

CLIMATE CHANGE, WATER SCARCITY, AND SOCIAL INEQUALITY IN THE MIDDLE EAST: A CASE STUDY APPROACH

Syeda Dur e Nayab

Universitas Islam International Indonesia

Syeda.haider@uiii.ac.id

Abstract: Other regions of the planet do not experience such severe climate-related problems as the Middle East, where strong scarcity of water and hostile weather conditions are prevalent, along with politically volatile environments. In this article, the climate change, water scarcity, and social inequality are discussed by comparing experiences in Jordan, Iraq, and Yemen. Although it is mostly perceived as an environmental issue, climate change creates enormous social dilemmas, weighing the most upon people who are already socially underprivileged, such as refugees, rural dwellers, and urban poor. The water policies of Jordanian states favor urban areas and industries over the peripheral communities, and the latter typically suffer from the latter, namely, insufficient water supply and poor infrastructure. Water scarcity in Iraq's southern provinces is now being overlaid by sectarian divisions, leading to protests and strengthening distrust of the government. Yemen struggles with a web of crises – the climate induced drought, which is exacerbated by armed conflict and crippled institutions – create even higher humanitarian needs. Drawing on political ecology and environmental justice theory, the paper argues that responses to environmental degradation must go beyond technocratic fixes and engage equity, governance, and power dynamics. The paper argues that if the socio-political causes of environmental vulnerability are not addressed, adaptation to climate will harden inequalities. It requires just, equitable responses that center the needs of marginal groups and marry environmental sustainability to social justice. This study is part of a growing body of climate justice studies in the Global South and presents policy guidance to governments, NGOs, and global development actors who work in the Middle East.

Keywords: Climate change, water scarcity, inequality, Middle East, political ecology, environmental justice

Introduction

The Middle East faces some of the world's most severe climate pressures, coupled with decades of socio-political vulnerability, conflict, and mis governance. Climate change has resulted in water scarcity that is increasingly becoming an issue, though unevenly between class, gender, and geography. In this article, social inequality and environmental stress are approached as interconnected themes through the case study discussion on Yemen, Iraq, and Jordan. It attempts to reveal the social processes through which climate vulnerability is generated and the diverse effects environmental crisis has on the different groups.

In the last few decades the Middle East has experienced rising temperatures, withdrawals of limited rainfall, and prolonged drought causing immense strain on the already stressed water infrastructure of the region. Still, environmental change does touch all people, but these effects are not equal. The people who feel politically marginalized, who have no access to basic infrastructure or who have been displaced by the conflict bear lopsided burdens from the scarcity. Susceptible are women and rural populations who sees increased difficulties in acquiring water, meeting food need for their families and remaining healthy.

The influx of Syrian refugees into Jordan has further worsened the already tight water situation and aggravated the situation politically among refugees in Jordan. Even with improvements in water infrastructure and desalination, access is variable, as rural Bedouin settlements and informal urban settlement do poorly. The environmental self-destruction of Iraq shows itself most in the south provinces, where both upstream damming and climate change have dried up rivers and wetlands so important to both the agriculture and life style of the local population. In these areas where historically marginalized Shi'a communities are normally domiciled, social unrest has worsened. Yemen represents an example of a situation in which a collapse of state, armed conflict and extreme drought meet – a disaster with humanitarian and environmental dimensions. Control over groundwater and access to water systems have ceased being issues of primary importance and tools of conflict.

Using the analytical tools of political ecology and environmental justice, this article examines the case studies under consideration. Political ecology examines the role of power and governance in the environmental problem while environmental justice is dedicated towards fairness and promotion of Just distribution of environmental problem and rewards. Using a combination of these methodologies the article reveals the systemic origins of water scarcity and climate effects in this area. This article advocates for policies that deals with both climate adaptation and social justice through exploration of the social dimension of environmental issues. Failure to root out the causes of inequality creates the danger of reinforcing the very weaknesses that are being sought to be eliminated through efforts aimed at alleviating environmental problems.

