

# Climate and Environmental Change Migration: The Case of Senegal

Dr. Mor Tine

PhD in sociology,

Université Gaston Berger de Saint-Louis

DOI: <https://dx.doi.org/10.47772/IJRISS.2024.803155>

Received: 19 February 2024; Revised: 07 March 2024; Accepted: 12 March 2024; Published: 18 April 2024

## SUMMARY

Humanity has always migrated due to environmental factors. Nevertheless, the frequency and intensity of migration flows influenced by environmental reasons have grown exponentially. The environment, however, plays a combined role with other factors regarding the decision to move and the movement itself can vary in distance, duration, level of vulnerability and according with the regional particularities.

Having this in mind, this research paper decided to choose one specific case to approach the complexities that environmental migration can raise. The case is of Senegal. The country has suffered climate change impacts, natural and human made-disasters and its people have moved internally and cross-border to cope with the situation.

This research will describe the complexity of the climate change and environmental migration in general focusing on some study cases. The last part will focus on the internal and international movement's particularities and suggest an approach to see migration as a proactive adaptation strategy rather than a reactive last-minute option. Aligned with the Global Compact on Migration the last and UNFCCC recommendation, environmental and climate change migrants need to be considered as active agents and not victims, when designing migration

## INTRODUCTION

Environmental and climate change migration is a complex phenomenon that has only recently being investigated. Many people across the world move due to environmental stresses, combined with other political, economic, sociological, and cultural factors. Because of these multiplicities of factors, policy makers tend not to consider the existence of environmental migration as a phenomenon that needs attention. However, the environment can have a determinant role on the decision to move and these people can be found in an extremely vulnerable situation.

The environmental factors can vary from a sudden-onset natural, or human made disaster that force people to flee, such as hurricanes, earthquakes, typhoons, nuclear explosions and contamination, and dam breaks, etc. to slow-onset natural or human made events such as land salinization, long-term dry, desertification, constant flooding, coastal degradation, and deforestation, etc. Additionally, the movement can vary in distance; it can be internal, regional or international, and in duration, short-term response to disasters,

medium duration.

If measures aren't taken to improve the environment and infrastructure, migrants will establish permanently in another country.

The voluntary decisions can also vary. People can migrate as an adaptation strategy to sustain the community or to avoid the worsening situation, or they can move because the situation became unbearable and the basic needs such as water, food, and shelter cannot be guaranteed because of the environmental changes, or they can move during a major fast-onset disaster, where their lives is in risk. Nevertheless, it is extremely hard in practice to differentiate those situations and box them in specific categories.

Due to this complexity, policies and solutions should be approached regionally, depending on the environmental, economic, political, sociological, and cultural situation of the case, instead of creating a one-size-fits-all solution that would put all these categories under the same box and not consider their vulnerability. Furthermore, the current international political situation regarding migration tend to emphasize anti-migration policies and it is extremely unlikely that countries would open their borders to various environmental migrants in the world.

To explore the large number of particularities surrounding the topic of environmental immigration, we decided to choose a case that encompasses a variety of solutions.

We will focus on Senegal that faced a natural disaster followed by a human made intensification of this disaster, which caused other environmental consequences combined with the role of climate change. The paper will describe the case and investigate the role of the environmental factors on the decision to move. Additionally, it will analyze the internal and international movement, considering the main stakeholders involved, the country's international and regional political situation, the existent migration patterns, and a multidisciplinary approach. Lastly, it will suggest what actions should be taken to organize and protect the environmental migrants of the case. Regarding the conceptual framework used on this paper, some words on the topic are controversial and some terms need to be explained to define the scope of our research.

The term **migration** is defined as *“the movement of a person or a group of persons, either across an international border, or within a State. It is a population movement, encompassing any kind of movement of people, whatever its length, composition, and causes, it includes migration of refugees, displaced persons, economic migrants and persons moving for other purposes, including family reunification”*<sup>[1]</sup>, according with the International Organization for Migration (IOM). Migration in this paper is a synonym of human mobility, therefore, when referring to a specific type of migration, there will be an **adjective** following migration.

The term **displacement** refers to the *“involuntary or forced movement, evacuation or relocation of individuals or groups of people from their homes or places of habitual residence”* <sup>[2]</sup>. It is not differentiated if the people are displaced temporally or permanently. According with the Guiding Principles of Internally Displaced People.

