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An Economic Approach to the Stability of Drought-Affected Communities in Southern Iraq: Outcomes and Possible Solutions

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An Economic Approach to the Stability of Drought-Affected Communities in Southern Iraq: Outcomes and Possible Solutions

Salim Abd al-Hasan Rasn*

Executive Summary:

- Nearly 40% of the land in Iraq, especially in the southern regions, is already suffering from desertification, with tens of thousands of acres turning into desert annually in the south of Iraq, near the marshes, and along the banks of the Euphrates River.
- The drought-affected areas in southern Iraq serve as a warning to all regions of Iraq, as well as neighboring countries, that desertification and drought will gradually erode the soil.
- The drought in southern Iraq leads to a decline in the actual value of the land and an increase in migration, especially in those areas close to river courses, including the Euphrates River. Additionally, it affects the educational level of children, women, and men by impacting the living standards of families, and potentially creating tribal conflicts, among other issues.
- Swift actions by the Iraqi government include preferential policies and forcing farmers to use modern irrigation techniques that can solve a significant part of Iraq's drought crisis.
- Involving civil society in a national campaign, alongside all government institutions, civil and otherwise, and investing in the young generation as they are the foundation of the change theory

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about the value of water, the necessity of its conservation, and the rationalization of its use. This includes setting appropriate prices according to various usages and activating community advisory programs.

- Supporting capacity building in the water sector, including the regulatory entities of water facilities to provide clean water, especially in communities severely affected by updating old infrastructure, implementing sustainable operations, reducing water wastage, and setting a price that reflects the value of water to minimize waste.
- Iraq needs to stop the wastage of agricultural water through annual programs aimed at gradually reducing the use of water in agriculture from 70% currently to 30%, which is considered the optimal formula for investing in the water sector.
- Supporting the improvement of nutrition among disadvantaged groups through community nutrition programs aimed at increasing the use of healthcare services and improving the levels of care as a response to the food crisis.

Introduction

Climate change is a periodic natural phenomenon that affects all countries and regions. Thus, climate threats are not confined to the Arab region alone; their impacts extend to European and American countries, as well as those in Asia and Africa, affecting all nations worldwide, though to varying degrees. Therefore, these issues should not be regarded as insurmountable, provided they are handled properly.

Based on this premise, the study's structure includes an examination of the economic and societal impacts of these climate changes, particularly highlighting their effects on economic sectors such as agriculture, water resources, livestock, energy, water quality, poverty, migration,

the environment, investment decline, and biodiversity. Among the most significant global and regional outcomes of these impacts is the deterioration of agricultural and animal production, coupled with the increase in human needs due to population growth. All these factors contribute to price level pressures, causing an upward trend in prices, leading to poverty and migration. This implies that the world's poorest population groups, especially in Iraq and the Arab region, bear the brunt of this wave, affecting children, the poor, and the marginalized, and posing a direct threat to social peace and economic security.

The primary causes of climate changes in Iraq, especially drought and desertification, are primarily attributed to global warming, chiefly resulting from the extensive burning of oil, gas, and coal. The international water stress index indicates that Iraq faces the threat of its rivers drying up, a situation primarily due to the policies of upstream countries, which have built numerous dam projects along the rivers. Additionally, the use of primitive irrigation methods, which have been enforced upon the local communities in southern Iraq due to these climatic changes, poses a direct threat to life through water scarcity, dust storms, extreme heatwaves, desertification, and food security.

Furthermore, the significant reduction in the vast areas of the southern marshes in Iraq positions it as the fifth most climate-affected country globally. As a result, one of the initial feasible solutions is to mandate the adoption of modern irrigation techniques by farmers, which can reduce water usage by half to meet agricultural demands. Additionally, there should be concerted efforts towards the recycling of sewage water and the reuse of agricultural drainage water. It is also vital to assert water rights with upstream countries and to resort to international law to establish these rights firmly.

