Linguistic and Philosophical Investigations
ISSN: 1841-2394, e-ISSN: 2471-0881
Vol 24 (1), 2025
pp.1076-1091

Climate Migration and Urban Transformations: Towards a New Urban Sociology in the Face of Environmental Challenges

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Abstract

Climate migration represents one of the most pressing contemporary challenges, redrawing the demographic and urban map of cities amid the escalation of severe environmental phenomena such as droughts, floods, and rising sea levels. This study aims to approach this phenomenon from an urban sociological perspective, analyzing the dynamics of environmental displacement and its impact on host cities, particularly in countries of the Global South. The research explores the concept of "ecological urbanization" as a strategic alternative to migration, and the role of urban policies in preparing for climate crises. It also highlights issues of marginalization and the reproduction of vulnerability in new urban environments. The study is based on an in-depth theoretical review and supported by international and Arab examples (such as Algeria, Bangladesh, and Nigeria). It concludes with the necessity to develop a new urban sociology that integrates environmental dimensions and climate justice within the social analysis of the city, while emphasizing the need for comprehensive, sustainable, and proactive planning policies.

Keywords: climate migration – urban transformations – urban margins – ecological urbanization – climate change – sustainable urban policies – urban adaptation.

1.Problem Statement

Humanity today is experiencing escalating climate crises that are redrawing the maps of human and social geography in unprecedented ways. Climate changes—bringing extreme phenomena such as severe droughts, catastrophic floods, recurring hurricanes, and rising sea levels—have become decisive factors pushing individuals and groups to leave their original habitats towards cities assumed to be more environmentally safe and stable. In this sense, contemporary migration is no longer limited to economic or political dimensions; "climate migration" has emerged as a new form of population movement, imposed by disrupted ecological systems and deteriorating living conditions. (Brikel &. H., 2017, p. 21)

What adds complexity to this phenomenon is that cities, being the main destination for this type of migration, have not adequately prepared to face

this growing challenge. With the increasing numbers of environmental migrants heading to urban areas, infrastructure is under unprecedented pressure, class gaps are being reproduced, and belts of poverty and informal housing are forming around urban cores. All of this exacerbates urban crises related to housing, services, transport, and health, and even threatens the very social fabric of the city. (Brikel &. H., 2010, p. 52)

It has become clear that traditional patterns of urbanization, based on sustaining the industrial and expansive model, are no longer capable of accommodating the structural changes imposed by environmental transformations. Climate migration is not just an exceptional demographic movement; it is beginning to turn into a permanent pattern of resettling populations, calling for a comprehensive review of urban planning concepts and spatial management mechanisms.

However, there remains a lack of corresponding theoretical engagement from urban sociology. Analyses within this sociological field continue to address urban issues in isolation from environmental dimensions, ignoring the complex nature of climate migration with its spatial, institutional, and identity-related aspects. Moreover, prevailing literature often lacks an integrative perspective combining social analysis of urbanization with concepts of climate justice, the right to the city, and ecological sustainability.)Hachemi ،2015 ، (76

In this context, climate migration imposes itself as a new testing ground for urban sociology theories. There is a need for new analytical tools that comprehend the complex relationship between humans and space, between power and resource distribution, and between the margin and center within a shifting climate context. Fundamental questions about urban justice also arise: Who has the right to the city? Who decides who is welcomed, and how? Do urban policies reproduce exclusion and inequality under a new environmental guise?

Major cities, as centers of economic and cultural attraction, appear more vulnerable than others to the uncertainty driven by climate change, foreshadowing the emergence of “climate urban classes” excluded not only due to poverty or race but also because of geographic and environmental belonging. This reality necessitates urban sociology to open up to interdisciplinary approaches intersecting geography, environment, public policy, and human rights.

The repercussions of climate migration are not confined to the Global South. Even the United States has begun witnessing waves of internal displacement due to forest fires in California, hurricanes in Louisiana, and coastal erosion in Florida. These phenomena raise fundamental questions about the readiness of current urban models and the capacity of federal and local policies to build proactive strategies for urban adaptation.

Here emerges the concept of “ecological urbanization” as a promising alternative, aiming to integrate climate justice into urban policies and reconstruct the relationship between the city and nature in a balanced manner. This requires moving from instrumental policies to urban models based on the right to the environment, spatial equity, and social resilience.

Accordingly, this research seeks to address the following central question:

Are cities, as spaces of reception and interaction, truly prepared to absorb waves of climate migration? And how can urban sociology develop its theoretical and conceptual tools to understand and frame this complex phenomenon? The study also explores the political dimensions of this issue, particularly concerning American and international stakes in building

cities more capable of adapting to climate change and more just in receiving their new inhabitants.

