

Klimawandel und kulturelle Aspekte in zwei Dörfern der Provinz Isfahan, Iran

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Zusammenfassung:

Der Klimawandel ist ein globales Phänomen, das alle Aspekte des Lebens der Menschen weltweit beeinflusst, insbesondere in Entwicklungsländern, wobei viele indigene Völker unverhältnismäßig betroffen sind. Diese Forschung konzentriert sich darauf, wie lokale Gemeinschaften auf diese Veränderungen reagieren, indem sie durch ihre Handlungen Anpassungen vornehmen. Mit einem qualitativen Ansatz untersucht die Studie, wie Kultur und lokale Wahrnehmungen die Bewältigungsstrategien und Anpassungen an den Klimawandel in indigenen Gemeinschaften in zwei Dörfern im Osten Irans beeinflussen. Die Datenerhebung erfolgte durch eine Kombination von Schneeball- und gezielten Samplingmethoden. Insgesamt nahmen 47 Personen (35 Männer und 12 Frauen) aus den Dörfern sowie organisatorische und lokale Informanten an 33 Einzelinterviews und vier Gruppeninterviews teil. Die Ergebnisse zeigten die Entstehung von zwei Subkulturen in den Dörfern, die durch Geographie und soziale Verbindungen geprägt waren. Diese Subkulturen beeinflussten die Reaktionen der Dorfbewohner auf die durch den Klimawandel verursachte Wasserknappheit. In Nord-Baraan diversifizierten die Dorfbewohner ihre einkommensschaffenden Tätigkeiten, schützten Wasserressourcen und forderten einen Anteil an den Wasservorräten des Dorfes von den Regierungsbehörden. Im Gegensatz dazu wählten die Bewohner von Süd-Baraan die Migration und gerieten in Konflikte mit ihren Nachbarn über Wasserquellen. Zusammenfassend lässt sich sagen, dass die geografische Lage eines Dorfes und seine Kultur der gemeinschaftlichen Teilnahme eine bedeutende Rolle bei der Gestaltung von Strategien zur Minderung der Auswirkungen von Dürre und Klimawandel spielen.

Schlagerwörter: Klimawandel, Anpassung, kultureller Faktor, Provinz Isfahan, Iran

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تغییرات اقلیمی و جنبه‌های فرهنگی در دو روستا از استان اصفهان، ایران

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چکیده:

تغییرات اقلیمی یک پدیده جهانی است که تمام جنبه‌های زندگی روستایی در کشورهای در حال توسعه را تحت تأثیر قرار داده و بسیاری از مردم بومی به طور نامتناسبی تحت تأثیر قرار می‌گیرند. این پژوهش بر اقدامات جوامع محلی در سازگاری با این تغییرات متمرکز است. این مطالعه با استفاده از یک رویکرد کیفی، چگونگی تأثیر فرهنگ و ادراکات محلی را بر استراتژی‌های مقابله و سازگاری با تغییرات اقلیمی در میان جوامع بومی، در دو جامعه در شرق ایران، بررسی می‌کند.

داده‌ها از طریق ترکیبی از روش گلوله برفی و نمونه‌گیری هدفمند جمع‌آوری شد. در مجموع ۴۷ نفر (۳۵ مرد و ۱۲ زن) از روستاها به همراه مطلعان سازمانی و محلی در ۳۳ مصاحبه انفرادی و چهار مصاحبه گروهی شرکت کردند. نتایج حاکی از شکل‌گیری دو خرده فرهنگ در روستاها به دلیل روابط جغرافیایی و اجتماعی بود. این خرده فرهنگ‌ها بر واکنش روستاییان به کمبود آب ناشی از تغییرات اقلیمی اثر گذاشته است. در برآن شمالی، روستاییان فعالیت‌های درآمدزا را متنوع کردند، از منابع آبی حفاظت کردند و از سازمان‌های دولتی تقاضای سهم آب روستای خود را نمودند. در مقابل، ساکنان برآن جنوبی مهاجرت را انتخاب کردند و بر سر منابع آب با همسایگان خود درگیر شدند.

در نتیجه، موقعیت جغرافیایی یک روستا و حضور فرهنگ مشارکت در جامعه، استراتژی‌هایی را برای کاهش اثرات خشکسالی و تغییرات اقلیمی شکل می‌دهد.