**Disaster** is defined as the *“serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. They result from a combination of risk factors: the exposure of people and assets to singles or multiple hazards, and pre-existing vulnerabilities including their lack of capacity to cope with shocks”*<sup>3</sup>.

Lastly, the term **adaptation**, on the context of this paper, is the Intergovernmental Panel on Climate Change (IPCC) definition of *“in human systems, the process of adjustment to actual or expected climate and its*

*effects, which seeks to moderate harm or exploit beneficial opportunities”<sup>[3]</sup>.*

The scope of this research will be the political, legal, and sociological perspective of the role of the environment on the decision to move and what can be the possible solutions to organize and protect these people, considering some cases. The significance is to demonstrate the complexities of a newly explored theme and to find possible solutions that can be implemented locally and regionally. These solutions could be adapted and replicated to similar situations.

The research method is a case study, according with the inductive approach. The research will be done with a literature review of the topic, followed by an investigation of the case and fieldwork on the form of semi-structured interviews to understand the role of the environment on the decision to move, according with people from the Diébène Gandiole municipality. Lastly, an investigation on international reports and policy reviews will be done to come up with recommendations and possible solutions to the situation.

## **THE COMPLEXITIES OF ENVIRONMENTAL AND CLIMATE CHANGE MIGRATION**

### **Context**

The human being is a migrant being. It only adopted a sedentary lifestyle when they learned how deal with the environment surrounding them. Nevertheless, environmental stresses caused people to migrate looking for food security and a better habitat. For this reason, environmental migration is an old phenomenon.

As time passed, people learned how to dominate the environment, secure better food, nutrition and develop technologies to fight various diseases. Population started to grow and built housing close to vulnerable and disaster-prone areas. Moreover, the intensification of climate change and its consequences as the number of natural and human-made disasters increased, made the environment an important and current factor to consider when deciding to move. Therefore, climate and environmental migration became a frequent phenomenon on the recent decades.

Another important change in history to consider is the creation and increase of border controls. In the beginning of migration theories, the idea was that the rule should be the free movement of persons, first acknowledged by Francisco de Victoria<sup>[4]</sup> and Hugo Grotius<sup>[5]</sup>. On a second moment, the doctrine of State sovereignty and discretion on migration matters started to be defended by Samuel von Pufendorf and Christian von Wolff<sup>[6]</sup>. Despite the predominance of the territorial control theories, the establishment of border controls in practice only started in 1905 in the United States<sup>[7]</sup>, and intensified in 1929, after the economic depression<sup>[8]</sup>. In this context, people migrating due to environmental reasons were not an issue studied at the time.

### **International Legal Framework**

The first time environmental migration was brought up as in 1970, when Lester Brown, founder of the Worldwatch Institute, noticed that the number of movements induced by environmental factors as desertification, flooding, internal thunderstorms, water resources scarcity, and excess of pollutants on the environment was increasing<sup>[9]</sup>. He called them “environmental refugees”. The term “environmental refugees” became popular in 1985, when Essam El-Hinnawi, proposed a definition for the term on a United Nations Conference in Nairobi, Africa<sup>[10]</sup>.

Despite being a famous term and many researches were developed around it<sup>12</sup>, this paper does not defend the existence of a category of environmental refugees.

The legal reason is because the Refugee Convention of 1951 defines a refugee any person who:

*As a result of events occurring before 1 January 1951 and owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it*<sup>[11]</sup>.

The 1976 Protocol Referring to the Status of Refugees removed the temporal. (events having occurred before January 1951) and geographical (limitation to European countries) restriction. However, there are other restrictions that still prevent the existence of the “environmental refugees” category. The reason is because there are three elements for defining a refugee: the fear of persecution, the reason of the persecution needs to be caused by race, religion, nationality, membership or a particular social group or political opinion; and the extraterritoriality<sup>[12]</sup>.