2.Research Significance

- It fills a gap in sociological literature, especially in the Arab world, regarding climate migration as a structural factor in urban transformations.
- It offers interdisciplinary analytical tools combining urban sociology, environmental studies, and public policy.
- It provides practical recommendations for policymakers and municipalities on urban adaptation to environmental changes.
- The research comes at a time of global environmental distress, with increasing numbers of climate migrants and growing impacts on cities.
- It calls for recognizing climate migrants as citizens with the right to the city, not merely as circumstantial victims.

3.Research Hypotheses

- Climate migration is not merely a population movement, but a social process that reshapes the urban space in terms of structure, groups, and power.
- Cities lacking proactive planning and environmental institutions are more fragile in the face of climate migration waves.
- Environmental migrants are often re-marginalized within the city through exclusionary or unprepared urban policies.
- Adopting the concept of "ecological urbanization" can reduce drivers of environmental migration and support the sustainability of affected cities.
- The absence of a climate-oriented urban sociology leads to unjust urban decisions that disregard vulnerable groups and environmental contexts.

4.Definitions of Climate Migration

- International Organization for Migration (IOM): Climate migration is the movement of individuals or groups due to sudden or gradual environmental changes affecting their lives and living conditions (IOM, 2007).
- United Nations High Commissioner for Refugees (UNHCR): It refers to the forced displacement of people due to worsening environmental disasters or climate change-induced degradation (UNHCR, 2021).
- United Nations Framework Convention on Climate Change (UNFCCC): Climate migration includes displacement, migration, and resettlement due to climate change impacts (UNFCCC, 2010).
- Myers (2005): Climate migrants are those who leave their homelands due to environmental changes resulting from climate change.
- Boswell & Geddes (2010): It is defined as population movement due to chronic environmental degradation.
- Urban Studies Journal (2019): Climate migration is viewed as a factor reshaping urban spaces and increasing pressure on infrastructure.
- Geoforum (2017): Climate migration reflects the disruption of the relationship between

humans and place.

5.Operational Definition

Climate migration is a form of forced or voluntary population movement resulting from environmental degradation associated with climate change, such as droughts, floods, or rising sea levels. It represents an expression of the vulnerability of social and economic systems in the face of environmental crises. This phenomenon is inseparable from contexts of poverty, marginalization, and poor climate justice. It reshapes relationships between individuals, place, and the state, necessitating a comprehensive sociological approach.

6.Causes of Global Climate Change

The causes of climate change stem from several natural and human factors. Natural causes include variations in solar activity, volcanic eruptions, and natural climate fluctuations such as the El Niño phenomenon. However, the climate changes we are currently witnessing—especially global warming—are primarily the result of human activities. Below are the main documented causes: (Brikel &. H., 2017, p. 103)

- **Human Activities**: The burning of fossil fuels such as coal, oil, and natural gas is among the leading causes contributing to the increase in greenhouse gas concentrations, such as carbon dioxide, in the atmosphere. This intensifies the greenhouse effect and raises Earth's temperature. The transportation, industrial, and agricultural sectors are the primary sources of these emissions.
- **Changes in Land Use**: Activities such as deforestation and intensive agriculture reduce the earth's ability to absorb carbon and increase emissions of methane and nitrous oxide, thereby reinforcing climate change.
- **Solar Activity**: Changes in solar activity have a limited impact on Earth's climate. Although the sun is the main source of energy reaching the planet, variations in solar radiation levels are not sufficient to explain the current global warming.
- **Volcanic Eruptions**: While volcanic eruptions can cause short-term climate changes by releasing gases like sulfur dioxide, which cool the atmosphere, their long-term impact is far less significant compared to human activities (NASA, 2022,p119).
- **Burning Fossil Fuels** :The use of fossil fuels is the primary cause of climate change, accounting for more than 75% of global greenhouse gas emissions and about 90% of all carbon dioxide emissions. This results from their use in electricity generation, industrial processes, and transportation. Every time these fuels are burned, large amounts of carbon dioxide, methane, and nitrous oxide are released—gases that trap heat and lead to global warming. (. Brikel, 2014, p. 79)
- **Deforestation and Tree Cutting** :Forests play a critical role in absorbing carbon dioxide from the atmosphere. However, deforestation for agricultural or urban development purposes releases this stored carbon back into the atmosphere, thereby exacerbating global warming. Since 1990, the world has lost more than 200 million acres (809,000 km^2) of forests, significantly impairing the planet’s ability to balance carbon emissions.
- **Use of Nitrogen-Based Fertilizers** :Nitrogen-rich fertilizers produce nitrous oxide (N_2O), a potent greenhouse gas whose warming potential is approximately 300 times greater than that of carbon dioxide. This gas is released as fertilizers decompose in the soil and also affects the

ozone layer, increasing the risks of ultraviolet radiation exposure.