واژگان کلیدی: تغییرات اقلیمی، سازگاری، عامل فرهنگی، استان اصفهان، ایران

Climate Change and Cultural Considerations in Two Villages of Isfahan Province, Iran

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Abstract

Climate change is a global phenomenon that impacts all aspects of people's lives worldwide, especially in developing countries, with many Indigenous peoples being disproportionately affected. This research focuses on how local communities are adapting to these changes through their actions. Using a qualitative approach, the study explores how culture and local perceptions influence coping strategies and adaptations to climate change among Indigenous communities, in two communities in eastern Iran.

Data was collected through a combination of snowball and targeted sampling methods. A total of 47 individuals (35 men and 12 women) from the villages, along with organizational and local informants, participated in 33 individual interviews and four group interviews. The results revealed the formation of two subcultures in the villages due to geography and social connections. These subcultures influenced villagers' responses to water scarcity caused by climate change. In North Baraan, villagers diversified income-generating activities, protected water resources, and demanded a share of village water from government agencies. In contrast, residents of South Baraan chose to migrate and engaged in conflicts over water sources with neighbors.

In conclusion, it can be stated that the geographical location of a village and its culture of community participation play a significant role in shaping strategies to mitigate the impacts of drought and climate change.

Keywords: climate change, adaptation, cultural factor, Isfahan Province, Iran

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1. Introduction

Climate change is one of the most complex challenges facing the world today. An increase in the mean seasonal temperature can reduce the duration of many crops, leading to lower yields. In regions where temperatures are already near the maximum tolerance for crops, warming will have an even more immediate impact (Clarke et al., 2019). Climate change is inevitable in Iran. Over the past 50 years, Iran has experienced an average temperature increase of approximately 1.5 to 2 degrees Celsius, exceeding the global average (Yazdi, 2018). The northern and southern Baraan villages in Isfahan Province are located in the arid climate of the Zayandeh River basin, and their livelihoods depend on the Zayandeh River (Fig. 1). In this region, recent droughts and rising air temperatures have led to severe water shortage problems. This has led to a 72% reduction in cultivated areas and a decrease in household income (Kiani Salami and

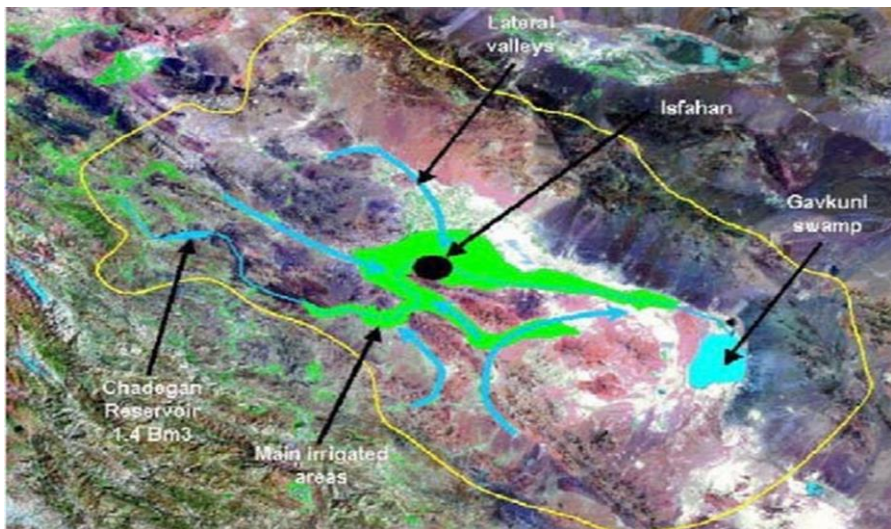


Fig. 1. Zayandeh River located in Isfahan Province with its irrigated areas

Amini Faskhoodi, 2018).

As climatic conditions change, communities respond by adjusting economic activities, changing land use practices, introducing public health initiatives to combat heat hazards, and altering the design and implementation of infrastructure.

Robert Chambers emphasized the role that ordinary people play in the process of development, a role that is embedded in what sociologists refer to as „indigenous knowledge“. Among villagers he includes not only farmers who produce crops in large and small patches of land but also buyers of such crops, salespeople of agricultural products, and other rural people whose primary income is not derived from cultivated land (Azkia and Firouzabadi, 2006). Generally, the relevance and need to understand and integrate culture, as well as local knowledge into issues of climate change adaptation and development processes have long been recognized. While this may seem to be the case, it is also widely acknowledged that the integration of these elements will greatly enhance drought management, information dissemination and preparedness (Adaawen, 2021). Adaptation responses may be anticipatory (proactive), concurrent (during) or reactive (responsive) (Watson et al., 2001). Adaptation responses can be short-term or longerterm; employed locally; or more widespread and can be technological, behavioral, financial, institutional or informational (Smit et al., 2000). In response to the challenges posed by climate change, some villagers have developed adaptive solutions. These include selling agricultural land, reducing the diversity and cultivated area, and transitioning to service jobs to address their financial difficulties (Firouzabadi and Khamseh, 2023).