Consequently, this study sheds light on core related topics, including:

First – Climate Changes and Their Global Threats

Climate changes are a natural phenomenon affecting all communities, albeit to varying degrees, where the impact varies based on geographical location, material capabilities, the national will of the ruling class, and the cultural awareness of the masses in dealing with climatic crises periodically to minimize their effects on the economy and society.

The World Bank identifies five primary climate change threats: drought, floods, storms, and rising sea levels, in addition to unstable agricultural production.

The Green Future report highlights that among the ten countries most vulnerable to climate disaster risks in 2023, three are Arab nations: Somalia, Syria, and Yemen, with the other countries being the Democratic Republic of the Congo, Afghanistan, Chad, South Sudan, the Central African Republic, Nigeria, and Ethiopia. These ten countries, which account for 5.16% of the global population, are among the poorest and contribute less than 0.28% to carbon dioxide emissions[1], the principal cause of global warming leading to climate changes. The majority of these emissions come from the top twenty industrialized nations, which bear the responsibility for this greenhouse effect and have a moral obligation to address the imminent danger threatening the planet.

This indicates that the world's poorest populations, especially in the Arab region, are on the front lines of the climate crisis. In Somalia, climate change has had a devastating impact, exacerbating drought challenges and severe food insecurity, in addition to political instability in the country making it difficult to address the climate crisis and protect vulnerable communities.

1. The Green Future.» March 4, 2024. https://greenfue.com/.

In Syria, a decade-long war has eroded the country's ability to respond to crises, forcing 90% of Syrians below the poverty line due to conflict, extreme climate events, and a severe economic crisis.

In Yemen, climate change has exacerbated desertification and drought, further straining an economy already weakened by years of conflict and leading to high levels of vulnerability. By the end of 2022, 17 million people in Yemen required food aid, while 1.3 million pregnant or lactating women and 2.2 million children needed treatment for malnutrition.[2]

Similarly, other fragile states suffering from political conflicts and civil wars, in addition to climate changes and low income levels, find it challenging to find solutions to their climate crises, as seen in the Democratic Republic of the Congo, which faces ongoing conflict, economic challenges, and outbreaks of diseases like measles, malaria, and Ebola, weakening the country's ability to handle climate disasters and disrupt humanitarian aid, while citizens face floods and increasing food insecurity. The same situation applies to Afghanistan, Chad, South Sudan, and the rest of the ten countries.

It is crucial to emphasize that climate threats are not exclusive to these countries; their effects impact European and American nations, as well as those in Asia and Africa, affecting all countries worldwide, albeit to varying degrees. Last year, the world experienced record-breaking droughts in some regions, making 2022 a year of drought and high temperatures, with widespread drought conditions simultaneously occurring in North America, Europe, the Mediterranean, and China.

2. Ibid.

Second – The Economic and Social Effects of Drought in the Region and the World

Before discussing the impacts of drought on the economy and society, it is essential to define it. As stated in Article 1 of the United Nations Convention to Combat Desertification, drought is a natural phenomenon that occurs when rainfall is significantly lower than recorded levels, causing hydrological imbalances that adversely affect terrestrial resource production systems.[3]

The specter of drought looming over many countries in the Middle East and Africa threatens economic growth due to its severe implications on various sectors, especially agriculture. With some of these countries heavily relying on the revenues from these sectors, whether for securing domestic food security or for increasing export earnings, the impact of drought on the economies of these countries can be significant or multifaceted. Some potential impacts on economic growth rates in general through its effect on the following sectors include[4]:

1. Impact on Agriculture:

Drought directly affects agricultural crop production, potentially reducing output quantities and negatively impacting this sector, which many Arab and African countries rely on for employment and food security.

3. 26th Regional Conference for the Near East - Tehran, March 9-13, 2002. Long-term Plans on Managing the Phenomenon of Drought and Reducing its Effects in the Near East.

4. «How the Escalation of the Climate Crisis Affects Economic Growth Rates.» Sky News Arabia, November 26, 2023, 16:17 GMT. https://www.skynewsarabia.com/business/.