7.From Marginalization to the Conceptual Framing of Climate Migration

Despite the rapid growth of climate migration and its increasing impact on cities and urban structures, this type of migration has long remained marginalized in sociological studies, especially within the field of urban sociology. Population movements resulting from climate disasters or environmental changes have often been treated merely as forms of economic or rural migration, without acknowledging their structural specificity and complex dimensions. This marginalization has been exacerbated by the absence of a clear legal recognition of the concept of the "climate refugee," as international refugee law—defined by the 1951 Geneva Convention—excludes victims of environmental changes from refugee status, rendering this group vulnerable to both institutional and academic neglect (Biermann & Boas, 2010,p112).

However, such neglect is no longer tenable in light of the profound transformations taking place in the modern world. According to UN reports (UNHCR, 2023), over 30 million people are forced to migrate each year due to climate-related changes, and cities have become their primary destination. As observed by Mike Davis (2006) in his analysis of major urban crises, urban expansion is no longer driven solely by global economic forces but is also increasingly shaped by climate disasters that reproduce urban marginality in unprecedented ways.

Climate migration is not merely a rural-to-urban shift, as previously assumed. It also includes internal movements between environmentally threatened cities—such as coastal or desert areas—and others perceived as safer and more stable. From this perspective, climate migration represents a complex social process in which nature, space, populations, and public policies interact. It thus becomes essential to develop sociological tools capable of keeping pace with this complexity. Recent studies (Klinenberg, 2018,p95) have shown that cities receiving climate migrants often experience demographic and social shifts accompanied by tensions over resources, services, and urban identity.

In this context, climate migrants should not be viewed solely as "victims," but rather as new urban actors who contribute to reshaping the urban sphere and compel governments and municipalities to adopt new modes of interaction and inclusion. This necessitates a shift from a logic of marginalization to one of conceptual framing—that is, the construction of an independent sociological concept of climate migration within the framework of urban sociology, integrating environmental, spatial, and political dimensions. This is what sociologist Anthony Oliver-Smith (2011) called for when he emphasized the need to dismantle the dichotomy of "nature versus society" and to recognize that environmental disasters are always also social disasters.

Some critical approaches—particularly in Latin America and sub-Saharan Africa—have begun to highlight the strong link between climate transformations and the reproduction of social vulnerability in cities. According to a study by the International Organization for Migration (IOM, 2022), cities that receive migrants from climate-affected areas often lack adequate infrastructure and public services, exacerbating issues such as informal housing, unemployment, and spatial marginalization. In Algeria, for instance, national reports indicate an increase in internal migration from the High Plateaus and southern regions to northern cities due to desertification and declining water resources (Ben Aissa, 2020,p 116).

Today, we face a qualitative shift that demands a comprehensive rethinking of classical concepts related to migration and urbanization. "Migration" can no longer be viewed merely as a

demographic movement, nor can the "city" be regarded as a neutral urban container. New approaches such as ecological urbanism and urban climate justice must be adopted to understand how environmental phenomena are redrawing population maps and producing new power relations within the city. In this regard, Erik Swyngedouw (2004) argues that future urban conflicts will be a fusion of social and environmental struggles, necessitating a knowledge framework that acknowledges the interconnectedness of these dimensions.

Therefore, urban sociology is now more urgently than ever required to broaden its theoretical horizon to include climate migration as a central sociological phenomenon—not as a temporary exception, but as a sign of a new urban era that is reshaping the relationship between humans, space, and climate.

8.Ecological Urbanism as an Alternative to Climate Migration

In light of the growing phenomenon of climate migration, traditional solutions based on relief or resettlement are no longer sufficient to address the challenges of environmental displacement. There is now an urgent need to adopt preventive and radical solutions that address the root causes instead of merely reacting to the consequences. In this context, the concept of Ecological Urbanism emerges as one of the most promising alternatives. It aims to build cities capable of adapting to climate change by adopting a sustainable urban approach that balances environmental concerns, economic growth, and social justice (Mostafavi & Doherty, 2010,p98).

Ecological urbanism does not merely seek to reduce the environmental footprint of cities; it also aims to empower people to remain in their original locations by improving quality of life and the local environment, thereby reducing the drivers of climate-induced migration. Numerous studies (UN-Habitat, 2022; IPCC, 2023) have indicated that communities investing in green infrastructure—such as urban forests, smart water management, and renewable energy—demonstrate higher resilience in the face of climate disasters, making migration a less likely option.