Within the literature, clusters describing farmer classification are often created with the intention of deriving implications for rural policy design (Hien et al., 2014). The classification of farmers seeks to classify farmers as “types” (Arbuckle et al., 2017); on the basis of shared perceptions. This classification is appropriate for improving the understanding of the factors influencing the adoption of agricultural practices (Hyland et al., 2016; Robert et al., 2017).

Several studies have been conducted on the various responses of farmers to climate change around the world. Maldonado-Méndez et al. (2022) analyzed three key determining dimensions for classifying producers in Mexico: producer sensitivity, production destination, and production risk due to climate change. This study aimed to identify which types of producers face the most significant challenges in today’s production environment. Foguesatto et al. (2019) conducted a study on farmers’ perceptions and responses to climate change in Brazil and identified four

distinct types of farmers: „Worried“, „Apathetic“, „Anthropocentric“, and „Eco centric“. Each group has responded to climate change in a different way. Adams (2019) investigated variations in responses to vulnerability from climate-related disasters. The study revealed that residents often engage in multiple economic activities to increase their economic status and reduce vulnerability. Shukla et al. (2019) highlighted significant differences in the perceived impacts of climate change on annual income, food self-sufficiency, crop quality, water resources, and social bonds, emphasizing the diverse concerns of farmers in the Himalayas.

Nazari Nooghabi et al. (2020) conducted a survey on the differentiation of vulnerability among wheat farmers in Northeast Iran and its implications for their adaptive capacity. The results revealed three distinct clusters of vulnerability. Based on Keshavarz et al. (2010) three types of drought management could be constructed by farmers: (i) technical (reducing cultivation, improving water conveyance systems, constructing water reservoirs, and lining canals), (ii) psych economic (migrating, finding a second job, and selling lands), and (iii) integrated. Karami (2006) studied farmer's irrigation methods considering drought and resulted that more than a quarter of the farmers were either inappropriate adopters or inappropriate non-adopters.

Although studies have been conducted in Iran on farmers' behavior in fields such as drought and climate change, none have focused on their response to climate change with a focus on cultural factors. This study aims to fill this gap by examining different types of farmer behaviors in response to climate change, taking into account cultural differences.

The main goals of this study are to delineate and characterize various types of farmers' base on: (1) the characteristics of their village of residence, (2) their management practices within the village, and (3) the differences in response to climate change that result from these characteristics.

2. Materials and methods

2.1 Study area

Isfahan Province covers an area of approximately 105,937 square kilometers, situated between 30 degrees and 43 minutes to 34 degrees and 27 minutes north, and is 49 degrees and 36 minutes to 55 degrees and 31

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minutes east longitudes from the Greenwich meridian. The province is divided into two regions: high (west and central) and low (east) (Fig. 2).

