang water transfer project, which has been talked about since the era of Shah Tahmasb, was also pursued during the period of Shah Abbas the Great" (Mardani Korani, 1996: 21), which indicates the

dominance of the engineering perspective against the optimal management and participation of stakeholders in the hierarchical decision-making system of that time, was a reaction to solving the problem and preventively dealing with possible riots. However, solving the problems of this basin in the current conditions requires a change of paradigms, which, to prevent the accumulation and complexity of social problems, changes the structural methods and decisions to transparent and comprehensive policies with the participation of all stakeholders.

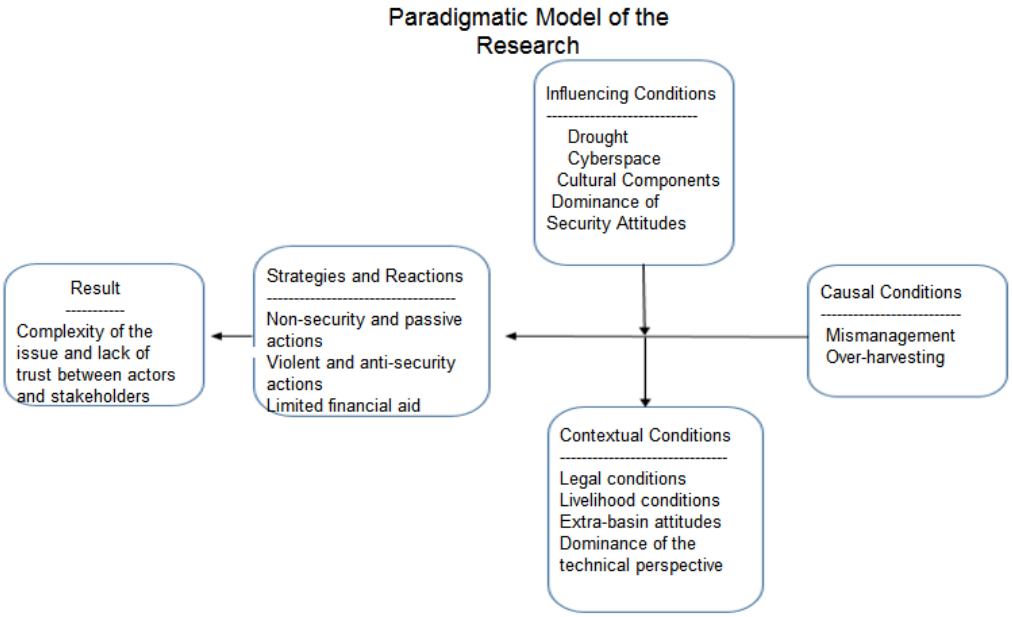
The analysis of the research data shows that the adopted policies will be considered illegitimate if the current way of policy making is continued and the capacity and opinions of other actors as well as the interests of other stakeholders are not taken into account. In such circumstances, the implementation of these policies, which faces monitoring problems as well, will fail to achieve its goals. The manifestation of this failure is the lack of water flow along the river and widespread dissatisfaction among the stakeholders as well as reactive strategies, including refusing to participate in decisions or taking violent measures, which confirms the deepened gap among governance actors (i.e. the government, private sector and civil society).

Policies deal with the limits and the dos and don'ts of benefits and deprivations and determine the water governance system (Moradi Tadi, 2017: 76). Therefore, stakeholders generalize the policy-making method and the results of the policies to the management of the government as the sole policy maker of the Zayandeh-Rud Basin. In such conditions, since the stakeholders have not participated in the decision-making process, they have not been convinced and there is no consensus based on transparency in relation to the conditions in the Zayandeh-Rud Basin. Eventually, the issues have deepened and become more complicated, and the policy-making system has been recognized to be capable of solving the problem. This lack of ability and efficiency will delegitimize the policy-making system, which will be extended to other fields as well due to the nature of social issues, and the less participation of actors in policies, in an endless sequence, will intensify the government's inefficiency in this respect.

Delegitimization will not result merely from wrong and exclusive policies; it can emanate from the government's non-intervention as a kind of policy as well. In such conditions, the non-intervention of the government (as the biggest and strongest actor capable of mobilizing resources and providing the grounds for the formation of the governance system), will cause the stakeholders to consider the government indifferent to the current issues despite their negative profound impacts had on their livelihood. In such conditions, the policy makers will be recognized as a class different from the public who have no common interests with the stakeholders and whose continued governance will mean further violence of others' interests. Therefore, the government's non-intervention in this situation (regardless of whether it is due to the lack of recognition of the problem or due to delay in addressing it under the pretext of controlling or reducing social tensions) or its entry and continuation of wrong policies, means the aggravation of the legitimacy gap between the policy-making system and other actors and its generalization from the individual to the structure. Obviously, if the social conditions and backgrounds are not considered, the problem will be intensified rather than solved.