2. **Impact on Livestock**:

Drought also leads to water and pasture shortages, affecting animal grazing. This deteriorates the condition of livestock and the grazing sector, impacting food supplies and the local economy.

3. **Impact on Energy**:

In countries heavily reliant on water sources for electricity generation, drought affects their ability to generate this energy, leading to power outages, a significant barrier to economic development.

4. **Decrease in Water Quality**:

Drought can lead to water scarcity and quality deterioration, increasing the prevalence of water-related diseases, weakening public health, and causing additional healthcare costs.

5. **Drought Increases Migration and Deepens Poverty**:

Drought may lead to increased rates of internal migration as people leave affected areas in search of better living opportunities. This can lead to increased pressure on cities, contributing to the exacerbation of unemployment and poverty issues.

6. **Retraction of Investment**:

Dry conditions may reduce the attractiveness of countries as investment destinations, especially if their economies are heavily reliant on agriculture, leading to decreased production and revenues, and thus, a decline in investment levels.

7. **Effects of Drought on the Environment and Biodiversity**:

Agricultural development and food security can be severely affected by adverse forces across countries, such as deforestation and environmental

degradation. This degradation and change in many ecological processes have led to the loss of species and endangered others, with drought and desertification having direct and indirect impacts on wildlife diversity in many countries and regions, leading to areas becoming barren or a reduction in wildlife due to recurring drought episodes. There needs to be a clear recognition that the extinction of biodiversity cannot be reversed.

A clear example of the negative effects of drought is Sudan; its drylands were once productive and rich in agricultural biodiversity. However, successive droughts and desertification affecting vast areas of the country have impacted dryland farming in Sudan, putting traditional and local crop varieties and plant species that form the basic food for populations in Sudan's dry areas at risk. These impacts have detrimental consequences on a global and regional scale.

Third – Consequences of These Effects

1. Climatic conditions are a decisive factor in sudden global price increases. Drought in the United States has caused extensive damage to summer crops of corn and soybeans, especially as the United States is the largest source of these crops globally. A dry summer in the Russian Federation, Ukraine, and Kazakhstan contributed to expected decreases in wheat production, leading to global wheat price increases. Climate change impacts on agriculture can lead to decreased crop yields and food quality, in addition to increased pests and plant diseases.

2. Drought episodes have severe effects on economic conditions, poverty levels, and nutrition. For instance, in Malawi, it is expected that severe future droughts occurring every 25 years could increase the poverty rate by 17%, severely impacting local rural communities. In India, estimates suggest that significant production declines due to

droughts between 1970 and 2002 reduced the usual annual incomes of affected community households by 60-80%.[5] This poverty forces families to pull their children out of schools and reduce the nutritious food they consume to compensate for rising prices.

3. There is a lack of irrigation water availability due to the melting of glaciers, impacts on erosion and soil fertility, effects on growth periods, and food safety.

4. Material Losses and Nutritional Shortages: A 2021 study estimated that the severity of heatwaves and drought impacts on crop production tripled over the past fifty years in Europe, from losses of 2.2% during 1964-1990 to 7.3% between 1991-2015.[6]

5. Famines Occurring: The United Nations Office for the Coordination of Humanitarian Affairs confirmed that a famine threatens about 22 million people in Ethiopia, Kenya, and Somalia due to unprecedented drought since 2020. The Horn of Africa region recently experienced severe drought effects due to climatic conditions, rising temperatures, and prolonged rainfall shortages. It noted that rapid drought episodes are increasing, especially in Europe, northern and eastern Asia, the Sahel region of Africa, and the western coasts of South America.[7]

6. Drought, land degradation, and desertification lead to social crises and disturbances and sometimes wars, which result in population

5. The World Bank. «Severe Droughts Drive Food Prices Higher, Threatening the Poor.» March 8, 2012. Last visited March 4, 2024. https://www.albankaldawli.org/ar/news/press-release/2012/08/30/severe-droughts-drive-food-prices-higher-threatening-poor.