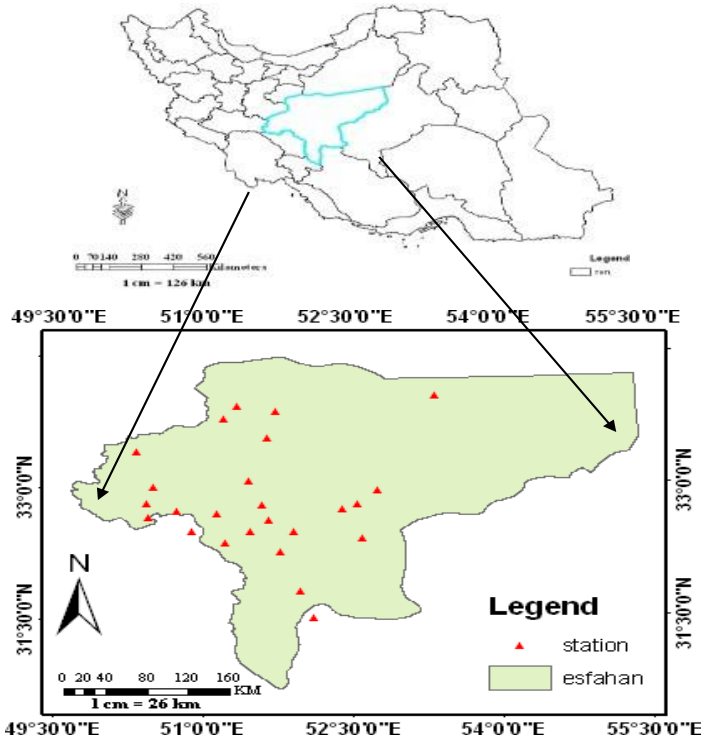


Fig. 2. Geography location of study area in Iran

Baraan is a vast, flat plain with abundant water, leading to dry desert in the surrounding area. The historical plain was characterized by many water, reeds, and marshes, particularly due to its proximity to the Zayandeh River (Shafaghi, 2006). However, drought, exacerbated by changes and disruptions in the climatic balance in recent decades, has had a significant impact on various aspects of human societies and the natural environment (Norouzi and Teymouri, 2015).

The study was conducted in two villages, one located in northern Baraan and the other in southern Baraan. In these villages, most of the grain work was done. The villages that had aqueducts also engaged in summer work,

cultivating watermelon and cotton. River water was used for growing rice, irrigating gardens, and summer work, and then directed to the fields in the fall to grow wheat and barley. However, due to drought conditions, farmers have stopped growing certain crops and are now cultivating fewer crops.

2.2 Data acquisition

Before entering the field, four individual interviews and one group interview were conducted with seven organizational informants (five men and two women) from various organizations within Isfahan Province to ensure the selection of the appropriate area, which led to the selection of two villages in North and South Baraan. Using snowball and targeted sampling methods and considering theoretical saturation, a total of 29 semistructured individual interviews were subsequently conducted during five trips to the study area. These interviews involved 40 participants (30 men and 10 women) who were local informants and village residents. Additionally, three group interviews were conducted with members of the studied society. Group interviews lasting approximately one and a half to two hours were conducted with two groups of four people and one group of three people.

The purpose of this study is to gain a deep understanding of the current situation of local communities affected by the consequences of climate change and determine the reasons for the varying responses of farmers in these two villages to the same conditions. During the data analysis stage, the recorded interviews were edited and converted into text. After sorting the collected data, the analysis began. The interviews were examined line by line and the sentences and paragraphs were coded as basic concepts emerged. After cleaning and removing similar concepts, 157 concepts remained out of the initial 215. The main research questions were subsequently answered via a thematic analysis approach.

3. Results

3.1 Regional situation

Global warming and mismanagement of government organizations have had detrimental effects on the environment. This situation has led to various events that have negatively impacted the region's natural resources like water, soil, vegetation and air. For this reason, these resources have been depleted to the point of destruction.

Changes in temperature have reduced rainfall and water in the region is noticeably scarce. Additionally, this area has been home to numerous aqueducts since ancient times. However, due to climate change and geothermal heat, these aqueducts have also dried up. Over the past 18 years, the region has experienced a gradual decrease in rainfall, resulting in numerous challenges for farmers and residents, making life and livelihood increasingly difficult each year.

Also, geothermal activity and drought have both contributed to a decrease in soil quality in this region. Field observations indicate that the soil in the eastern region of Isfahan has become discolored and lumpy. In most areas, the growth of Alhagi, a highly droughtresistant plant, has been observed. The presence of this plant is an indication of severe dryness in the area. The depletion of underground water resources has also led to subsidence in this region. Additionally, the depletion of surface and underground water resources has severely damaged the vegetation in the region.

Due to climate change and government agencies' ability to close rivers for 10 months to allocate water, the air in the region has become extremely hot. Additionally, the reduction in water resources has led to desertification of the area, resulting in sand storms. The reduction in Zayandeh River water has also resulted in a loss of biodiversity in the region. According to older residents, prior to the drought, the wetlands surrounding the Zayandeh River were home to animals such as foxes, jackals, and various species of birds. Additionally, there was a species of carp in the river that villagers would catch and sell to generate income. Unfortunately, this type of fish has now disappeared.