As the balance between water and demand is upset, this problem will be intensified because it is accompanied by severe psychological pressures caused by facing an uncertain and

unsafe future in water supply, and it will lead to a lack of trust in the effectiveness of policies and consequently in the supply of people's interests. The imbalance in the distribution of power and the lack of trust in the policy-makers will result in opposition to any action, in which case people will try to replace the current conditions with favorable conditions to gain the trust of other actors as an alternative to the ineffective decision-making system.



Conclusion

The continuation of the water flow in Zayandeh-Rud indicates the efficiency of the decision-making system, and stopping this flow justifies radical measures and will lead the cooperation and consensus of different groups and classes towards a legitimacy crisis. The sensitivity and vital role of water in life will accelerate this process. The Central Plateau is nowadays thirsty for an urgent and definite decision. This formation has provided the potential to create extra-basin challenges with regard to other social divisions such as the privileged and the disadvantaged or concepts such as ethnicity, Zagros residents, desert dwellers, etc. The delay in addressing the problem will enable the problems to expand and deepen, which will require more money and energy. The current condition of the Zayandeh-Rud Basin is the result of the measures taken over the past years, and its improvement requires attention to the principles of governance. Accordingly, it is necessary for all stakeholders to participate in the policy-making process and decisions should be taken in a transparent manner based on their interests. In such circumstances, it is necessary to consider the limits of duties, responsibility and foresight in policies.

Furthermore, examining the time of water release, which is accompanied by reactions and illegal gatherings, will strengthen the perspective of problem solving in the street and accelerate the radicalization of stakeholders instead of reducing challenges, because some of the stakeholders believe that anti-security measures such as street gatherings and protests will exert pressure on the government and lead to water release in Zayandeh-Rud. This was clearly expressed by some participants from the west of the province. One of them said, "*If we had come to the street as did the farmers in the east, water would have been released for us too*."

Recommendations for policy-making

To overcome the conditions that are possible by developing policies, we recommend the following:

1- Since governance requires the participation of the private and civil sectors alongside the government, a mechanism needs to be developed for the participation of all stakeholders in the government's decision- and policy-making processes and there should be transparency the decision-making process, financial interests, executive contracts and studies.

2- Making optimal decisions and developing laws require accurate information. Therefore, a comprehensive databank of the stakeholders of the Zayandeh-Rud Basin, including the number of farmers, the area and cultivation type of agricultural land, current plant species and species that can be cultivated and replaced, etc., should be prepared by the Ministry of Agriculture Jihad on behalf of the government.

3- The government should pave the way to welcome the views of elites and experts as the most organized group with expert opinions and provide the possibility of consensus and reduction of social tensions and also to consider these views in developing the policies.

4- Given the low ability of the basin and climatic conditions as well as the suspension of construction projects, any new loading should be prohibited.

5- Considering the mismanagement resulting from the overdose of institutions, attempts should be made to avoid developing and implementing different unenforceable policies and laws without creating a new institution and through the use of integrated management, and ineffective laws should be refined.

6- One of the capacities of the Zayandeh-Rud Basin is the possibility of managing and controlling the surface waters of the basin. Given the changed climatic conditions and the increased likelihood of floods, surface water management will be effective in reducing water stress. In addition, the improvement of the Azadegan and Sarasiab headwater will make it possible to manage the water more efficiently.

7- An issue arising in the legal conditions of the basin is water ownership. The water right of farmers, the acceptance or non-acceptance of which has been the source of various policies, should be determined as one of the contextual causes of the crisis. Disregard for this issue has caused farmers to distance from the government officials and avoid participating constructively and actively in policies. The following measures can be taken in this regard: 1) the transfer of water rights to farmers considering the current resources and drinking

priority, 2) the lease of the water rights by the government, 3) returning the cost of water sales to farmers after deducting the costs of treatment and transmission, and 4) the issuance of government decrees to determine the ownership of water in case the crisis escalates and the stakeholders do not reach an agreement.

8- Farmers' use of water from the Isfahan-Yazd water transmission line for the purpose of greenhouse cultivation should be considered and evaluated. The cost of these greenhouses can be supplied by farmers and through the formation of cooperatives, government aid, drought compensation costs and non-cultivation right, the social commitment of large industries, etc. This will be profitable for farmers, ensure the security of the Isfahan-Yazd water transmission line, and prevent farmers from migrating to other countries and using their experience abroad.