Environmental migration doesn't require any of those categories to be filled. Initially, environmental stresses or disasters do not cause persecution. It can be alleged that they can violate human rights, however, there is no active state or parastate acting on the persecution<sup>[13]</sup>. Secondly, the persecution needs to be caused by one of the five categories. The environment affects everyone in the community or area, regardless of belonging to a race, religion, nationality, particular group or political opinions, therefore, the reason is not necessarily fulfilled<sup>[14]</sup>. Thirdly, the refugee request needs to be done in a third country. Most of the people affected by environmental stresses do not cross borders and tend to move inside their own countries<sup>17</sup>. Lastly, while the refugee request is a personal and individual procedure, environmental migrants tend to move with all the affected community. In this sense, there is no individual reason for persecution.

The political reason is because when the 1951 Convention was drafted, environmental migration was not a major concern in the world and the Convention was not made to include this category. It is possible to open the Refugee.

Convention to include another category, but there is a widespread fear that if the 1951 Convention is open to renegotiation in the current international mindset towards migration, States will limit the refugee category and reduce rights and protection mechanisms, instead of improving them. Likewise, there is no political movement to create a new refugee convention to include other possibilities<sup>[15]</sup>.

The United Nations High Commissioner for Refugees (UNHCR), organization responsible for supervising and implementing the Refugee Convention has already declared that it is not possible to apply the Convention to environmental migration cases<sup>[16]</sup>. In this context, environmental migrants are not considered as refugees and do not have the same legal protection. They, therefore, fit in the general “economic migrants” category and can only count with the standard international human rights framework applicable to all aliens in a third territory<sup>20</sup>.

## Complexities

Environmental Migration is considered a complex phenomenon because it can happen in different contexts, having a multiple interaction of causes, different distance, duration and motivation. Besides, it is hard to measure the intensity of these factors and there is a large gray zone in between the classifications. Due to this paper's purpose, only a brief overview of the complexities of environmental migration will be discussed.

The environmental factor can be a fast-onset event such as an earthquake, typhoons or nuclear explosion or a slow-onset event as desertification process, land salinization and long-term dry. It can be a natural hazard

such as a volcanic eruption or a hurricane or a human-made disaster such as a dam break, development projects and deforestation. Additionally, some environmental events can be linked to climate change such as sea-level rise and temperature increase or be considered as a natural disaster such as volcanic eruption and earthquakes. There is also a gray zone of events like hurricanes, typhoons, floods that are considered natural hazards, but occurred more frequently due to climate change<sup>[17]</sup>.

The factors that play a role in the decision-making process to move also vary depending not only on the environmental reason, but vulnerability from the environmental factor, such as rural populations depending mostly on agriculture, fishermen, and communities located in areas prone to disasters, etc. The political situation of the country also influences, for instance, while an earthquake on Haiti destroyed most part of the country and it took years to recover from it, an earthquake on Japan caused less destruction and the recovering period was faster. The economic situation of the person affected is also a factor to consider.

Wealthier people tend to have more enforced constructions and be less vulnerable to environmental changes, while poor people have simpler households and tend to be more affected by flooding and other issues.

Voluntary movement is one of the most discussed and controversial factors. There is a standard wording that states migrants moved voluntarily, while displaced people were forced to move. However, in most cases, it is extremely hard to define a threshold that establish the limits for when it is reasonable to stay or to leave<sup>[18]</sup>. For instance, a long-term drought in one region affects all the agriculture and farmers cannot grow any crops in the region. Should they move and try to farm in another region, or should they stay and dedicate their effort to other activities? Certain communities can be more resilient to environmental change than others and communities can use migration to adapt to the environmental stress.

The voluntariness can also be related with the division of reactive or proactive mobility. Reactive mobility is when the person or community has no other alternative than to move to save their life. It usually relates with fast-onset disasters<sup>[19]</sup>. However, slow-onset disasters can cause catastrophes that leave people without other options than to move. Proactive mobility is when a person moves to adapt to an environmental stress before the situation becomes unbearable<sup>[20]</sup>. The current world's tendency under the United Nations Framework Convention on Climate Change (UNFCCC) negotiations is to consider migration as an adaptation strategy to climate change, to ask countries to create safe paths for migration, so people can move before they lose everything and be less vulnerable after the movement<sup>[21]</sup>.

The temporality also varies. The movement can happen just after a disaster and the return is after a few hours or days. People can move for a medium period, working abroad to send remittances to their communities and waiting for the environment to recover. Others are considered proacted movements, when there are few chances that the environment will recover, and people stay for a long period or never return.