3.2 The situation of farmers

3.2.1 Economic issues

It is evident that the losses of assets and decreases in agricultural production have led to economic hardship and livelihood challenges for village residents. Farmers used to have multiple sources of income from growing various crops, but now their cultivation is limited to only a few. Additionally, those who had to give up animal husbandry due to expensive fodder also experienced a loss of income. On one hand, farmers have lost a portion of their income, and on the other hand, they now have to spend part of their income on purchasing items like beets and summer vegetables that

they used to produce and consume themselves. Additionally, the procurement of meat and dairy products has become a household expense. Prior to the drought, these expenses were not incurred by the family, as the farmer would produce them for personal consumption. This scenario, characterized by high levels of job insecurity, has pushed farmers into poverty and deprivation.

3.2.2 Social issues

Climate change and drought along with economic challenges, have led to numerous social issues in villages including the following:

- **Migration:** Many residents, especially village youth have been forced to leave in search of sources of income. They now live in cities and work in jobs that, according to their parents, are not worthy of them but are better than unemployment.
- **Aging population:** The migration and departure of young people from villages have led to the issue of an aging population in the village.
- **Conflict:** The depletion of water resources and challenges in accessing them have resulted in conflicts and eroded trust among villagers, as well as between them and government organizations.
- **Changing job structure:** Due to drought, agriculture is no longer the dominant occupation of villagers. Instead, most residents of both villages are now engaged in service jobs to cover their living expenses.
- **Emergence of a new social class:** After agriculture in villages has failed, the sale of agricultural land has become a popular way to combat poverty. In the process, a new social class comprising land dealers emerged. According to villagers, these brokers are now among the wealthiest individuals in communities (Fig 3).

Notably, the issues discussed in this section are more severe in South Baraan village than in North Baraan village. The reasons for this distinction will be explained in the following sections.

3.3. Different responses from the farmers

There is persistent diversity within farming communities, stemming from various social, economic, cultural, and institutional factors. As a result, farmers in this region do not form a homogenous group; instead, specific

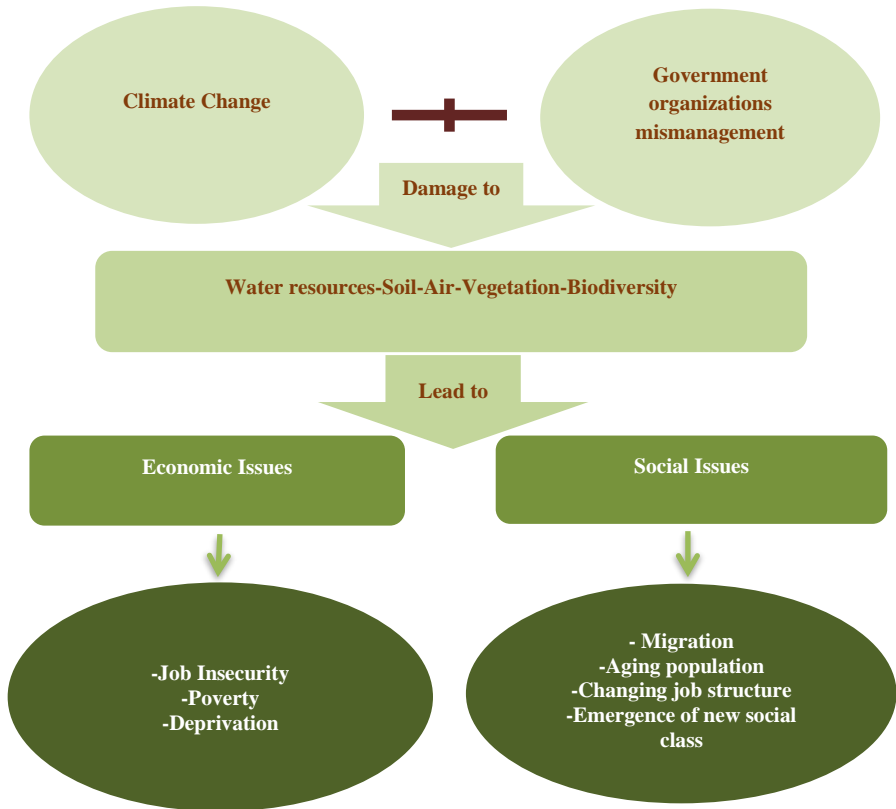


Fig. 3: The situation of environment and its effect on villagers

subgroups or farmer types, exist. Within this classification, we have observed that cultural distinctions have emerged in these two villages due to factors such as their proximity to urban centers and the presence or absence of traditional forms of participation. These disparities have resulted in different reactions to climate change and drought in each village.