References

Akbari, Ghazanfar (2016), "Social Capital and Urban Governance", Geographical Research Quarterly, Year 23, Issue 1, Spring.

Bazi, khodarahm and Khosravi, Somayeh and Javadi, Masoumeh and Hossein Nejad, Mojtaba. (2009), Water crisis in the Middle East (challenges and solutions), Proceedings of the 4th International Congress of Geographers of the Islamic World, Sistan and Baluchistan, University of Sistan and Baluchistan, April 25-26, accessible at https://civilica.com/doc /82839

Creswell, J. W. (2005), Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (2nd edition).

Danaei Fard, Hossein and Emami, Seyed Mojtaba. (2016), "Qualitative research strategies: a reflection on data-based theorizing", Management Thought Quarterly, first year, second issue, fall and winter, pp. 69-97.

Esmaeili Fard, Maryam and Kaveh Firouz, Hossein. (2015), "Pathology of water policy in Iran", Social Strategy Quarterly, 5th year, Vol. 21, Winter, pp. 169-197.

Esmaeili ,Mohammad Mahdi. (2020), "Water Supply Crisis in Zayandeh-Rud Basin; Social Issues and Solutions to Manage it (Demonstrations of 2010 to 2013), Quarterly of Social Studies and Research in Iran, Vol. 9, No. 3, Autumn, pp. 567-585.

Etemad al-Saltaneh, Mohammad Hasan Khan. (1364), Merat ol-Boldan, by Parto Nouri Alaa, Vol. 2, Tehran, Afshar.

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). Educational research: An introduction (7th ed.). Boston: Allyn & Bacon, available at: https://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/reference/ReferencesPapers.aspx?ReferenceID=713316(, [access at 25 jan 2022].

Gol-karami, Abed. Kaviani Rad, Murad. (2016), "Effect of water resource limitation on hydrolytic stresses (case example: Central Iran catchment with emphasis on Zayandeh River catchment)", Geography and Environmental Planning Quarterly, year 28, series 65, number 1, Spring, pp. 134 -112

Hasrati, Mostafa. (2016), "An introduction to the qualitative method of theorizing foundational data", Language and Linguistics Quarterly, second period, spring and summer, number 3, pp. 75-86.

Hatami, Abbas and Nurbakhsh, Susan. (2018), "Semantic reconstruction of the water crisis in the east of Isfahan based on contextual theory", Applied Sociology Quarterly, 30th year, serial number 73, number 1, Spring, pp. 123-146

Hosseini Abari, Seyyed Hasan. (2008), "The relationship between Sheikh Baha'i's scroll and the traditional division of the water of the Zayandeh River?", Geography and Environmental Studies Quarterly, Department of Geography, first year, pre-issue-2, winter, pp. 5-14.

Hosseini Abri, Seyyed Hasan. (1377), "Traditional water management of Zayandehroud, a discussion on Iranian indigenous knowledge", scientific research journal of Isfahan University Faculty of Literature and Human Sciences, second volume, number 15, winter, pp. 101-120.

Islamic Council Research Center. (2016), "Investigation of the water crisis and its consequences in the country", written by Mehdi Mazaheri and Narjes Al-Sadat Abdul Manafi, subject code 250, serial number 15608, accessible at: https://rc.majlis.ir/fa/report/show/1040201

Mardani Karani, Saeed. (1375), "Research on the history of civilization and culture of Chaharmahal and Bakhtiari", Shahrekord, Il Shahrekord.

Masah Bavani, Alireza and Morid, Saeed. (1384), "Effects of climate change on water resources and production of agricultural products, case study: Zayandeh river basin of Isfahan", Iran water resources research journal, year 1, number 1, spring, pp. 40-47.https://www.inter3.de/fileadmin/user_upload/Downloads/Flyer_usw/download_IWRM-farsi.pdf

Ministry of Energy. (2016), "Integrated management of Zayandeh River water resources, Iranian-German research and development cooperation for a better future", translated by Seyed Khalil

Aghili, accessible at: https://www.inter3.de/fileadmin/user_upload /Downloads/Flyer_usw/download_IWRM-farsi.pdf

Miremadi, Tahereh. (2016), "The Future of Critical Research on Water Governance in Iran", Public Policy Quarterly, Volume 3, Issue 4, Winter, pp. 105-124.

