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CLIMATE CHANGE AND MINORITIES IN IRAQ: CHALLENGES AND ADAPTATION OPPORTUNITIES

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Strategic Goals

- Preparing a youth elite that rises to its social responsibilities through studying problems, proposing policy alternatives, and working towards their implementation.
- Utilizing knowledge outputs and encouraging youth to work towards achieving the Sustainable Development Goals
- Presenting statistics and issues that occupy the political arenas and societal circles to reflect a deeper understanding of the Iraqi reality.
- Creating a network of active, informed, and committed citizens dedicated to the project of building the Iraqi government.

About the Center

The Platform for Sustainable Development is a registered center with the Non-Governmental Organizations Department at the General Secretariat of the Council of Ministers under the number (1S2106012). It serves as a space for thought, dialogue, and action towards positive change.

Vision

We seek to establish a platform for dialogue and policies that contribute to achieving the Sustainable Development Goals in Iraq.

Mission

Filling the gap between the state and society to ensure the essence of democracy by engaging citizens in the decision-making process through training, monitoring, analysis, research, awareness, and advocacy.



EXECUTIVE SUMMARY

Iraq is home to diverse ethnic and religious minority communities, which have faced various challenges over the years due to poor security and political situations, as well as exclusion, marginalization, and resource scarcity. At present, they also face challenges related to environmental conditions and climate change. Because minorities in the country are among the most marginalized groups, their exposure to the impacts of these changes is of great importance, given the significant impact of climate change on the lives and social and economic conditions of minorities.

It is the responsibility of the Iraqi authorities to protect the rights of minorities, in addition to international obligations such as the United Nations Framework Convention on Climate Change. Iraq ratified the convention and is committed to taking steps to mitigate the effects of climate change and achieve sustainable development goals, as they are necessary to achieve social justice and ensure that disparities among different segments of society do not worsen. Because minorities are an important part of the social and cultural diversity in the country, addressing these changes is necessary to preserve this diversity. Ignoring this issue will exacerbate humanitarian and economic crises, leading to increased conflicts over resources, especially water and food, which may threaten stability and security in the country.

This paper focuses on understanding the impacts of climate change on minorities in Iraq by highlighting challenges and identifying weaknesses, informing policymakers of the specific needs of minority communities, and ensuring the development of comprehensive and equitable climate change policies. It aims to increase awareness of the challenges facing minority communities and advocate for their inclusion in climate change policies and programs. The proposed policies will also contribute to comprehensive sustainable development in Iraq.



INTRODUCTION

Currently, minority communities find themselves facing even more challenges and difficulties due to environmental degradation and climatic conditions that affect various aspects of their lives and development. This is especially true for minorities relying on agriculture and pastoralism, as farmers and herders face significant challenges due to water scarcity in their regions. This has led to the loss of agricultural land and a decline in agricultural productivity, forcing them to cultivate crops different from those they are accustomed to. Water scarcity has also resulted in a shortage of pastures, making it difficult to raise livestock and causing a loss of livelihoods.

As a result, many minorities have been compelled to migrate to other cities or even abroad in search of better services and living standards. Some have turned to working in the security sector or other government positions. Moreover, these challenges have impacted the ability of women from minority groups to meet household needs and participate in economic activities after leaving their agricultural and pastoral occupations.

At present, minority communities are facing additional challenges and difficulties due to environmental deterioration and climate conditions that impact various aspects of their lives, particularly those reliant on agriculture and pastoralism. Farmers and herders from minority communities are encountering significant obstacles due to water scarcity in their regions, resulting in the loss of agricultural land and a decline in productivity. This has compelled many minorities to migrate to urban areas or abroad in search of better opportunities, while some have shifted to other occupations such as security or government roles.

Moreover, climate change has affected the cultural and heritage aspects of minorities, leading to the loss and damage of cultural and archaeological landmarks. Some religious and cultural practices have also been impacted, as seen with the Mandeans due to their close connection to water for religious rituals. Furthermore, there have been social and familial impacts, particularly concerning the loss of traditional lifestyles, customs, languages, and attire, which threatens their cultural identity, especially as they are closely tied to their land.