3.3.1. Migration

Following climate change and drought in the studied area, the younger generation in South Baraan village has been compelled to migrate to nearby cities in search of employment opportunities. On the other hand, the situation in North Baraan village is vastly different. Situated just 10 km from

Isfahan city, North Baraan village is closer to other major cities compared to South Baraan village, which is 25 km away. Due to this proximity, residents of cities like Isfahan and Sepahan have a strong desire to temporarily reside in North Baraan village. To fulfill this desire, urban residents have purchased agricultural lands and transformed them into private villas. Presently, only a portion of these lands can be cultivated, with a significant part being converted into villas. These urban dwellers choose to reside in North Baraan village during the hot months of the year, when living in cities becomes challenging due to extreme temperatures, allowing them to enjoy pleasant weather. Additionally, several tourism complexes have been established in North Baraan village, providing temporary stays for those seeking to spend weekends in a charming village and relish nature. The influx of urban dwellers into villages has led to the creation of jobs related to urban life that were previously nonexistent in the village. These jobs include:

- Maids at tourism complexes: Tourism complexes require a workforce capable of providing proper services to tourists. Some residents of Baraan North village are now employed in the tourism complexes established in the village.
- Ready-meal shops: villagers sometimes prefer to buy food from these stores instead of cooking at home. Urban dwellers who temporarily stay in their villas in the village are also frequent customers of these stores.
- Caretaking: The private villas have created a new job opportunity for villagers to look after the villas for ensuring that the equipment and facilities are safe from thieves, as well as cleaning and maintaining the villas.
- Delivery person: Those in this role are responsible for delivering various items such as groceries, prepared foods and other goods from stores to their buyers. Online taxi driving: With the increase in travelers and temporary residents in North Baraan village, the demand for online taxi driving jobs has become apparent.

As a result, some villagers have purchased taxis and entered the business.

- Vegetable and fruit processing: After agriculture decline, some rural women, have started processing fruits and vegetables and sell these products to temporary residents of the village.

Due to the job opportunities in North Baraan village, residents choose to remain there instead of migrating to cities. Additionally, farmers from the eastern region of Isfahan are also coming to the village in search of work.

Significantly, the villagers of South Baraan village also sold their land to urban dwellers. However, the number of villas and jobs in South Baraan is much lower than that in North Baraan.

3.3.2. Participation in conserving water resources

The residents of North Baraan have largely maintained the spirit of cooperation and traditional methods of participating in the use of water resources. This cultural factor has played a significant role in the appropriate consumption and preservation of the village's limited water resources:

3.3.2.1. Constructing water storage pools

In response to requests from the farmers, the Agricultural Service Center of Isfahan Province constructed a communal water storage pool for the villagers. According to interviews, these communal water storage pools have proven to be an effective way to collect water from village canals, store it, and utilize it during crop cultivation. Currently, there are several shared pools in North Baraan village, one of which has 60 members.

3.3.2.2. Repairing water transition canals

According to the farmers, water was being wasted in parts of the water channels that were not piped, where the water flowed in earthen channels, or in areas where the water pipes were broken. By repairing these canals, farmers were able to prevent significant water wastage.

3.3.3. Conflict

After the drought, farmers have entered into conflicts both with each other and with government agencies. Government organizations in Iran, like those in many countries in the Middle East, are responsible for managing water resources. Limited access to water resources in the region has led to disputes between residents of neighboring villages. These issues have



Fig.4. A valve divides the water between South Baraan village and the downstream village. A guard is assigned in this area to take care of the water distribution. Water theft from the village occurs when someone secretly opens the valve and redirects the water to the downstream village. Source: field observations

resulted in water theft from neighboring villages, causing concern for the farmers of South Baraan village. A valve was installed between the water channels of South Baraan village and the downstream village to divide the water between the two villages (Fig. 4). The rule states that when allocating the water share of South Baraan village, the valve should be closed to ensure that the water does not flow to the downstream village. However, the downstream villagers are constantly trying to take more than their fair share of water. Therefore, residents of South Baraan have assigned a guard to watch over the water distribution valve to prevent theft of water.

In this context, the key distinction between these two villages is that, conflicts among farmers and their neighbors or with people from neighboring villages, is more common in South Baraan village compared to North Baraan village.

3.3.4. Reliance on local organizations

For years, farmers in South Baraan village have been attempting to negotiate with government organizations for water allocation for their agricultural lands with the assistance of local organizations. However, these local organizations have not been very successful in securing the water share for South Baraan village.