In the Arab context, calls have emerged for adopting ecological urbanism as a developmental policy, particularly in countries threatened by desertification and water scarcity, such as Algeria, Morocco, and Jordan. In Algeria, some desert municipalities have begun implementing environmental development projects, including reclaiming agricultural land using solar energy and building heat-resistant housing (Ben Zeina, 2021p178). While these projects remain limited in scope, they represent a step forward in enhancing environmental and demographic stability in fragile areas.

At the international level, several U.S. states—such as California and Florida—have begun redesigning coastal cities to address sea-level rise by developing what are known as Sponge Cities. These cities rely on infrastructure capable of absorbing rainwater and floods through green spaces, water gardens, and vegetated rooftops (Zevenbergen et al., 2018,p59). China has also adopted this model on a wide scale in cities like Wuhan and Shenzhen, achieving notable success in reducing the damage caused by seasonal flooding.

In this context, ecological urbanism is not just an alternative to migration, but also a political tool for building Urban Climate Justice, wherein resources, opportunities, and services are distributed equitably, and priority is given to communities marginalized both environmentally and socially (Anguelovski et al., 2016,p201). This approach has proven effective in reducing urban inequalities and easing the burden on major cities receiving climate migrants.

Adopting this model requires political will, long-term planning, and active community participation. It also necessitates dismantling conventional urban planning policies that overlook the environmental dimension in favor of real estate or profit-driven logic. As Richard Sennett (2018) puts it, "The good city is the one that can learn from its environment"—meaning a city that continuously reshapes itself in harmony with the challenges and transformations of nature.

9.COP28 and Climate Migration: A Global Call to Address the Rising Crisis of Environmental Displacement (Sky News Arabia, 2023)

With the convening of the twenty-eighth Conference of the Parties (COP28) in the UAE, attention is focused on the most urgent environmental issues, foremost among them the phenomenon of climate migration, which has become a global challenge requiring urgent political and developmental responses. This phenomenon results from the intensification of acute climate changes—such as rising temperatures, increasing drought, water scarcity, and coastal erosion due to sea-level rise. These factors directly threaten food and water security and push millions into forced displacement from their original homes.

UN High Commissioner for Refugees, Filippo Grandi, issued a clear warning during the conference, stating that the world is not prepared for the upcoming waves of climate migration, emphasizing the need for sustainable financing to confront this issue. Data from the World Bank indicate that the number of climate migrants may reach approximately 216 million by 2050, most of whom will be forced to move internally, especially in climate-vulnerable regions like Sub-Saharan Africa and the Middle East.

UNHCR reports show that 90% of the world's refugees already come from regions strongly affected by climate change, reinforcing the hypothesis that humanity is officially entering the "era of climate migration," as described by the International Organization for Migration. Concerns are rising that without policy change, unprecedented displacement waves could exceed 1.5 billion migrants in the coming decades, potentially creating widespread humanitarian and security crises.

Experts at the conference, including academic Ramadan Hamza, emphasize that "climate migration" must be a priority in global environmental, social, and economic planning, calling for activating alternative energy projects, rationalizing resource use, and supporting the agricultural sector, especially in rural areas. Regions both sending and receiving migrants must be prepared with adaptive capabilities—strengthening infrastructure, healthcare services, and job opportunities—to prevent the escalation of unorganized displacement and its severe economic and social impacts. (Brikel &. H., 2017, p. 67)

COP28 presents a strategic opportunity for the international community to move beyond slogans toward an effective global response based on solidarity and climate justice, to protect the rights of those affected by climate change and prevent climate migration from turning into a permanent humanitarian tragedy.

10.Climate Migration: Environmental Transformations as a Driving Force in Reshaping Societies

Climate migration today represents one of the most significant contemporary social challenges, as environmental changes—from drought, desertification, and sea-level rise—have emerged as a driving force compelling millions to leave their original homes. This migration is no longer tied solely to sudden disasters but has become a structural phenomenon affecting entire communities

due to gradual climatic transformations impacting livelihoods, agriculture, and urban infrastructure. In the absence of international legal recognition for these "environmental migrants," their social vulnerability intensifies, particularly when crossing borders and losing the protections afforded to traditional refugees under international conventions. According to estimates by the International Organization for Migration, the number of climate migrants may exceed 1.5 billion by 2050, threatening to redraw maps of population stability and placing receiving communities before unprecedented challenges in their capacity to adapt. .(Brikel, 2014,p167)

The experience of Iona Tateiota, a citizen of Kiribati who sought environmental asylum in New Zealand in 2013, marks the beginning of global awareness of this new phenomenon while also revealing the shortcomings of legal and political frameworks in addressing rapidly evolving environmental and social shifts. Hence, there is a pressing need for a comprehensive sociological approach that integrates an environmental dimension into migration analysis to understand the dynamics of social change in the age of climate crises.