Minority communities face multiple weaknesses that have negatively affected their lives, including inadequate infrastructure, lack of basic services, economic hardships, and political instability, especially in disputed areas covered under Article 140 of the Constitution. Additionally, there is inadequate political representation for minorities. Hence, it's essential to improve the lives of minorities in Iraq and mitigate the impacts on them by enhancing their adaptive capacities and providing comprehensive solutions to address infrastructure, economic support, and political representation issues.

Methodology of Paper Preparation: This paper adopted a qualitative approach, primarily using interviews as a key data collection tool. A total of 20 in-depth interviews were conducted with activists from minority communities between February 12, 2024, and March 5, 2024. Additionally, desk research was conducted, reviewing various studies, literature, and national and international reports related to minorities, environmental conditions, and climate change in Iraq. Table 1 in the paper provides details of the sample.



Table (1) illustrates the sample according to minorities, locations, gender distribution, and educational attainment.

Minority	Number of Participants	Residential Areas	Gender Distribution	Educational Attainment Distribution
Shabak	5	Nineveh	4	1
Sabeen-Mandaeans	5	Kirkuk, Baghdad, Erbil	3	2
Kakai	5	Kirkuk, Nineveh	4	1
Yazidi	5	Nineveh	4	1
Total	20	-	20	

BACKGROUND

Over the years, minorities in Iraq have faced political, social, and economic challenges that significantly impact their lives, access to economic opportunities, and basic services such as education and healthcare. This can be attributed to several factors, notably ethnic and religious discrimination, which they have continuously experienced over long historical periods. The country has witnessed tensions and conflicts due to religious and political divisions that have plagued Iraq for decades. During these periods, minorities have suffered from discrimination and marginalization, leading to violations of their rights(1). Additionally, minorities have been greatly affected by the political and military conflicts that engulfed the country after 2003, resulting in mass displacement and repeated violations of their rights, deteriorating their living conditions (2). Minority communities faced dire humanitarian conditions after the rise of ISIS in large parts of Iraq in 2014, experiencing various forms of violence including killings, displacement, abduction of women and children, resource depletion, and infrastructure destruction (3). Finally, minorities in the country are significantly affected by environmental challenges and climate change, which impact their daily lives, adding to the challenges of building stable and sustainable livelihoods(4).



THE PRIMARY IMPACTS OF CLIMATE CHANGE ON MINORITIES

The serious climate challenges facing the country threaten stability on various fronts. Rising temperatures and water scarcity exert pressure on the environment and economy, in addition to the security and social risks casting shadows over the country's future(5). The impact of climate change on minorities in Iraq exacerbates the difficulties they face in their lives. These challenges are further compounded by previous security and political conflicts and environmental degradation. Thus, climate change adds to the pressures on minorities by exacerbating resource scarcity, such as water and food security.

Those interviewed from minority communities have noted environmental and climate challenges in their areas in recent years, affecting various aspects of their lives. Participants linked current environmental and climate challenges to past hardships under ISIS control and political conflicts in their regions, particularly in disputed areas between the federal government and the Kurdistan Region of Iraq. This highlights the complex effects of conflicts and climate pressures on minority populations.

Among the prominent impacts faced by minority groups such as Yazidis, Kakais, Shabaks, and Sabaeans are:

1- WATER SCARCITY THREATENS AGRICULTURE AND PASTORALISM:

Water scarcity poses a critical challenge for minorities in Iraq, with water reserves reaching their lowest levels and major rivers like the Tigris and Euphrates expected to dry up by 2040 (6). This coincides with population growth and an expanding gap between water supply and demand, which is projected to increase from around 5 billion cubic meters to 11 billion cubic meters by 2035 (7). Consequently, the agricultural sector is significantly affected, with Iraq losing approximately 100,000 hectares of arable land annually due to drought(8). The decline in agricultural productivity threatens to worsen economic challenges, with GDP forecasted to decline by 3.1% to 2.4% if drought and desertification are not addressed (9), potentially affecting 7 million Iraqis' access to water in the coming years (10).