In contrast, the residents of North Baraan village have relied less on local organizations and instead negotiate with government organizations through influential individuals who are temporary residents of the village. They seek to secure their fair share of water resources with the assistance of these influential figures (Table 1).

Table 1: Areas of difference between two villages

Areas of Differences	Villages	
	North Baraan	South Baraan
Migration	Villagers have stayed put in the village because of job opportunities	Villagers have migrated to nearby cities in search of jobs
Participation in conserving water resources	Villagers have been trying to conserve water resources by taking actions such as constructing water storage pools and repairing water canals collaboratively	Collaborative actions rarely take place in the village
Conflict	Villagers are in conflict with government organizations over access to water resources	Villagers are in conflict with their neighbors over access to water resources
Reliance on local organizations	Villagers rely more on influential individuals than on local organizations	Villagers rely on local organizations

4. Discussion

In this study, we developed a rural classification to examine how cultural factors drive the varied responses of local communities to climate change.

We present the results of our research through a case study conducted in Isfahan Province, Iran. The innovation of this study lies in the fact that no previous research has been conducted on the classification of farmers in response to climate change in Iran considering cultural factors.

4.1. Employment opportunities

In response to climate change, North Baraan villagers diversified their sources of income. Meanwhile, residents in South Baraan village either relocated or simply sold their lands without taking any further action. This aligns with the findings of Adams (2019). When villagers have access to job opportunities within their village, they are less likely to consider leaving the village. Immigration presents its own set of challenges and problems. Several studies have revealed the importance of rural tourism in creating employment opportunities in rural areas (Haldar, 2007; Pröbstl-Haider et al., 2014; Lun et al., 2016).

The tourist attractions in North Baraan village have attracted urban dwellers to the area, creating job opportunities and potential income for the villagers. However, unlike their counterparts in South Baraan village, this village has not been as successful in attracting tourists because of two reasons. First, South Baraan is farther from major cities like Isfahan and Sepahan compared to North Baraan, making urban dwellers more inclined to purchase land in the latter, closer to their urban residences. Second, North Baraan has a more favorable climate than South Baraan, making it a more attractive choice for urban dwellers. Therefore, while migration from South Baraan village to the cities occurred, North Baraan village also received immigrants.

The possibility of staying in the village has created another cultural difference between the residents of the two villages. The people of North Baraan village have a strong attachment to their village, which makes them feel responsible for the problems and situation of it faces. This feeling not only strengthens the social bond between people, but also fosters a sense of community. In contrast, the residents of South Baraan village who were forced to leave do not share the same connection to their village.

4.2. The forgotten factor

The occurrence of drought led to the villagers to implement solutions such as reducing cultivation, improving water transition canals, constructing water storage pools, lining canals, migrating, finding a second job, and selling land. These findings are consistent with those of Keshavarz et al. (2010).

The tradition of participation has long existed in the villages of Iran. In the traditional management system of water resource exploitation in agriculture under the Lord and serf system in Iran, the construction of aqueducts, the creation of traditional channels from rivers and the maintenance and dredging of aqueducts to the farm were the responsibilities of lords and serfs based on the amount of their water share (Fallah Rastgar et al., 2011). However, after the land reforms of the 1960s, when government organizations took over the management of the villages, they increased the villagers' dependence on the government and decreased their spirit of self-reliance and participation (Taleb and Najafi Asl, 2010). Nevertheless, this feature still exists among rural people in some areas like North Baraan village, although the participation rate is not as high as it was in the past. Regarding the optimal use of scarce water resources, there is a noticeable difference between the two villages. North Baraan villagers have had communal wells for a long time, whereas few people in this village have private wells. People have believed that, when there are 10 wells on one road, the water in all of them is scarce. This way of thinking has maintained a culture of participation among the villagers. According to the interviews, this cultural difference has encouraged people to address not only water and agriculture related issues, but also other problems in the village. These include repairing public places like the school or mosque, as well as handling financial challenges of these places, in a collaborative and cooperative manner. On the other hand, the residents of this village have taken measures to optimize the use of scarce water resources collaboratively. These people have harnessed the power to conserve limited water resources instead of engaging in conflict and war with each other.