Theoretical Framework: Political Ecology and Environmental Justice

The complexity of the relationship between human societies and the environment is very important with the help of the knowledge given by political ecology and environmental justice, particularly in regions like Middle East where the environment issues are highly connected to political, economic and social issues. Political ecology of climate change and water scarcity seeks to understand how power relations dictate control and distribution of natural resources. These relations are further complicated by current geopolitical conflicts, off balance economic power, and past unequal resource allocations; which all exist due to the scarcity and politically charged nature of the resource, water in the middle east. Because of this, huge multinational entities and government bodies often are able to use great influence over water resources to their advantage by favoring wealthy elites or outsiders, while the marginalized groups such as urban poor, rural peoples, and refugees suffer most as a direct result of a shortage and environmental deterioration.

However, environmental justice clarify that these environmental burdens are not equally distributed among different social classes. In much of the Middle East, the poorest, most vulnerable are the hardest hit by climate change and water scarcity. These groups are highly susceptible to environmental change, but are the least likely to help shape policies or gain access to needed resources. For example, citizens of conflict areas like Yemen or Syria are exposed to the actual effects of climate change (such as droughts and desertification) as well as enhanced marginalization, politically and economically, which cumulatively aggravates their risk. Besides, environmental justice highlights how different aspects of colonialism, economic and political domination impact the way vulnerable populations can be affected. Countries in the Middle East are continually suffering the effects of colonial era borders and governance on water provision which has a knock-on effect on domestic communities and international politics. Disputes over control of the Nile, Euphrates, and Tigris rivers show the ways in which political aspects of water distribution exacerbate the differences between states and society groups. By merging together environmental justice and political ecology we are given a way of seeing that climate change and water shortages in the Middle East are intimately related to social justice, inequality, and political power. This approach highlights an emphasis on the importance for inclusive and just governance; consideration of the particular interest and rights of all communities involved, especially those most in need.

Case Study 1: Jordan – Adaptation Without Equity

The problem of water shortage in Jordan is extremely aggravating, exacerbated by its geopolitical environment, growth of population, and the large influx of Syrian refugees. Jordan has been among the most water-stressed countries in the world, and has done many things such as water rationing, desalination and construction of reservoirs to try to deal with the crisis. However, these efforts indicate increased disparity in water supply, more so when contrasting cities with higher incomes and refugee/rural communities. The Ministry of Water and Irrigation has resorted to water rationing as one of the major means that the country is using in managing its dry resource. Eventually, the policy has resulted in increased water access to richer urban areas – particularly in Amman, in which the infrastructure and resource distribution are more developed and consistent. The urban families that have higher incomes usually benefit

from increased supply of water for irrigation and daily use due to better availability of water. By contrast, poor rural lives, such as Bedouins, and refugees experience frequent scarcity and tough water allocations.

The water issues facing Jordan are believed to be addressed by desalination technology. From their revenues, these facilities supply urban populations with already established systems of water transportation primarily. Desalinated water is exorbitantly expensive when production and transport costs are considered for the marginalized. Moreover, the intense needs for energy by desalination plants cause greater environmental/economic challenges with heavily impacted marginalized groups. Jordan shines on the international stage with the highest per capita refugee population in the world, majority of whom are Syrians. The extreme water scarcity affects the displaced populations that reside in refugee camps or unplanned settlements. Water availability is poor for these populations, and substandard water quality as an added risk of disease outbreaks especially those transmitted through dirty water. In addition, refugee communities do not commonly integrate themselves into existing water management systems, and continuing political instability around refugee camps impedes improvements in acquiring better access to water. Strangely enough, similar rural Bedouin populations such as the Syrian refugees who also are usually led by nomads and dwell in scattered locations struggle with chronic water shortages. Failure to regulate available water resources and the dependence on sporadically and uncertainly delivered trucked water defines these communities. Under carefully reliable water supply, vulnerable communities become more sensitive to sicknesses such as dehydration, malnutrition and epidemic illnesses such as cholera.