Members of the Yazidi, Kakai, and Shabak communities emphasized their heavy reliance on agriculture as a primary livelihood, highlighting the necessity of water for crop cultivation. They noted that their communities practice rain-fed agriculture, making them particularly vulnerable to water scarcity, which reduces both the quantity and quality of crops grown. Decreased agricultural productivity and its impact on food sources and livelihoods present an additional challenge for communities dependent on farming and pastoralism. They pointed out that the severity of water scarcity increases as springs and artesian wells in their areas dry up, attributing these challenges to poor water management, inadequate services, neglect, infrastructure damage, and political instability. They believe urgent government support and sustainable water sources are vital for sustaining life and improving living standards in their areas.



According to the annual reports of the Norwegian Refugee Council (NRC) in Iraq, which highlight the impact of drought on agricultural production in several provinces, including areas inhabited by minorities such as Yazidis, Kakais, and Shabaks, who constitute a significant part of agricultural communities, the figures in the 2023 report indicate that 60% of farmers in Kirkuk, Nineveh, Salah al-Din, and Anbar governorates were forced to cultivate smaller areas or use less water during the 2023 agricultural season (11).

In the 2022 report for the 2021-2022 agricultural season, participants noted a decrease in wheat production in areas such as Ba'aj (89%) and Sinjar (84%) in Nineveh Governorate, as well as Semele (56%) in Dohuk Governorate (12).

Estimates for the 2020-2021 agricultural season indicate that 37% of participating farmers reported losses in wheat crops exceeding 90% of the expected total harvest, and 30% for barley. Wheat production decreased by 84% in Kirkuk Governorate, 78% in Nineveh Governorate, and 55% in the Kurdistan Region of Iraq.

Furthermore, 92% of households in Ba'aj reported wheat crop failure, while two-thirds of households in Sinjar reported both wheat and barley crop failures. These losses are attributed to farmers' reliance on unsuitable saline groundwater for agriculture (13), indicating the deteriorating economic situation for local households engaged in agriculture.

Additionally, individuals interviewed from minority groups have pointed out that vast agricultural lands have turned into barren areas, leading to decreased agricultural productivity in their regions. They have been forced to abandon the cultivation of crops they are known for. For example, Yazidis in Sinjar, Ba'ashiqqa, and Sinuni are known for cultivating figs, olives, grapes, tobacco, and producing honey and olive oil. Shabaks and Kakais in the plains of Nineveh and some areas of Kirkuk are known for cultivating grains such as wheat, barley, chickpeas, lentils, and other crops. They have highlighted that droughts and sandstorms have damaged thousands of fig and olive trees, leading to the death of most bees, resulting in reduced production of olive oil, honey, and other products they are known for.

This means that water scarcity and drought pose significant challenges to agricultural communities belonging to minorities such as Yazidis, Kakais, and Shabaks in Iraq. Despite heavily relying on agriculture as a means of livelihood, harsh environmental conditions make it difficult for them to maintain the productivity of agricultural lands. Therefore, effective measures must be taken to address water scarcity and drought, provide sustainable water sources, and preserve biodiversity to ensure the continuity of agriculture and the well-being of agricultural communities belonging to minorities.

Furthermore, individuals interviewed in recent years have indicated that climate change has led to a significant emergence of agricultural pests. They associate temperature fluctuations with changes in rainfall patterns, creating environmental conditions conducive to the spread of pests and agricultural diseases. These changes increase the spread of plant diseases by providing suitable conditions for the proliferation of fungi and bacteria that cause diseases. Additionally, they can lead to the appearance of harmful insects, increasing the likelihood of crop damage. For instance, the Department of Agriculture in Kirkuk Governorate recorded the spread of leaf rust disease, which appeared in Daquq, Hawija, Rashad, and other areas due to climate change after heavy rains followed by an increase in temperatures. For example, in the village of Tobzawa in Daquq district, inhabited by Kakai minorities, the spread of agricultural pests in wheat crops was recorded during the recent wave of rains in April 2024 (14).