The movement can be individual or collective. On the one hand, individual is when a person moves alone. Usually, to sustain their family that cannot have the same quantity of production or type of livelihood after the environment stress. On the other hand, collective is when a whole community need to move due to the environmental factor or because they are relocated to prevent a major disaster. Besides, there are cases when a part of the community moves together and the other part stays. For instance, men can move to send remittances and women, child and elderly stay and find other adaptation strategies.

Lastly, the distance is another factor. There are internal movements, inside the same country, to another city or province. And there are cross-border regional movements, when people go to the neighboring countries and the cross-border international movements, when people go to other regions of the world. The environmental factors usually play a smaller role regarding the decision where to go; and cultural ties, stablished pathways, economy, religion, political situation, language spoken, and others play a major role on

the decision.

The next part will present an overview of the recent history and current situation Senegalese environment and climate migration and relate with the variables *presented here*.

## **THE CASE OF THE SENEGALESE MUNICIPALITY OF NDIÉBÈNE GANDIOLE**

Senegal is one of the most vulnerable countries to climate change. It was considered the 13th African country more vulnerable to climate change, in 2013[22]. And it presents several cases of environmental migration. The environmental vulnerability is a result of a combination of many factors. The consequences of climate change threaten the Senegalese population that is highly dependent on agriculture and fishery. Phenomena like decrease on the total availability of rain, multiplication of long-term drought, land salinization, coastal erosion and others affect the life of most of the population.

Sea-level rise and loss of coastal land are another variable. If the IPCC predictions happen and the sea-level rises only 1 meter until 2100, Senegal might lose between 55km<sup>2</sup> to 86km<sup>2</sup> of land, followed by coastal erosion<sup>28</sup>. Moreover, 6.000km<sup>2</sup> of low-lying lands will be flooded, which will cause a complete disappearance of the mangrove ecosystem<sup>29</sup>. Additionally, the current sea-level rise has been causing land salinization and land acidification, taking a longer time for the land to recover and grow crops.

The Ndiébène Gandiole municipality is located on the coastal northern part of Senegal, just on the border with Mauritania. Most of its population exercise farming and fishery activities. The region suffers with climate change effects as the rain season changes, with a lower quantity of rain per year, which results in long-term drought in the region. This impacts directly the pastoral and agricultural activities and the biodiversity, causing disappearance of vegetal and animal species. The manifestations of climate change are respectively: salinization, loss of land, submersion, increase of temperature, flooding, soil erosion and decrease of rainfall<sup>30</sup>. Most of these environmental issues are considered climate related slow-onset factors.

In the year of 2003, Senegal faced heavy rains that caused flooding on many parts of the country. The level of the water in Ndiébène Gandiole reached 1022 cm<sup>31</sup>. This can be considered a fast-onset environmental disaster. In this context, Senegal's government, on the 3<sup>rd</sup> October 2003, opened a hole close to the coast to drain the water from the communities. The hole initially was 4 meters wide and 1.5 meters deep. Nevertheless, the hole started to grow exponentially, and, on the 6<sup>th</sup> October 2003, the hole passed from 4 meters to 200 meters in diameter. And on the 8<sup>th</sup> October, the level of Senegal's river decreased by almost 1 meter a day. This situation can be considered a fast onset humanmade disaster, which presents long-term consequences.

The governmental action increased the region vulnerability to the environment. The interview conducted with the village chef, Doune Baba Dièye explain the situation viewed by the locals: They did not want to hear us. They sent experts that did not understand the field reality. It was clear that the hole would not keep 4m width, considering that the land where they created the hole is constituted by moving land. Now, the only one's suffering are the people from the Gandiole.

The hole has also caused many deaths of fishermen. It is estimated that 500 fishermen died between 2003 to 2018, because they need to cross it to be able to go to the sea and despite being dangerous, there is no other way around it. For this reason, many people considered migrating to other regions the only alternative to be able to survive. The interview with the chief of the Rimbakh village and farmer illustrates the situation: "All our field is destroyed, see my employees, they do not have anything to do. People are moving. If the salty water was above, we could circumvent the salt on the aquifers level, however, the problem is that the salty water is above the sweet water, and it contaminates it. We must cross almost 12 meters to have sweet water.

And we must pay 500.000FCFA for having wells, you see how expensive it is”.