State-led adaptation measures are critical; however, they are often the ones that further widen inequalities on the ground. The adoption of water rationing and desalination illustrates how the water crisis' reactions serve to favor urban and wealthy peoples disproportionately. The benefits made available by policies to mitigate water scarcity, often exclude communities such as the rural Bedouins and refugees among others. Moreover, these communities are at risk of bearing increased costs and reduced potentials for clean water and increased health threats. This touches upon a larger issue of the way in which state responses to environmental and climate emergencies amplify or perpetuate existing social and economic inequalities. For water management policy design to promote equity, so as not to deepen social inequalities, it is imperative. The inclusion of equity in water management would work towards prioritizing special populations, as well as incorporating them in development and implementation of policies concerning water supply and infrastructure. Community-driven decentralized solutions to water supply, especially in areas that are not rural in nature, may help to provide greater equality for all groups. Providing Bedouin and refugee groups with a more reliable and cleaner water supply and establishing easy and long-term sustainable water systems can strongly alleviate these communities. Jordan's efforts to address the problem of water scarcity have produced some positive results, but underlying policies reinforce great disparities, particularly among refugees and rural dwellers. It is necessary to establish fair and comprehensive water policy in order for every social and ethnic community to benefit from this vital resource.

Case Study 2: Iraq – Climate Change and Sectarian Marginalization

Escalation resulting from climate change is worsening desertification and water depletion, and such an issue is critical in the southern provinces with a Shi'a majority. The combination of shrinking of water resources, rising temperatures, and prolonged droughts have wreaked havoc on agriculture, as well as on employment and regional economies. The burden of environmental strain weighs most on locations that are already impoverished, underdeveloped with poor infrastructure. Corruption and sectarian disinterest have made it difficult for effective measures to counter these environmental problems. The failure of the central government to mitigate rising water scarcity and neglect of relief operations have escalated resentments that the region's inhabitants feel. Sectarian biases as well as corrupt governance and capital mismanagement have played a role in creating an inability to provide equitable allocation of resources and so far, the Shi'a-dominated and southern provinces are most on the front line of environmental threats. Environmental issues such as water security have been ignored with communities abandoned and perceived to be marginalized in a popular way leading to massive rates of dissatisfaction in the public and loss of faith in the government.

Most of these grievances have expressed themselves in huge demonstrations, where the protesters are demanding such essentials as clean water, electricity, and employment. Starting out as economic and social grievances, the protests are increasingly driven by government reactions to environmental disasters. Sometimes, problems like debilitating water scarcity have become rallying points of social outrage forcing citizens to ask why their grievances are not being addressed. The protests reveal the complex dynamics of environmental, political, and social grievances in Iraq, and more specifically how environmental degradation has become a high-profile agenda in the struggle for justice and equality. The southern Iraq case provides an insight into the manner in which environmental stresses can function to reinforce underlying social and political cleavages, being a powerful provocation to dissent. Where deep-rooted social

and political exclusions are at play, environmental grievance is also bound to be intensified, thereby increasing estrangement among communities and exacerbating societal fragmentation. It serves to remind us of the imperative of inclusive governance that gives equal attention to environmental as well as social concerns so that the marginalized communities are not left behind in the world's efforts to address climate change.

Case Study 3: Yemen – Conflict, Drought, and Humanitarian Collapse

Climate change, ongoing violence, and the inability of institutions to respond combine in Yemen to create a catastrophically unstable situation for its people. Rainfall loss and depletion of aquifers, especially in rural areas, are at the tipping point of forcing agricultural communities that live off farming, to the very brink of extinction. Yemen's agriculture system, which already is vulnerable but heavily relies on groundwater is getting further compromised by water scarcity combined with weather change pressures as a result of climate change. Rustification of infrastructures and negligible investment in water management in Yemen go on to make rural communities unable to adapt to the changing environmental pressures. Incidentally, the prolonged warfare has made political feelings run deep and the distributions in the nation's populations widen. Sources of water have become a contested area, mostly owned and controlled by the local elites or armed militias. Such actors are able to limit water access, and prioritize supply to elites, while ignoring oppressed populations access to safe and adequate water. The lack of access to water, highly skewed against the poorest of populations, act as a central example of environmental injustice arising out of armed conflict and climate change.