Therefore, the importance of developing new agricultural strategies that take into account the effects of climate change is highlighted, including developing varieties resistant to changing environmental conditions, to ensure the sustainability of agricultural production in the face of these increasing challenges.

Furthermore, the impact of water scarcity is not limited to agriculture but extends to grazing and livestock farming as well. According to individuals interviewed from minority groups, water scarcity and drought in their areas have led to a shortage of crops and cultivated fodder, as well as difficulties in providing drinking water for livestock such as sheep, cattle, buffalo, goats, and others. They added that the scarcity of pastures in recent years has significantly affected the profession of grazing, forcing herders to purchase water and fodder at high prices, thereby increasing the costs of livestock farming. This compels some of them to abandon grazing and resort to other professions, affecting their livelihoods. They also mentioned that the lack of sufficient quantities of fodder, the spread of diseases among livestock, and the high cost of medications have led to a decrease in livestock production and increased mortality rates.

Iraq has witnessed a decrease in grazing lands over the past decade due to the drying up of wells caused by drought, salinity, lack of maintenance, and the absence of new grazing areas for nine years due to deteriorating security conditions, mismanagement, and insufficient financial allocations. This has led to environmental disturbances and challenges facing herders, consequently impacting the livestock wealth in the country (15). For instance, in Nineveh Governorate, the majority of village residents depend on grazing, with the governorate ranking first in terms of livestock numbers, housing over 5.27 million heads of cattle out of a total of more than 20.426 million heads of cattle in Iraq. Due to drought and the scarcity of pastures, as well as the lack of government support, herders are forced to sell their livestock or migrate out of fear of their death (16). The director of agriculture in Ba'shiqah district, Nineveh Governorate, confirmed that around 50 individuals have relocated their livestock to Kurdistan Region due to the scarcity of pastures and water. Before the onset of climate change effects, there were 100,000 camels in Al-Ba'aj district, which have now halved in recent years. The Ministry of Agriculture in the district reported the death of 1,000 camels in Al-Ba'aj alone due to water scarcity, the spread of diseases, and the scarcity of pastures (17).

According to a report by the Norwegian Refugee Council, farmers from drought-affected areas, including minority groups such as Yazidis, Kakais, and Shabaks, are forced to sell their livestock at low prices. For example, farmers from Sinjar and Al-Ba'aj are compelled to sell their cattle at cheap prices, with the average cost of a cow dropping to around \$200 from \$800, due to poor environmental conditions, drought, and livestock diseases (18). These challenges result in reduced productivity and difficulty in meeting the animals' needs, negatively impacting the breeders' income and local meat production. Livestock damage leads to decreased production, affecting the availability of local meat, thus causing price hikes. This increases citizens' inclination to purchase imported meat, posing an economic challenge to pastoral communities and necessitating the adoption of strategies to address these challenges.



2- INCREASE IN POVERTY AND THREAT TO FOOD AND ECONOMIC SECURITY:

The local economy and living standards of minority communities are adversely affected by water scarcity, leading to a decline in the agricultural sector, which employs around 20% of the workforce in the country (19). With reduced employment opportunities and incomes for those reliant on agriculture and pastoralism within minority groups, poverty rates and living conditions worsen.

In recent years, minority populations dependent on agriculture and pastoralism have faced difficulties accessing food, threatening household food security. According to the annual reports of the Norwegian Refugee Council covering areas inhabited by Yazidis, Kakais, and Shabaks, challenges in accessing food due to drought were reported in the agricultural communities of Nineveh and Kirkuk, where 4 out of 5 individuals had to reduce food expenditure over the past 12 months (20). Additionally, during the 2022 agricultural season, figures indicate food access difficulties for 41% of households in Sinjar, 46% in Baaj, Nineveh Governorate, and 47% in Sumail, Dohuk Governorate (21).