11.Migration and Climate Change in the Arab Region: From Environmental Challenges to Sociological Transformations

The Arab region is currently facing critical intersections between two interrelated phenomena: climate change and migration, where environmental transformations have had profound effects on social and economic structures, especially in vulnerable societies. Waves of drought, resource scarcity, and declining agricultural output have driven large segments of rural populations into cities, increasing pressure on urban centers and exacerbating issues of poverty, housing, and unemployment. These challenges are particularly intense for the most vulnerable groups—women and children—who experience compounded impacts due to the intersection of environmental factors with unequal social structures.

From a sociological perspective, migration associated with climate change can be viewed as a dual mechanism: on one hand, it reflects the weakness of local adaptive capacities; on the other, it may serve as an effective strategy to enhance community resilience to environmental disasters—provided it is managed through fair and inclusive policies. Understanding the structural link between population movement and climatic transformations requires generating field knowledge grounded in evidence that integrates the social, cultural, and economic dimensions into adaptation policies. (Brikel H. , 2018, p. 145)

The paper emphasizes the importance of adopting an integrated approach to managing these challenges, focused on enhancing climate justice, empowering receiving communities, and building regional policies based on accurate data. Thus, migration in the Arab context is no longer merely a demographic phenomenon but has become a deep sociological indicator of the fragility of the balance between humans and the environment.

12.The City as a Field for Receiving Climate Migrants: A Housing Crisis or a Planning Crisis?

With the rise of climate migration waves, cities—especially in the Global South—have become primary destinations for environmental migrants, whether internally displaced or coming from neighboring disaster-affected regions. This sudden population concentration poses not only quantitative challenges related to overcrowding or pressure on resources but also questions

whether cities are facing merely a housing crisis or a comprehensive planning crisis (Pelling, 2011,p76).

In many receiving cities, the situation is not just a lack of housing or services but structural failure in urban policies that have not integrated the logic of "climate migration" as a long-term demographic reality. IOM reports (2022) show that most environmental migrants do not receive formal housing but settle in marginal informal neighborhoods often located in other climate-risk areas—such as flood zones or landslide-prone areas—thus increasing their vulnerability. In cities like Dhaka (Bangladesh) and Lagos (Nigeria), congested poor neighborhoods have become unstructured urban extensions resulting from chronic environmental migration. The Climate and Migration Center (McLeman & Smit, 2006,p102) indicates that these cities are gradually transforming into "permanent temporary hosting spaces," where migrants remain for years without formal integration into the urban tissue. In Lagos, for example, the population of informal settlements tripled over two decades, while urban development plans remained stagnant or ineffective (UN-Habitat, 2022).

This is not limited to African or Asian cities. In Latin America, especially in Peru and Brazil, cities like Lima and Rio de Janeiro have experienced haphazard suburban expansion due to population inflows caused by droughts and landslides. A study by Angela Roxström et al. (2020) revealed that nearly 70% of environmental migrants in those cities live in dwellings that lack climate-safety standards, making them susceptible to repeated disasters.

In the Arab region, major cities such as Casablanca, Algiers, and Cairo have started to experience demographic pressure partly driven by population movements from desertification and water-scarce regions. In Algeria, Ministry of Environment reports (2021) indicate increasing internal migration from high plateaus to coastal cities, exacerbating housing crises and creating new informal settlements on urban fringes—yet these transformations remain absent from forward-looking urban plans (Ben Aissa, 2022,p 96).

All of this leads us to rethink the conceptual structure of the city in the context of climate change. A city is no longer merely a passive container for arrivals but a dynamic field of competition over space, resources, and identity. Researchers (Castells, 2010; Swyngedouw, 2009) agree that cities that fail to incorporate "climate justice" into their urban policies are threatened by escalating inequalities and the breakdown of social fabric.Therefore, a shift from crisis management to proactive planning is necessary—through developing urban tools capable of predicting climate-driven population movements and integrating them into housing, transport, and health policies. It is also essential to implement "participatory planning" that involves local communities in creating urban space in ways that reflect their needs and enhance their resilience (Davoudi et al., 2009,p 146).

Thus, the city's crisis in facing climate migration is not merely a housing crisis but reflects a deeper crisis in planning, vision, and mechanisms for the urban response to environmental and social change alike.