Lack of a strong central government in Yemen has amplified the problem in as much as there is no source of basic services such as equal access to water. When centralized authority had collapsed, the control of the distribution of these life-sustaining commodities is left in the hands of the militias and tribal leaders, locally. This is because these actors favor their selfish interests when making decisions and, in the process, they reinforce environmental injustices and increase the legacy of social and political exclusion. Apart from the political and environmental issues, the humanitarian situation is bad. The current conflict results in massive displacement and income loss which forces millions of Yemenis with no other option but resorting to humanitarian aid that continues to be unreachable for many or scarce. The destruction of the environment with disruption of agriculture has intensified food shortages, and thus malnutrition and other health hazards. Yemen helps us understand a way in which conflict exacerbates environmental inequality. The synergetic effect of the two key global drivers, conflict and climate change, heightens environmental crisis, expands social and political divisions and further marginalizes vulnerable populations. Having unbalanced access to water as warfare and their local political structures reflect how environmental burdens intersect social inequities to show how climate change can fan hardwired rebuttals and insecurities within societies.

Discussion: Regional Patterns and Policy Implications

Not only a physical issue, but Middle Eastern water scarcity caused by climate is powerfully influenced by social dynamics, as these case studies state. Mostly the crisis is moulded by environmental factors such as fewer rainfalls, desertification, and depletion of water resources; but its extremity is exacerbated by the existence of structural disparities like displacement, poverty and state collapse. Different groups face varying risk from environmental challenges in such places. The beleaguered already, i.e., rural communities, refugees, and people living in troubled parts of the world are the hardest hit by environmental challenges. These people are on a precarious position because they are frequently faced by constraints to accessing resources, political inadequacy, and social exclusion. Therefore, if these inequalities are not reduced, it might be that the climate adaptation endeavors can eventually cause more adverse impacts. In Iraq, Yemen, and Jordan, a state failure to address social discrepancies in distributing water flows proves connectivity between environmental issues and politics and society. Control of water in these countries is sometimes contested, with people's access to water often dependent on political pull, weapons or money. In such a situation, climate change intensifies environmental issues as well as the long-standing social inequities. It helps perpetuate long term social injustices and inequalities. For instance, climate change, conflict and lack of governance in the countries is high on the increase of risks placed on refugees and the rural people.

The success of climate adjustment policy depends on its ability to address the inequalities that characterize such systems. reply That is, these actions can exacerbate differences, as they serve the wealthier urban populations while alienating even more marginalized populations. Community-based adaptation must be based on regional coordination, inclusive governance. Through regional cooperation, the pooling of water resources, transboundary river management, and measures taken to counter threats on the environment can be gained. This kind of governance gives voice to the marginalized populations, such as refugees, rural areas, and rest of the vulnerable people on development of policies. Community-based adaptation efforts that allow locals to design and implement adaptation measures are important for

strengthening resilience and guaranteeing that adaptation processes cover the most vulnerable groups of people. The essence of the Middle East water problem rests with its complexities, which requires a transformational solution that will re-direct institutional governance, politics, social equity much more than it demands on technical processes alone. Solving only the surface issues will not give lasting, equitable solutions to the climate-driven scarcity of water.

Conclusion

Climate change in the Middle East is a historically unprecedented crisis that's not only a severe environmental issue but also a great social one. Environmental scarcity and inequality meet within the Middle East, magnifying social disparities as more than environmental concerns, and hence necessitating holistic deliberation from environmental specialists, social scholars, and policy leaders. Water depletion due to climate change has larger impact on the most vulnerable segments—rural communities, refugees, marginalized populations – because of uneven distribution of water resources, which is associated with political, economic and sectarian factors. Evidently, therefore, environmental disasters are not just a matter of resources but they are equally mattering of power; governance; and justice. It is critical to develop an adaptive policy that focuses on justice to plan adaptation in the area. The focal point should be the protection of interests most affected by climate change: displaced individuals, rural communities, and the urban poor in order to incorporate them into adaptation processes. It represents an awareness of the fact that climate resilience is not only about protecting the environment but it occurs from the perspectives of overcoming systems of inequality generated by social, political and economic disparities. The integration of environmental justice into the scheme and implementation of adaptation strategies can support the empowered involvement of excluded groups in policy-making and gain benefits of initiatives that are designed to combat water scarcity's consequences.