Furthermore, reports highlight a decline in agricultural income in recent years, with many farming families struggling to profit from their crops due to drought. They face challenges in paying agricultural rents and purchasing essential inputs like seeds and fertilizers. Moreover, accumulating debts from previous crop failures exacerbate the financial crisis and increase borrowing (22). This situation signals a negative impact on economic and social security, as individuals are forced to reduce spending on healthcare and education, while some sell their assets to cover expenses or increase reliance on savings (23). Families engaged in agriculture have had to utilize savings to cover basic expenses, indicating an increased need for savings due to income decline or expenditure increase. Additionally, average monthly household income increased from 250,000 Iraqi dinars in 2021 to 320,000 Iraqi dinars in 2023 over three consecutive years.

There has been a significant decline in the income growth rate, decreasing from 20% during the period from 2021 to 2022 to only 6.67% between 2022 and 2023 (24). This indicates economic challenges facing the agricultural sector, thereby negatively impacting the living standards of households. For minorities engaged in agriculture and pastoralism, this means depletion of financial savings and increased financial strain. Difficulty in accessing food significantly affects the food security of minorities. If families cannot afford to buy food due to financial difficulties, they may face malnutrition, leading to serious health problems.

Difficulty in accessing food increases financial pressure and reduces families' ability to meet their basic needs, potentially leading to increased poverty and social marginalization. This financial instability leads to anxiety and stress regarding the ability to meet the family's needs and daily living expenses, reducing the ability to financially plan for the future. This situation coincides with discrimination, lack of sufficient assistance from official authorities, and the destructive effects of ISIS control over their areas in previous years, exacerbating the burden of challenges they face. The impact of these difficult economic conditions becomes even more complex and challenging for them.



3-DISPLACEMENT AND MIGRATION

The shortage of water and drought has led to the displacement of thousands of people in various regions of Iraq (25). This is attributed to the challenges arising from water scarcity and drought, which have significantly affected agricultural lands and pastures, leading to their degradation and loss of quality. Consequently, the pressure of displacement and migration increases as water resources diminish, resulting in lower water levels in lakes, rivers, and groundwater, making access to clean water for irrigation and drinking difficult. The damage to agricultural lands and pastures means the loss of primary livelihood sources for the population, pushing them to seek more sustainable environments and abundant water resources elsewhere. Interviewed individuals highlighted that the lack of economic and investment opportunities, along with poor services, marginalization, and exclusion in their areas, coupled with the loss of their agricultural and pastoral livelihoods due to water scarcity and drought, are among the main reasons for migration and displacement.

Whether migrating from rural to urban areas or leaving the country in search of better services and living conditions, a significant proportion of families have been forced to abandon farming and livestock raising, which are among the prominent professions inherited from their ancestors. According to a report by the Norwegian Refugee Council, 1 in 4 small-scale farmers in Sinjar and Ba'aj had to stop farming in 2023. The percentage of people reporting displacement due to drought increased from 2% to 5% between 2021 and 2023 across Iraq. In the Ninawa Plain (26) in northern Iraq, where minorities such as Yazidis, Kakais, and Shabak reside, the desire to migrate is increasing due to drought, with 1 in 4 considering relocation because of it (27).

Furthermore, providing safe and sustainable access to water sources is a crucial element in maintaining the stability of communities and mitigating the severity of displacement phenomena. The lack of access to water is a decisive factor in shaping individuals' and communities' sense of security about the future. When people struggle to access clean water for daily use and irrigation, concerns about the region's sustainability, environmental stability, and economic stability increase (28). In Figure 1, it is evident that access to a safe water source is of utmost importance for minority communities. 62% of Kakais perceive it as the most important factor influencing their prospects and confidence about the future, compared to 23% for Shabaks and 20% for Yazidis. This is attributed to their heavy reliance on agriculture and pastoralism. Consequently, anxiety and pressure increase the likelihood of displacement and migration as individuals seek environments that provide water and economic security. This exacerbates the movement of migration from water-stressed areas to more sustainable regions with abundant water resources. Securing sustainable access to water contributes to enhancing the sense of security and stability, reducing the likelihood of displacement and migration, thus fostering the construction of sustainable and flourishing communities in the long term. Moreover, according to interviewed individuals, the migration of minorities from their villages to cities and the abandonment of agricultural and pastoral professions reflect economic and social transformations in the communities. For instance, leaving agriculture in search of more stable and diverse job opportunities in cities may pose challenges in finding employment, especially if they lack the necessary skills for non-agricultural sectors. Consequently, some may resort to working in the security sector or waiting for government appointments and other jobs and professions that suit them.