13.Climate Migration and the Reproduction of the Urban Margin

Although the city is imagined as a space of economic and social opportunities, its material and social reality reveals that the reception of waves of environmental migrants—particularly those from poor and marginalized groups—leads to the reproduction of vulnerability in new forms. These individuals, forced to leave their original homes due to droughts, floods, or desertification,

are not truly integrated into the urban fabric. Instead, they are reclassified within the city under a dual vulnerability: environmental vulnerability—stemming from their origin—and urban vulnerability—resulting from the conditions of reception (Biermann & Boas, 2010; Oliver-Smith, 2011,p 189).

Field experience in cities such as Karachi (Pakistan) and Casablanca (Morocco) shows that most climate migrants end up in urban peripheries, often unstructured and lacking basic infrastructure—ranging from potable water, sanitation, and transportation to healthcare and education. These areas form a kind of "non-city" or "transitional space" where official urban laws do not apply, and the state only exercises its authority through security or repression, deepening the social and symbolic exclusion of these populations (Wacquant, 2008,p35).

This form of urban exclusion goes beyond the absence of material rights; it extends to cultural and institutional forms of discrimination, where environmental migrants are perceived as "outsiders" or "strangers" to the urban space and are often blamed for urban problems such as overcrowding, unemployment, or insecurity. Researcher Mike Davis (2006), in his study Planet of Slums, noted that this discourse legitimizes new forms of "spatial discrimination," turning climate poverty into an urban stigma (. Brikel, 2014, p. 89)

In this context, climate migration becomes a catalyst for producing a new urban margin defined not only by geography but also by its relation to power and the state. The issue is not merely a lack of services, but rather concerns the position of these migrants within the system of urban citizenship and the extent to which the state recognizes them as citizens with environmental and social rights. Here emerges the issue of **environmental citizenship**, which asserts that inhabitants have the right to a healthy environment, as well as to housing, transportation, and participation in urban decision-making (Dobson, 2003,p77).

Moreover, the marginalization of these groups without true integration generates dynamics of resistance—either silent or overt—sometimes taking the form of protest, or contributing to the growth of the informal economy, or even organized crime in some cases. Erik Swyngedouw (2004) has pointed out that the marginal city becomes a laboratory for socio-environmental conflicts, where demands for dignified living intersect with demands for climate justice.

Urban sociology, in light of these transformations, is now required to move beyond traditional explanatory models of migration and urbanization, and to adopt analytical approaches that connect space, power, and citizenship. It must also reconsider the classification of urban groups not only based on class or occupation, but based on complex socio-environmental vulnerability, which requires new tools for observation and deconstruction.

In Algeria, some official and media reports (Ministry of Environment, 2021; Ben Aissa, 2022,p155) have begun to highlight growing internal migration from the south to the north due to declining water resources and increasing desertification. This has contributed to the emergence of unstructured neighborhoods in the outskirts of cities like Oran, Algiers, and Tiaret. However, these phenomena are still being addressed through narrow security or administrative measures, without being integrated into a comprehensive vision for sustainable urban planning.

Climate migration is not merely a developmental or demographic issue—it is a test of the justice of the city and of the ability of urban policies to respond to environmental transformations in a holistic way. It is also a call to reimagine the relationship between people and place in the face of escalating climate crises. (Brikel &. H., 2017, p. 47)

14.Climate Migration and Urban Preparedness: Between the American Model and Global Shortcomings

Numerous international reports by organizations such as the World Bank (2021) and the Intergovernmental Panel on Climate Change (IPCC, 2022) indicate that most cities—especially in the Global South—are unprepared to handle the growing influx of climate migrants. This shortfall is not limited to weak infrastructure, but also includes the absence of inclusive social policies and a lack of strategic vision among decision-makers. Many cities receive environmental migrants as "emergencies" or "irregulars," without integrating them into sustainable urban planning or climate justice programs. (. Brikel, 2014, p. 109)

In contrast, some American cities—particularly in states like California, Florida, and New York—have begun to adopt proactive policies known as **Urban Climate Adaptation Strategies**. These include modeling environmental displacement scenarios, estimating housing needs, expanding public services, and investing in **resilient infrastructure** capable of absorbing climate shocks (Rosenzweig et al., 2018). Among the most advanced initiatives is the **100 Resilient Cities** project, launched by the **Rockefeller Foundation**, which provided a roadmap for many U.S. municipalities to prepare for potential environmental disasters and large-scale population displacement.

Despite these pioneering initiatives, the central question remains: Are these policies sufficient? And can they be generalized globally? From the perspective of American interests, such preparations are viewed as an investment in national and domestic security. Reports from the Department of Homeland Security (DHS, 2020) suggest that urban failure to manage waves of climate migration could lead to the breakdown of social fabric, increased resource-related conflicts, and the worsening of urban marginalization, especially in vulnerable neighborhoods.