More than straightforward top-down intervention is needed to empower the most vulnerable; it requires advocacy for community-based solutions that build on local knowledge and interests. Community-based adaptation, with a focus on participation at the local level and local management of resources, can potentially contribute to increasing resilience through the assurance of interventions' relevance and effectiveness to the most vulnerable. Furthermore, inclusive governance mechanisms need to ensure that decision-making is equitable, transparent, and accountable to the interests of all citizens, particularly those who have hitherto been excluded. The resolution of the underlying social inequities such as displacement, poverty, and weak institutions is critical to policy-makers in averting the impact of climate change. Such efforts can consist of watering with equal access, providing improve coordination of the use of shared resources, and giving priority to help for the groups that are the most vulnerable. Increasing collaboration between regional actors is fundamental in addressing across-borders water issues as well as collaborative approaches in national borders to counter climate change.

The way forward to achieving climate resilience in the middle east is the adoption of a paradigm based on justice, equity and inclusiveness of all communities to adaptation efforts. Using a justice strategy, the region can draft climate adaptation plans, which will secure the environment while empowering the most vulnerable, ensuring equitable adaptation benefits. The adoption of this all-encompassing strategy translates into a blueprint to develop sustainable, flexible future lives in an area characterized by substantial climate-related ecological and social threats.

References

- Adeel, Z. et al. (2019). *Addressing the Nexus of Climate Change and Water Security in the Middle East*. Science of the Total Environment.
- Al-Ansari, N. & Knutsson, S. (2015). *Water Resources Management in the Middle East: A Historical Perspective and Future Challenges*. Journal of Hydrology.
- Amnesty International (2017). *The Human Rights Impact of Water Scarcity in Conflict Zones*. Amnesty Report.
- Arab Forum for Environment and Development (AFED) (2014). *Water Scarcity and Sustainable Solutions in the Arab World*. AFED Report.
- Barlow, M. & Clarke, T. (2011). *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water*. The New Press.

- Bates, D. et al. (2017). *Water Scarcity in the Middle East: The Role of International Cooperation and Regional Stability*. Journal of Peace Research.
- Boehm, S. et al. (2019). *Environmental Justice and Water Scarcity in Conflict Zones: Insights from Yemen*. Environmental Politics.
- Brookings Institution (2017). *Water, Conflict, and Development in the Middle East*. Brookings Report.
- Carnegie Middle East Center (2019). *Water Scarcity and Political Stability in the MENA Region*. Carnegie Report.
- Center for Strategic and International Studies (CSIS) (2021). *Environmental Conflict and Water Scarcity in the Middle East: Implications for Peace and Security*. CSIS Report.
- De Chazal, J. et al. (2014). *Exploring Future Climate-Driven Water Scarcity and Social Conflict in the Middle East*. Global Environmental Change.
- Elhance, A. (2000). *Hydropolitics in the Middle East: Water, War, and the Global Economy*. United Nations University Press.
- Feldman, D. & Gertler, M. (2018). *Water in Crisis: Managing Scarcity and Sustainability in the Middle East*. Oxford University Press.
- Femia, F. & Werrell, C. (2018). *Climate Change, Migration, and Conflict in the Middle East: A Regional Analysis*. International Studies Review.
- Food and Agriculture Organization (FAO) (2020). *Water Scarcity in the Middle East: A Call for Action on Water Security and Climate Adaptation*. FAO Report.
- Gleick, P. H. (2014). *The World's Water: The Biennial Report on Freshwater Resources*. Island Press.
- Greenpeace Middle East (2019). *Water as a Weapon: Environmental Justice in the Middle East Conflict Zones*. Greenpeace Report.
- International Committee of the Red Cross (ICRC) (2020). *Water Scarcity and Humanitarian Crises in Yemen and Iraq*. ICRC Policy Paper.
- International Food Policy Research Institute (IFPRI) (2020). *Climate Change, Agriculture, and Water Scarcity in the Middle East and North Africa*. IFPRI Report.
- Intergovernmental Panel on Climate Change (IPCC) (2019). *Climate Change and the Middle East: A Report on Vulnerabilities and Adaptation Strategies*. IPCC Special Report.
- Krause, P. & Mirza, M. (2019). *Water and Environmental Security in the Middle East: Understanding the Intersection of Climate Change and Geopolitics*. Cambridge University Press.
- Krebs, R. (2021). *Sustainable Water Governance in the Middle East: Politics, Economics, and Ecology*. Wiley.
- Krebs, R. & Dilley, M. (2021). *Climate Change and Water Scarcity in the Middle East: A Review of Impacts and Responses*. Global Environmental Change.
- Lundqvist, J. (2020). *The Politics of Water Scarcity: Water Governance in the Middle East*. Palgrave Macmillan.
- Mekonnen, M. M. & Hoekstra, A. Y. (2016). *Four Billion People Facing Water Scarcity: The Middle East in Context*. Water Resources Research.