4.3. Who is being blamed?

The conflict in South Baraan village has arisen among villagers, while North Baraan villagers have primarily clashed with government organizations responsible for distributing water to agricultural lands. Karl Wittfogel, in

his book "Oriental Despotism", introduced the idea that the development of irrigation works in Mesopotamia and Egypt led to the use of mass labor, an organizational hierarchy for coordinating and directing activities, and increased government control to ensure proper water distribution (Vidale, 2018). Despite government organizations in Iran being responsible for water allocation since ancient times, villagers often blame their neighbors and conflict with them instead of seeking answers from these organizations. This was the case in South Baraan village. The situation in North Baraan village is different. The powerful seasonal residents of North Baraan village hold a favorable view of the village residents and advocate for their demands with organizations. Favoritism means behaving better toward one person or group of people than toward others and showing the personal preferences of those who are decision-makers (Kwon, 2005). The presence of these influential individuals in North

Baraan has increased villagers' self-confidence. Based on the author's observations and considering the behavior and speech style of interviewees, residents of North Baraan exhibit more assertive behavior when addressing issues of mismanagement in Isfahan Province than those in South Baraan village. They have successfully compelled organizations to address their concerns. For example, when the drinking water in the region was polluted by industrial and urban wastewater discharge into water sources, the residents of North Baraan were the first to access safe drinking water. They achieved this by sabotaging the Zayandeh River water transfer pipe to Yazd Province and creating a branch from it.

The residents of North Baraan village have a noteworthy approach: they do not blame their neighbors for the lack of water resources, but instead attribute all related issues to the inefficiency of government organizations. Empowered by influential urban individuals in their village, they have taken a stand against these organizations. In contrast, the residents of South Baraan village, who lack the ability to confront government organizations, blame their neighbors for the drought problems, leading to conflict between the two villages.

The presence of powerful people has resulted in the development of a culture where villagers demand more from government organizations. This culture serves as a motivating factor for people to pursue their requests

from these organizations. Villagers claim that they have been successful in fulfilling their demands most of the time, which is not the case in South Baraan village.

5. Conclusion and Policy Implications

5.1. Conclusion

This study examines the different responses of farmers to climate change and its impacts in Isfahan Province, located in the central part of Iran. The findings show that climate change has led drought and damage to all types of environmental resources in the affected area. The dwindling water resources each year have caused many farmers to lose their crops and struggle to make ends meet after a drought.

In the early years of coping with drought and climate change, the residents of both villages implemented similar solutions. These solutions included reducing the amount of cultivation and limiting the diversity of agricultural crops. However, as the effects of climate change worsened and conditions of life in the villages changed, the responses of the village residents diverged. Residents of North Baraan village diversified their sources of income by moving to non-water occupations, allowing them to stay in the village. In contrast, residents of South Baraan village migrated to nearby cities in search of jobs and income.

To explain this variety, the distance of the village from major cities, especially Isfahan city, and its favorable climate may explain the differing reactions of the villagers to common issues. These responses can help enhance people's ability to adapt to challenges and problems related to drought and water scarcity, which are issues facing the entire country today. In addition to geographical factors, the longstanding sense of participation among the residents of the village in North Baraan, combined with the preservation of rural values and traditions, has strengthened a culture of participation that continues to persist among these individuals to a significant degree. In this way, the villagers have been able to protect the scarce water sources. Climate change is not an issue that can be mitigated by individuals alone. However, the residents of North Baraan village have been able to reduce the consequences and effects of these changes on the lives of the villagers. While our study outlines the different responses of

farmers to climate change, further research is necessary to elucidate the socio-psychological factors driving these behaviors.

The findings of these studies can be helpful in formulating strategies to address climate change and drought, which are currently affecting various parts of Iran.

5.2. Policy Implications

1. Iran is situated in an arid and semi-arid region of the earth, where climate changes have led to drought in many areas of the country. Therefore, it is recommended to prioritize the cultivation of crops that require less water.
2. Given the long standing history of drought in Iran and the increasingly severe conditions in recent years; it is preferable for there to be a greater number of non-agricultural jobs compared to agricultural jobs.
3. An important measure may solve the problems related to climate change and drought is to revise the water resources management methods and correct the mismanagement that has been applied by relevant organizations for more than four decades.
4. Prioritizing agriculture's allocation of water resources can help alleviate economic issues that contribute to migration, an aging population, and unemployment.
5. Climate change could be mitigated through actions such as transitioning to green fuels instead of fossil fuels, utilizing solar energy instead of gas energy, and replacing gasoline and diesel used by transportation vehicles with environmentally friendly fuels.

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