Table 2: Access to Water as a Factor for Feeling Secure about the Future in the Ninawa Plain by Group and Area

Number	Group	Percentage	Area	Percentage
1	Christians	11%	Bartella	22%
2	Kakais	62%	Ba'ashiqah	29%
3	Shabaks	23%	Nimrud	45%
4	Turkmen	39%	Qaraqosh	14%
5	Yazidis	20%	Qosh	10%
6	-	-	Tel Kepe (center)	6%

Source: Stockholm International Peace Research Institute. Post-conflict Reconstruction in the Ninawa Plains in Iraq: Agriculture, Cultural Practices, and Social Cohesion. 2022. <https://www.sipri.org/publications/2022/policy-reports/post-conflict-reconstruction-nineveh-plains-iraq-agriculture-cultural-practices-and-social-cohesion>

4-CULTURAL HERITAGE LOSS

The impact of climate change extends to include the cultural and heritage aspects of minorities. In recent years, there has been observed loss and damage to some cultural and archaeological landmarks in Iraq (29), along with changes in religious and cultural practices. Challenges related to natural resources and water scarcity can particularly affect the religious practices of minority communities. For instance (30), interviewed members of the Mandaean community noted that water is essential in their religion, as most of their rituals are closely tied to water, such as baptism, child baptism, wedding rituals, holidays, and other religious occasions, all of which are closely linked to the availability of water. In recent years, Mandaeans have faced challenges due to water scarcity and pollution, with some having to travel to nearby areas with water to perform rituals. Some Mandaean communities have attempted to adapt to these changes by using alternative techniques such as constructing small water channels and basins relying on groundwater wells, and using pumps to ensure the continuous flow of water into these basins, aligning with their religious beliefs.

Given the close connection between agriculture and the cultural and religious practices of minorities such as Yazidis, Kakais, and Shabaks, the difficulties facing the agricultural sector in the country pose a major obstacle to the continuation of these practices. To achieve the goals of restoring cultural and religious practices, it is necessary to revive economic activity in the agricultural sector and focus on agricultural activities associated with those practices (31).

According to responses provided by Yazidis, Kakais, and Shabaks, the impact on crop cultivation such as olives, figs, wheat, barley, and other crops they are known for affects their cultural distinctiveness. This is due to the importance of these crops in their culture and way of life. For example, these crops may be a fundamental part of their traditional food and religious and social practices. Therefore, if these crops are significantly affected, it may have an impact on their culture and heritage.



Based on interviews conducted with individuals, the effects can vary depending on the cultural, social, and economic conditions of each community. For example, the Yazidis may have cultural rituals and practices directly tied to specific crops, meaning damage to these crops could significantly impact their religious or social practices. Conversely, the Kakayis and Shabak may have different lifestyles and diverse agricultural dependencies, so the effects may be different for them. They also expressed fear or apprehension about social changes, as individuals transition from small rural environments to larger, more diverse urban communities. This fear can be interpreted as the potential for cultural assimilation and changes in lifestyle, customs, traditions, language, and traditional attire, leading to the loss of their cultural identity, particularly due to their close ties to the land and agriculture.

4-INCREASED SOCIAL TENSIONS

Water scarcity leads to increased competition for available water resources, which can in turn increase the likelihood of conflicts and tensions between individuals, communities, and nations. The Norwegian Refugee Council report for 2022 highlights increased tensions among communities in Iraq due to water scarcity, with over a third of households (38%) reporting escalating tensions. This is attributed to challenges in pumping and distributing water due to declining river levels, channels, and illegal well drilling (32). The 2023 report further indicates that the Nineveh Plain exhibited the most pronounced levels of social tensions (33).