In this context, the movement of people can be divided in two categories. The farmers move inside the province of Saint-Louis looking for better land and to other parts of the country. The qualitative research conducted by Mor Tine, on the context of his dissertation, demonstrates that most of the farmers who migrate to other regions of Senegal do not keep exercising farming, but go to other sectors as commerce, transport, and craft, etc.

The fishermen usually keep their activities, but they go to further distances to be able to fish. The most common destinations are the neighboring countries of Mauritania and New Guinea. In these countries, they do not have any human rights guarantees and face xenophobia, and even persecution because of the resource disputes.

It is necessary to highlight that most of the migrants are young men. Women and children and elderly people stay in the region. Women developed an oyster commerce and salt commerce as a resilience strategy to face the situation, and men that go abroad send remittances to the population that stayed in the region.

## INTERNAL AND INTERNATIONAL MIGRATION

### Internal migration

According to the World bank, sub-Saharan Africa estimates to have more than 80 million people move within their country's borders by the year 2050 if nothing is done to address the climate change crisis[23] (“Groundswell,” n.d.). Internal migration affects the most vulnerable communities as rising temperatures cause water shortages, natural disasters, decreasing crop productivity, and rising sea levels[24] (“Groundswell,” n.d.). Throughout Senegal, floods created by climate change have caused many inhabitants to live in areas surrounded/covered with water. These consequences have created an immigration and mobility crisis throughout the region.

The drivers of internal migration are multilayered and require more research since areas with perceived environmental stress and increased climate-related events may not be the primary motivation for internal migration. From examining the current research, “Socio-demographic factors such as age, household size and current migration status are significant predictors of migration intentions, with younger household heads, heads of migrant households and heads of smaller households being relatively more likely to have migration intentions than other household heads”[25]. From examining the current research, “Socio-demographic factors such as age, household size and current migration status are significant predictors of migration intentions, with younger household heads, heads of migrant households and heads of smaller households being relatively more likely to have migration intentions than other household heads”[26]. Internal migration dynamics can best be highlighted by finding relevant controls such as poverty levels, demographics, economic vulnerability, drought patterns, and wages.

Despite continuous population growth and rising temperatures, government policies and consumer advocacy have the potential to reduce the number of people forced to move by up to 80%[26] (“Groundswell,” n.d.). By including climate migration in development planning, cutting greenhouse gases, and better understanding internal immigration patterns we can stabilize the risk of flood disaster events, land erosion, overcrowding, health risks, and economic catastrophe.

In the case of the municipality of Ndiébène Gandiole, field research demonstrated that climate change effects had an important role on the decision to move, but the opening of the hole and the resultant loss of territory, households, and fishery activities were the decisive factor on the decision to leave. Therefore, the

first action to be taken is to investigate whether the government can be held legally responsible for the opening of the hole and liable for the damaged caused and can be forced to compensate people who lost directly and indirectly their housings and livelihood.

Moreover, the government need to engage in recovering the environment and supporting the population on adaptation and resilience strategies to find other types of activities or control the current exercise of environment-related activities to guarantee human rights and long-term sustainability. This is necessary because the fieldwork demonstrated that farmers usually exercise other activities on the new areas, probably because of lack of access to land and market-oriented necessities. These changes need to be supervised and opportunities offered for people to safely move inside the country.

### **Cross-border migration**

Considering international migration patterns, West African has the highest number of people crossing borders in the world. Around 58% of migration flows take place within the region[27]. Usually, the young men are the ones who cross borders and engage in international migration, for short or longer periods. Retired fishermen frequently reported having worked in Mauritania, Guinea-Bissay, Guinea, The Gambia, Sierra Leone and Liberia throughout their careers[28].

International labor migration paths are an old practice among fishermen communities in Senegal. However, the frequency, duration and extension has increased after the opening of the hole in 2003. Moreover, changes in maritime currents and temperatures have also affected available fish stocks and diversity, with attainable fish being of lower valuable, what makes less feasible for fishermen to stay and work, even seasonally.

There is an established and legal migration pattern to go to Mauritania for fishing. Mauritania offers 400 licenses per year for fishermen go there and fish. In exchange, the first 15 fishing days profits need to stay in the country, and the rest can be brought back to Senegal. However, some fishermen who were unable to obtain one of the licenses cross into Mauritania waters illegally to bring the fish back to Senegal. These are dangerous paths because there are reported abuses of authority and corruption among the Mauritanian cost guards towards both situations. The illegal ones, additionally, have also reported to be beaten, jailed, heavily fined and having their materials confiscated.