However, scaling this model globally faces structural challenges, primarily the economic disparity between urban centers in the Global North and those in the Global South, in addition to cultural and political differences that influence mechanisms of local governance. Furthermore, some developing countries still deny the existence of climate migration as a distinct sociological issue, which hampers legal and political recognition (Piguet, 2013,p 96).

In the Arab context, urban climate policies are still in early stages. Reports from environmental organizations such as the **Middle East Observatory for Environment and Development** (2022) show that most Arab cities lack clear plans to absorb environmental migrants—whether internally displaced or coming from neighboring countries. This hesitation opens the door to compounded crises in the near future, especially amid accelerating phenomena like desertification, rising temperatures, and water scarcity.

Thus, **urban sociology is called upon to analyze "urban readiness" not merely as a matter of infrastructure**, but as a **socio-political process** involving justice, inclusion, and interaction between the state and society. Our understanding of climate migration must transcend an emergency framework toward developing long-term strategies that redefine the relationship between city, climate, and citizenship.

15.Toward an Urban Sociology of Climate: From Conceptual Adaptation to Policy Transformation

Climate migration has become one of the major social realities of the 21st century. It is no longer a marginal or exceptional phenomenon, but a central mechanism reshaping urban spaces

demographically, economically, and politically. Climate changes—ranging from floods and droughts to desertification and sea-level rise—have become structural factors that reproduce vulnerability and drive waves of population toward cities. This calls for a rethinking of the concepts of **urbanization**, **adaptation**, and **urban citizenship** in light of these new developments.

Urban challenges have surpassed traditional concepts linked to population growth or poverty, becoming organically tied to environmental transformations. As Erik Swyngedouw (2004) affirms, the city has become a point of convergence for social and environmental tensions, necessitating the development of a **"climate urban sociology"** capable of deconstructing the relationship between environment, power, and urban space.

From this perspective, urban sociology must renew its analytical tools and embrace new concepts such as **urban climate justice**, **ecological urbanism**, and **environmental citizenship**. Recent studies show that the disparities in cities' ability to adapt to climate change often reflect existing social inequalities—making vulnerable groups such as climate migrants, informal settlement residents, and working classes the most affected by environmental disasters (Klinenberg, 2018; Bulkeley et al., 2013,p 203).

At the policy level, the U.S. strategy for dealing with climate migration follows two interconnected dimensions: **domestic** and **foreign**. Domestically, the U.S. supports municipalities in developing preparedness and rapid response plans for environmental disasters, modernizing infrastructure, and expanding urban capacity to absorb environmental migrants. Internationally, U.S. geopolitical interests require anticipating climate-driven migration by supporting development projects in climate-vulnerable countries, aiming to reduce displacement and achieve a form of **"global environmental stability"** (National Intelligence Council, 2021).

Yet, these policies—despite their relative effectiveness—remain confined within a **"risk management"** framework, falling short of global justice or recognition of the **"right to environmental asylum"** as a moral and human imperative. Here lies the importance of the **sociological approach**, which not only describes facts but interrogates the social and political systems that produce and exacerbate such phenomena.

We therefore need a new vision of the city—not merely as an urban container, but as a **field of environmental and social struggle**, a domain for redistributing rights, opportunities, and resources in a world witnessing unprecedented climate disruptions. "Urban climate sociology" is not a theoretical luxury, but a **scientific and ethical necessity** for understanding a rapidly changing world and for designing policies capable of building **just, sustainable, and livable cities for all inhabitants—including climate migrants**.

15.Conclusion

Climate migration has revealed a dual crisis affecting both the natural and social domains. Environmental disasters are no longer isolated events but have become structural factors reshaping population distribution and transforming urban spaces in unprecedented ways. As the number of environmental migrants increases annually, with their concentration in major cities, fundamental questions arise about the readiness of traditional urban models to address this new reality.

The city, once seen as a space for integration and social mobility, now faces complex challenges related to housing pressure, services, and natural resources. More concerning is its

role in reproducing marginalization and socio-environmental inequalities, turning climate migration from a natural phenomenon into a crisis of planning and governance. This necessitates a rethinking of urban policies through a more comprehensive lens that incorporates environmental dimensions and climate justice.

In this context, **urban sociology is called upon to move beyond traditional frameworks** and embrace multidisciplinary analyses capable of understanding the intersection of climatic, political, and spatial factors. It is no longer possible to separate the city from the environment or to view urbanization as a neutral process. Climate transformations are redefining the urban field as a battleground for new conflicts over water, air, land, and the right to exist.