According to interviews with members of minority groups, climate-related challenges can impact social cohesion within communities for several reasons. Firstly, displacement and migration to other areas can create sensitivity among individuals due to demographic changes in some regions. Secondly, mismanagement of water resources and unfair distribution of water between regions can lead to competition for limited resources and tensions between competing communities, resulting in deteriorating local economies and exacerbating poverty in those areas, thus increasing social tensions among residents.

Interviewees also noted that agricultural damage and farmers abandoning farming could lead to a decline in communication between farmers from different communities. For example, farmers from diverse ethnic and religious backgrounds in the Nineveh Plain used to gather after harvest seasons to exchange agricultural crops. With the impact of drought on agriculture due to security conditions and more recently due to the effects of drought on farming, these customs have been affected over the years, potentially affecting social and cultural exchanges between them. Consequently, this could result in a breakdown in communication between some farmers and negative effects on social relationships, negatively impacting the local economy by reducing opportunities for trade and reducing farmers' income.



RESILIENCE OF MINORITY COMMUNITIES TO CLIMATE CHALLENGES AND THEIR WEAKNESSES:

Minorities suffer from a lack of support and absence of services, with their areas no longer being a priority for project implementation and investments by successive Iraqi governments. According to those interviewed, two decades have passed without implementing the Jazeera irrigation project, which is important for the residents of the Nineveh Plain areas, where farmers and herders rely on it to solve the water problem. Nevertheless, some attempt to mitigate the negative impact by adopting modern agricultural techniques, such as using sprinklers and drip irrigation, planting resistant crops, digging and deepening artesian wells, using water pumps, and other technologies. However, these methods come with high costs that most farmers cannot afford, increasing financial burdens on families. This is also linked to the lack of government support in encouraging farmers and providing sufficient materials and resources for agriculture and animal husbandry. This means that the challenges facing minorities require integrated and sustainable efforts from the government and the international community to improve their situations by providing necessary support and investing in infrastructure and enhancing sustainable livelihood opportunities.

With climate challenges and changes, understanding and addressing minority issues and challenges becomes increasingly important. They face a diverse range of challenges that affect their daily lives and basic rights, from accessing basic resources like clean water and food, to discrimination and marginalization in various fields. These challenges pose obstacles to minorities achieving a decent and stable life. Those interviewed pointed out weaknesses facing their communities, the most prominent of which are:

Weak infrastructure

- Areas inhabited by minority communities suffer from weak infrastructure and inadequate basic and public services, including the lack of water and neglect of other educational and healthcare sectors.
- Urban population expansion at the expense of agricultural areas, and poor planning at the expense of minority villages, affect the area of agricultural land and grazing areas.

Poverty

- Many minority communities suffer from poverty, limiting their ability to withstand hardships.

Marginalization

- Minority communities suffer from political and social marginalization, as well as weak political representation and quota systems in the country.
- Some minority communities are located in disputed areas under Article 140, which affects the political situation and dominant parties in these areas, influencing the minorities' lives and development.

POLICY ALTERNATIVES: (ENHANCING THE CAPACITIES OF MINORITY COMMUNITIES TO ADAPT TO CLIMATE CHANGE)

There are several types of policies and support mechanisms that can be effective in addressing the intersection of climate change and its impacts within minority communities. Participants from minority groups have proposed a set of solutions as illustrated in diagram (1).

Diagram (1) illustrates a set of proposed solutions from the participating sample.



A project focusing on minority communities can be implemented, giving them the necessary opportunities for effective participation in identifying their needs and developing appropriate climate solutions, thus enhancing their ability to adapt to climate changes and improve living conditions and implement sustainable solutions. There is an opportunity to fund such projects, especially after the current government announced the allocation of 50 billion dinars to the Reconstruction Fund for Sinjar and Nineveh Plain regions (34).