Even considering this risks, international migration is often seeing as the only way to adapt to the environmental changes and maintain their community. So, they risk their integrities and lives on this path. The population recognizes that it is due to the money sent from abroad that the villages of Ndiébène Gandiole can survive. “It is our kids that go fish in other areas that feed us; they are present in other parts of Senegal, but mostly in Mauritania, Guine and Gambia. And all they receive, they bring here, because we do not have anything else here. It is thanks for that that we live properly”. It is possible to see that immigration is perceived as the main way to resist to the environmental impacts, and that the remittances are essentially for the satisfaction of nutritional needs.

This investigation indicates that the common police-making rules of “stay is a health signal while moving is an issue to be addressed” do not correspond to a universal truth. There are established seasonal migration paths to cope with environmental changes and people should be empowered and have the option to stay or leave as they want. Therefore, migration should be seen as an adaptation strategy, rather than as a “failure” signal. Moreover, the importance to recognize the link between the environmental change and the decision to move (or increase on the migration flows) is necessary for all the stakeholders to address the root causes of the necessity to move. In this sense, the recognition of environmental and climate change factors on the decision to move by the Global Compact for Migration represents an important step towards the understanding that migration is a normal option to deal with that. This recognition is necessary to



widespread the knowledge and persuade countries to address it locally and discuss and implement regional policies that make migration a safe – non-discriminatory option.

In this context, to be effective and long-term, the adaptation initiatives will need intervention from exterior stakeholders as governments, local collectivities, civil society, development partners, etc. Because they allow the transition from one autonomous adaptation to one planned movement, capable to consider the long-term impacts of environmental changes.

Senegal's government, according with its commitments on the Global Compact for Migration, should seek to reestablish environmental conditions for people product and live in a sustainable way. However, while the recovery is being done, bilateral agreements between Senegal government and the Mauritania government to expand the number of licenses and enforce the protection could be one option to explore. Regional agreements are also a possible solution to legalize this migration path and organize the migrant's flow. Lastly, NGOs and other stakeholders can have active roles on the inspection and preservation of human rights.

## CONCLUSION

Population displacement due to environmental and climatic causes is not new, but the scientific interest is relatively recent. Scientific studies and research have highlighted the banality of such a relationship, especially in drought years during which concepts such as climate migration and climate refugees emerged.

The generalized nature of the crises has made this link appear more and more difficult to define. The purpose of this article is to re-examine such a report to see if, and how sustainable, what directions to give. Considering the data collected, it is fair to say that environmental vulnerability aggravated by the opening of the break and climatic factors constitute real motive for displacements in the municipality of Ndiébène Gandiol. Thus, even if other factors related to governance and the economy are to be considered, environmental and climatic causes are more important determinants.

The complexity of the analysis of migration and the plurality of factors must not therefore lead to neglecting the prominent place of environmental and climatic constraints, especially in Sahelian countries. This situation could become bogged down if effective adaptation actions are not undertaken. At this level, research must take over to serve as the lantern for action that is more than an emergency. It is to such an exercise that we have invited ourselves in this article.

It is therefore fundamental for social actors, local authorities, the government, and development partners to find answers to address the environmental vulnerability of the municipality of Ndébélé Gandiol. Such actions should focus on restoring the geophysical conditions of the area to halt the process of internal migration of the population that looks more like forced mobility than a chosen migration. This is even more urgent as today, one of the fundamental principles of the Global Compact for Safe, Regular and Orderly Migration states that “migration should never be an act of desperation, and where appropriate, countries should together find answers to the needs of the affected migrants and eliminate the triggers.” As a reminder, this Pact was approved on July 11, 2018, by the UN delegates with a view to its formal adoption by the Heads of State and Government at the conference scheduled for December 10 and 11 in Marrakech, Morocco.

This paper is not meant to be a definitive answer to the relationship between migration and climate change. It presents itself as a local response to a global questioning. It would not be prudent to extrapolate the results on a global scale. It is a monographic study that needs to be deepened and diversified in other cases.

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