6. «Climate Change Promotes the Emergence of Sudden Droughts.» Sky News Arabia, April 14, 2023, 16:24 Abu Dhabi time. https://www.skynewsarabia.com/business/.Top of Form

7. Ibid.

movements, displacements, and migrations, ultimately forcing them to lose their cultural identity and distorting their social fabric.

According to the World Health Organization, drought was the primary cause of deaths globally for half of the natural disaster victims, attributed to food shortages and exacerbated malnutrition conditions. The organization stated that hot countries during heatwaves, coupled with drought and water scarcity, bring not only famine, the greatest killer, but also other health-impacting factors such as malaria and wildfires.

Fourth – Drought in Iraq: Causes and Consequences

Environmental changes in Iraq have led to a halving of the country's cultivated areas. While about 27 million dunams are suitable for agriculture, Iraq has only been able to cultivate 8 million dunams as part of its winter agricultural plan. Last year, the Iraqi government halved the area of land covered by the seasonal agricultural plan, excluding certain provinces entirely from the plan.[8]

The main reasons behind the climatic changes in Iraq, especially drought and desertification, are:

1. Global warming, primarily due to the burning of petroleum, gas, and coal, has led to severe and ongoing drought in recent years in Iraq, Syria, and Iran.[9] While these resources represent economic assets, their combustion destroys the climate, causing drought and desertification. Climate changes, characterized by rising temperature averages, reduced rainfall, and increased dust storms, have threatened

8. «Iraq Loses Half Its Cultivated Areas Due to Drought.» Sky News Arabia, November 28, 2023. https://www.skynewsarabia.com/technology/.Top of Form
9. «Study Reveals Reason for ‹Severe Drought› in Syria, Iraq, and Iran.» Agence France-Presse, November 8, 2023. https://www.alhurra.com/arabic-and-international/2023/11/08/.

food, health, environmental, and community security, pushing hundreds of thousands to displace.

2. The International Water Stress Index indicates that Iraq faces the threat of the Tigris and Euphrates rivers drying up by 2040. This water recession is primarily due to the upstream countries' policies, including constructing several dam projects, especially the Ilisu Project and Atatürk Dam, and major reclamation projects in Turkey, without coordinating with Iraq, a downstream country. This has affected Iraq's historical entitlements to the rivers, whose flows have dropped to less than 30% of their natural rates in less than four years, specifically since 2019, losing about 53 billion cubic meters of its water stock.[10]

3. The use of primitive irrigation methods, known as flood or furrow irrigation, widely used and most water-consuming and inappropriate for areas prone to seasonal drought, has led to water mismanagement in Iraq, resulting in the wastage of more water and the loss of fertile lands due to salinization and land fertility loss.

4. The decrease in rainfall for agriculture and the deterioration of fresh water reserves due to the reverse flow of saline water from the Arabian Gulf towards fresh groundwater layers, and increased pollution concentrations.

Fifth – Consequences for Local Communities in Iraq

1. Climate change poses a direct threat to the country, evident in water scarcity, dust storms, extreme heatwaves, desertification, food security, as well as biodiversity loss and land degradation. Iraq loses

10. «Historic Decline in Iraq›s Water Reserves Due to Drought... What About Drinking Water?» Al Jazeera, March 15, 2023. Last visited March 4, 2024. https://www.aljazeera.net/politics/2023/3/15.

about 400,000 dunams (400 square kilometers) of agricultural land annually. Drought, land degradation, and increased salinity in rivers and tributaries put increasing pressure on agriculture, livestock breeding, and fishing, as many families cannot ensure adequate and sustainable livelihoods, posing a direct threat to life in most rural areas of Iraq.

2. The area of the southern Iraqi marshes, fed by floodwaters from the Tigris and Euphrates rivers, has shrunk from about 20,000 square kilometers in the early 1990s to about 4,000 square kilometers, according to recent estimates. This leads to the desiccation of marshes, halting life therein and striking the stability of communities dependent on animal husbandry, fishing, and the end of the oldest handicrafts in southern Iraq, considered a habitat for migratory birds from Canada in the winter season, signifying the end of Iraq's best region, once listed on the World Heritage List.