Mirnezami, Seyed Jalaluddin and Bagheri, Ali. (2016), "Evaluation of water governance system in the process of protecting Iran's underground water resources", Iranian Water Resources Research Quarterly, Year 13, Number 2, Summer, pp. 32-55.

Moghimi Benhangi, Saman and Bagheri, Ali and Abolhasani, Leily. (2017), "Evaluation of Iran's official water institution corresponding to the mechanisms governing the formation of water demand in the agricultural sector from the perspective of social learning framework", Iranian Water Resources Research Quarterly, Year 14, Number 1, Spring, pp. 140-159.

Mohammadjani, Ismaeil and Yazdanian, Nazanin. (2013), "Analysis of the country's water crisis and its management requirements", Trend Quarterly, 21 (65-66), 117-144.

Moradi Tadi, Mohammadreza. (2016). "Water and politics; A look at the process of politicization of water", Quarterly Journal of Interdisciplinary Studies in Human Sciences, 9(4), Fall, pp. 71-90.

Niakooyi, Alireza and Zibaei, Mansour. (2017), "Management of water resources and food security in the Zayandeh River basin: application of the integrated analysis method of the river catchment", Journal of Agricultural Economics and Development (Agricultural Sciences and Industries), Volume 26, Number 3, Autumn, pp. 183-196

Nooryan, Ali. (2018), "Explanation and analysis of the role of agricultural and land tenure system in the fall of Safavid dynasty (from 1000 to 1135 AH)", doctoral thesis, faculty of humanities, Islamic Azad University, Najaf Abad branch.

Rezapour Nasrabad, Rafat. (2016), Validity and Reliability Criteria in Qualitative Research, Journal of Qualitative Research in Health Sciences, Year 6, Number 4, Winter, pp. 499-493.

Rogers, P. Hall, A, W. (2003), Effective water governance. Global Water Partnership Stockholm, (available at: https://www.researchgate.net/publication/42765754_Effective_Water_Governance), [access at 25 jan 2022].

Sadevand, Zahra and Jandaghi, Gholamreza and Fathi, Mohammadreza and Azar, Adel. (1400), design and explanation of supply chain agility model of official statistics based on public value approach, Business Research Quarterly, No. 99, Summer, pp. 267-233.

Talebi SomeeSaraei, Mahshid and Zokaei, Mohammad Saeed and Fazli, Mohammad and Jomehpour, Mohammad. (2018), "Sociology of a crisis; Social Pathology of Water Crisis in Zayandeh River Basin", Quarterly Journal of Interdisciplinary Studies in Human Sciences, 11(4), 44 series, Fall, 133-165.

Tan Asai, Alireza and Yuri, Mohammadreza and Jamshidi, Hossein and Barzali, Mohsen. (2016), "Water governance (integrated management of water resources)", paper presented in the second national conference on water resource management in coastal areas, Sari, University of Agricultural Sciences and Natural Resources, October 2016.

Tayebi Abolhasani, Seyed Amir Hossein. (2018), An Introduction to Research

Methodology: Standard Procedures for Qualitative Data Analysis, Science and Technology Policy Quarterly, Volume 9, Number 3, Summer, pp. 67-95.

Un. (2021), Climate change, water and future cooperation and development in the Euphrates-Tigris basin, By André Mueller, Adrien Detges, Benjamin Pohl, Michelle Helene Reuter, Luca Rochowski, Jan Volkholz, and Eckart Woertz, (available at : https://www.researchgate.net/publication/356612083_Climate_change_water_and_future_cooperation_and_development_in_the_Euphrates-Tigris_basin), [access at: 20 Feb 2021]

Un. (2020), Water and climate change facts and figures, available at : https://unesdoc.unesco.org/ark:/48223/pf0000372876.locale=en [access at 20 Feb 2022]

Vahid, Majid and Akhavan, Saeed. (2016), "A comparative study of the performance of the 8th and 9th governments in the Islamic Republic of Iran with an emphasis on water resources policy: case study: water resources crisis in Isfahan province", Public Policy Quarterly, Volume 3, Number 2, Summer, pp. 193-216

Yadegari, Ameneh and Yousefi, Ali and Amini, Amir Mozafar. (2017), Institutional analysis of water governance structure in Iran: study of Zayandeh-Rud Basin, Iran Water Resources Research Journal, 14th year, No. 1, Spring, pp. 184-197.

Yazdani Zazerani, Mohammad Reza. (2012), "Investigation of the Conceptual Relationship and the Impact of Governance on Public Policy Making", International Relations Research Quarterly, Volume 1, Vol. 4, Summer, pp. 109-142