These allocations can be effectively utilized by directing a portion of them towards climate change adaptation projects, in addition to using them to enhance infrastructure and develop services, as evident in Table (2).



Table (3) illustrates the steps of a project to enhance the capacities of minority communities to adapt to climate change.

Executing Authority	Role in Project Implementation	Implementation Steps
Reconstruction Fund	Allocate 20% of the fund for financing. - Plan and coordinate with the Ministries of Agriculture and Water Resources, and collaborate with organizations and the private sector to ensure project implementation and achievement of goals, resource and plan coordination. - Ensure leadership roles for minorities in project management. - Assess needs and priorities in consultation with minorities and the mentioned entities.	Include projects in the National Development Plan by the Iraqi Ministry of Planning.
Ministries of Water Resources and Agriculture	-Assess current status, needs, and challenges. - Provide expertise and guidance on climate change adaptation. - Direct agricultural policies and programs and provide technical support to minority communities. - Offer specialized training courses to increase understanding of climate change and adaptation among minority individuals and enhance their capacities for leadership and management in project implementation. - Organize community consultation sessions to empower community members to participate in priority setting and climate solution development. - Provide support and resources for implementing modern climate solutions in collaboration with minority communities, such as installing solar energy systems and applying various agricultural techniques.	1. Conduct an assessment of needs, challenges, and priorities in consultation with minority communities through consultation sessions. 2. Form specialized working teams comprising representatives from the mentioned ministries, partners from organizations, the private sector, and minority representatives. 3. Design and implement various activities with a focus on training, knowledge transfer, and enhancement of technical and managerial skills. This includes specialized training courses for minority community members and providing support and resources for implementing modern climate solutions such as installing solar energy systems and applying various agricultural techniques. 4. Continuously monitor and evaluate project progress and adjust plans and activities as needed, with the participation of minority communities.
Non-Governmental Organizations and the Private Sector	- Provide support and technical assistance in project implementation. - Offer necessary expertise and resources from experts and trainers to enhance the capacities of minority communities. - Collaborate with relevant ministries to implement the project.	
Minority Communities	- Participate in local planning and program implementation, provide local knowledge and expertise, and nominate suitable leaders to participate in implementation and monitoring. - Participate in identifying needs, priorities, and planning, and collaborate in project management and implementation with relevant authorities to provide local knowledge and expertise. - Nominate suitable leaders to represent working teams and participate in decision-making.	



FEASIBILITY OF POLICY ALTERNATIVES:

The project to enhance the resilience of minority communities to climate change will be achieved through:

1. Active participation of minority communities in the formulation of plans, allowing them to identify their needs and priorities based on their knowledge and culture. This enables their involvement in the implementation of climate and development policies and programs.
2. Developing leadership and management capacities within minority communities to achieve sustainable development and climate resilience. This enhances sustainable agricultural practices, improving agricultural productivity, thereby enhancing living conditions and boosting the local economy.
3. By involving minorities in the planning and implementation process, cultural identity can be strengthened, fostering a sense of belonging, and enhancing their role in achieving sustainable development and effective participation in community building.

CONCLUSION:

The impacts of water scarcity in Iraq underscore the importance of addressing this immense challenge, which affects the daily lives and future economic, social, and cultural aspects of minority communities in the country. It cannot be ignored that the repercussions of water scarcity can lead to exacerbating conflicts and tensions. Moreover, addressing water scarcity in Iraq requires multi-dimensional measures, including sustainable economic development, improving water resource management, and enhancing regional and international cooperation in the field of water. Local authorities and international entities must work collaboratively to develop comprehensive solutions to the water scarcity problem,

including promoting the transition to alternative and sustainable water sources, enhancing modern water treatment and desalination technologies, and encouraging smart agricultural practices and efficient water use in the agricultural sector. Efforts must be intensified, and necessary support provided at both local and international levels to address the challenge of water scarcity, and ensure the provision of clean and sustainable water for all citizens of the country, including minorities, to guarantee a sustainable and prosperous future for all.

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