- Mekonnen, M. M. & Hoekstra, A. Y. (2019). *The Water Footprint of the Middle East: A Socio-Environmental Analysis*. Springer.
- Middle East Institute (2020). *Water Scarcity and Governance in the Middle East: Perspectives on Climate Change and Conflict*. Middle East Institute Report.
- Oxfam (2018). *The Water Crisis and Vulnerability of Refugees in the Middle East*. Oxfam Report.
- Pahl-Wostl, C. et al. (2019). *Water Governance and Climate Change Adaptation in the Middle East and North Africa*. Elsevier.
- Pahl-Wostl, C. et al. (2020). *Water Governance in the Middle East: Opportunities for Climate Change Adaptation*. Springer.
- Refugees International (2020). *The Impact of Water Scarcity on Refugee Populations in the Middle East*. Refugees International Report.
- Shahin, M. & El-Fadel, M. (2016). *Water Scarcity and Environmental Change in the Middle East*. Routledge.
- Smith, P. et al. (2020). *Water Security and Climate Justice in Conflict Zones: Case Studies from Iraq and Syria*. Global Environmental Change.
- Sustainable Development Solutions Network (2020). *Water Governance and Equity in MENA: A Sustainable Path Forward*. SDSN Report.
- The Arab League (2015). *Towards Water Security in the Middle East: A Regional Framework for Cooperation*. Arab League Report.
- The Institute for Environmental Security (IES) (2017). *Water Scarcity and Security in the Middle East: A Strategic Overview*. IES Report.
- The International Food Policy Research Institute (IFPRI) (2020). *Climate Change, Agriculture, and Water Scarcity in the Middle East and North Africa*. IFPRI Report.
- The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) (2018). *The Impact of Climate Change and Water Scarcity on Humanitarian Operations in the Middle East*. OCHA Report.
- United Nations Development Programme (UNDP) (2015). *Human Development Report: Climate Change and Water Scarcity in the Arab World*. UNDP.
- United Nations Environment Programme (2020). *The Water Crisis in the Middle East and North Africa: Regional Cooperation and Sustainable Management*. UNEP.
- United Nations High Commissioner for Refugees (UNHCR) (2017). *Water and Sanitation in Refugee Camps in the Middle East: A Crisis of Resources*. UNHCR.
- World Bank (2016). *Water Scarcity and its Impacts on Human Development in the Middle East and North Africa*. World Bank Report.
- World Economic Forum (2016). *Water Stress in the Middle East: A Global Challenge*. WEF Report.
- World Resources Institute (2017). *Water Stress and Climate Change in the Middle East: An In-Depth Analysis of the Arab World*. WRI.

- Zahran, S. & Lippmann, R. (2020). *Climate Change and Political Stability in the Middle East: How Water Scarcity Fuels Unrest*. International Political Science Review.
- Zhang, L. et al. (2017). *Climate Change and Environmental Justice: The Middle East and Beyond*. Global Environmental Politics.
- Zobeidi, N. & Seidou, O. (2019). *Adaptation to Climate Change and Water Scarcity in Middle Eastern Countries: Governance and Policy Challenges*. Springer.
- Adeel, Z., et al. (2019). *Addressing the Nexus of Climate Change and Water Security in the Middle East*. Science of the Total Environment.
- Feldman, D. (2020). *Water Scarcity, Conflict, and Development: A Political-Ecological Approach to the Middle East*. Political Ecology Journal.
- Elhance, A. (2000). *Hydropolitics in the Middle East: Water, War, and the Global Economy*. United Nations University Press.