3. Iraq ranks fifth among the countries most affected by climate change in the world, according to the United Nations Environment Programme, noting that temperatures are increasing at a rate two to seven times faster than the global average rates, threatening life not only in rural areas but also in cities, raising the cost of living when facing climatic extremism.

4. The increasing demand for food, urban growth, poor water management, and climate change are threats that together endanger children, the poor, the marginalized, societal peace, and economic security.

Sixth – Drought Mitigation Strategy

1. The immediate and short-term action is to compel farmers to use modern irrigation techniques that can solve a significant part of the

drought crisis in Iraq. These methods could reduce water usage by half to meet agricultural needs, where agriculture consumes more than 80% of Iraq's total water use. With modern irrigation techniques, only 30% of the water coming from Turkey would be sufficient.

2. Use of carrot and stick policies: Knowing that the farming community is the last to voluntarily accept change measures, the state must intervene by imposing incentives and penalties for farmers who do not use modern irrigation techniques, depriving them of future government support. The Prime Minister, Mohammed Shia al-Sudani, has stated that the upcoming agricultural season will not support any farmer who does not use modern farming techniques and irrigation methods, as part of the agricultural sector reform policy with government support and providing technologies at subsidized prices for willing farmers.

3. Currently, Iraq is undergoing one of the harshest stages of drought, leading to a preventive measure of downsizing agriculture this season, with concerted efforts to secure drinking water and those allocated for domestic, industrial, health, and environmental needs, alongside allocations for marshes and improving river environments.

4. Reports indicate that the Middle East and North Africa will be the world's most water-scarce region, necessitating solutions based on water desalination, recycling of drainage water, and purification of sewage water for agricultural purposes.

5. Engaging civil society, especially youth as agents of change, on the value of water, the necessity of conservation and rationalization of its use, setting appropriate prices according to multiple uses, and activating community advisory programs.

6. Creating coordination groups among key stakeholders such as municipalities, water, environment, health, agriculture, energy, finance departments, national institutions, and sector actors, including civil society representatives, to support public policy review and increase technological capacities.

7. Supporting capacity building in the water sector, including regulatory entities – water facilities, to provide clean water, especially in communities severely affected by updating old infrastructure, implementing sustainable operations, reducing water waste, and setting a price equivalent to the value of water to reduce wastage.

8. Initiating climate change response plans, prioritizing water scarcity, and allocating sufficient financial budget for water shortage treatment, emphasizing the need for funding to combat climate change, especially for the Middle East and Africa, which should be a priority in receiving support through available financing mechanisms.

9. Adopting programs and policies aimed at mitigating the effects of rising food prices on safety nets to ensure poor families can afford basic foods, continuing investments in agriculture, introducing drought-resistant crop varieties to increase yield and production, keeping international trade doors open for food exports and imports, and calling for increased investments in agricultural research and monitoring the trade of agricultural produce to identify potential food shortages.

10. Supporting nutrition improvement among deprived groups through community nutrition programs aimed at increasing the use of healthcare services and improving care levels as part of the response to the food crisis.

Conclusion:

Every summer in Iraq sees rising indicators and risks of drought. Last summer, in southern Iraq, families living near the Euphrates River began dismantling their brick homes and moving away. Given the vulnerabilities in southern Iraq, one of the planet's most vulnerable regions, it is one of the first places to severely succumb to climate changes. The long record of drought incidents shows that while these incidents are natural hazards, human elements can contribute to increasing drought occurrence and intensifying its effects. At the same time, it can play a major role in mitigating these effects, meaning the better prepared and responsible the habitat, the greater its responsibility towards risks. Government programs and plans aimed at adopting new legislations and policies to curb the deterioration in southern Iraq, updating legislations, building modern irrigation organizations, using clean energy, reducing climate pollution, alongside governing policies related to investing in oil projects and infrastructure for natural resource investment, are essential elements towards stabilizing communities expected to be affected by climate changes.