International experiences have shown that **proactive planning and ecological design** can be effective tools to mitigate the effects of climate migration—provided these policies are backed by political will and a just development vision. Therefore, building **resilient and sustainable cities** should not be seen as merely a technical endeavor, but as a **social and ethical choice** that safeguards human dignity and the right to a safe environment.

In conclusion, climate migration is not only a future crisis but a present-day metric for assessing societies' ability to adapt and move from a logic of emergency to one of justice. It is a call to establish a new **urban sociology** that recognizes the urban space not just as a reflection of social relations, but as a **site of environmental struggle and a potential engine for a more just and sustainable civilizational transformation**.

16.Key Findings

Climate migration has become an undeniable urban social reality—it is no longer a future possibility. In recent years, climate change has emerged as the main driver of population redistribution and the formation of new urban spaces. Today, cities represent the primary destination for climate-displaced populations, as increasing numbers of people flow into urban centers, creating immense pressure on infrastructure and essential services such as housing, healthcare, and water.

Despite this growth, there remains a lack of an international legal framework recognizing climate migrants as refugees, which leads to their political and sociological marginalization. Climate change contributes to the reproduction of urban marginality through the emergence of informal and peripheral neighborhoods, often vulnerable to additional environmental risks. Experience has shown that traditional urban planning tools are no longer capable of addressing these transformations, as proactive planning and adaptability are largely absent.

The unequal distribution of resources and the deterioration of environmental justice have exacerbated class disparities within cities. Urban sociology continues to lag in framing this phenomenon, relying on traditional concepts that fail to capture the complexity of climate migration. In contrast, some international experiments—such as sponge cities in China and the United States—demonstrate the feasibility of developing environmental urbanism as a preventive and anticipatory tool.

Another structural issue is the lack of coordination between local and national levels of governance, leading to ineffective responses. Vulnerable groups such as women, children, and the elderly are among the most affected, facing compounded forms of social and environmental marginalization. Moreover, the absence of accurate databases on climate migrants hinders the formulation of effective policies, and the environmental dimension remains largely excluded

from urban policies.

Climate migration is not limited to the Global South—it has begun to affect parts of the Global North as well, as natural disasters become more frequent. However, there are still significant disparities in cities' responses, depending on their resources and planning visions. One of the key risks is that environmental migration may lead to new urban conflicts over resources and space, particularly in cities that treat climate migrants as second-class citizens. Additionally, the lack of social integration programs further isolates these groups within marginal neighborhoods.

Finally, the disconnection between environmental and urban policies, coupled with the absence of an active role for universities and the scientific community in formulating practical solutions, presents a structural obstacle to effective response. In this context, **ecological urbanism emerges as an integrated developmental alternative**, capable of addressing the root causes of climate migration—not just its external manifestations.

17.Recommendations

It is essential to advocate for international legal recognition of climate migrants, either by amending the Geneva Convention or by establishing a complementary legal framework that protects this group. The concept of climate migration should also be integrated into academic curricula in urban and environmental sociology, contributing to the development of a theoretical discourse grounded in reality.

In addition, flexible urban policies must be developed based on future climate scenarios and models, and databases on environmental migrants—both locally and globally—should be improved to facilitate forecasting and decision-making. Sustainable housing projects should be supported, and alternative urban planning solutions should be provided for cities affected by climate-induced migration.

In this context, existing informal settlements must be rehabilitated through participatory approaches that take into account spatial justice. Urban policies must explicitly adopt the principle of climate justice within their developmental visions and plans. Involving local communities in urban planning and adaptation efforts is also crucial to ensure the sustainability and social acceptance of proposed solutions.

It is further recommended to adopt ecological urbanism models in the development of new cities, expand the authority of municipalities in managing climate and migration issues, and link local development plans with climate change dynamics. Climate risk maps should also be developed to help anticipate population movements in cities and enhance their responsiveness.

Vulnerable groups must be guaranteed equitable access to basic services, and scientific research in the field of climate migration should be supported through dedicated funding. Strengthening cooperation between universities and governments is also advisable for designing evidence-based environmental urban policies.

Moreover, climate adaptation awareness should be promoted through school curricula and media campaigns, and a national framework for environmental migration should be established—one that integrates climate, urbanization, and social justice. Renewable energy use should be encouraged in vulnerable areas, and a national or international observatory should be established to monitor the impacts of climate migration on cities.

Finally, city-to-city partnerships (twinning) should be encouraged to facilitate the exchange of expertise, and climate refugees should be incorporated into urban development strategies. There

must also be international pressure on major industrialized nations to provide fair environmental compensation to cities affected by climate change and climate migration.

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