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Research Article

# Barriers of Integrated Management of Natural Disasters for the Resilience in Niger

**Issa Habou, Yahaya Maazou Moussa*, Malam Maman Nafiou**

Laboratory for Studies and Research on Economic Emergence, Faculty of Economics and Management, University of Abdou Moumouni of Niamey, Niamey, Niger

## Abstract

The natural hazards and their impacts on populations, property and environment can vary over time and space. Thus, a prevention and risk management system has been implemented to increase the community resilience to natural disasters worldwide. However, the implementation of this system in Niger Republic is hindered by several barriers. The objective of this study is to analyse the barriers of integration of the risk management system in order to increase the resilience of populations while preserving the achievements. This study used the mixed methods which included qualitative description with phenomenological and participatory approaches. Thus, the semi structured interviews from thirty (30) institutions involved in disasters management at national level, the field observations and contents analysis are used. The results revealed that although the awareness among the authorities and existence of structures and tools for early warning, assessment and emergency response, there is a lack of support from a "common and integrated global vision" at the stakeholder level. They revealed also that the insufficient resources and training of actors hamper the effective functionality of the platform for the prevention and reduction of disaster risk. In this regards, the efforts should be made to allocate resources for the prevention, preparation and communication to the public. Given the accountability of the state, mechanism to measure progress made in terms of resilience should be also created in a consensual manner.

## Keywords

Natural Disasters, Resilience, Integrated Management, Niger Republic

## 1. Introduction

The natural disasters are a serious disruption to the functioning of a community involving significant damage and loss of human life that the community cannot overcome with its own resources [14]. They can occur suddenly or develop slowly, but in either case, they can be devastating for a community, a country or a region [18]. The understanding by stakeholders of the impacts of the natural disasters gives rise to new vision in terms of natural disaster management. Therefore, in 1990s, the World moved from reactive to proactive disasters risk management since Hyogo framework for action [5, 15]. This international framework has been replaced by the Sendai framework (2015-2030) adopted on 18 march 2015 as the first major agreement of the post 2015 development agenda [17]. The later is in line with the orientation of the economic community of West African States (ECOWAS) as well as the African Union (AU) vision and action plan 2063.

*Corresponding author:mousyaha@yahoo.com (Yahaya Maazou Moussa)

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All this led to the implementation of risk reduction policies and strategies aimed at preventing the emergence of new risks, reducing existing ones and managing residual risk to limit disaster losses and build resilience defined by United Nation Office for Disasters Risk Reduction (UNDRR) as "the ability to resist, absorb, accommodate and recover from the effects of a hazard" [16].

For that, it appeared clearly necessary to get structures in order to promote monitoring of risks factors and alert populations in time. The ability to track the factors that cause an event to become a disaster can help to save lives, but also the livelihoods of populations, particularly those most vulnerable. The monitoring is ensured through rapid, detailed or continuous assessments within the crisis units. According to a group of experts at the United Nations Assembly [6], these assessments can be conducted according to qualitative study aimed at determining the nature and extent of risk of disaster by analyzing potential hazards and the current conditions of exposure and vulnerability, the accumulation of which could have the effect of causing human and material damage, disrupting services and jeopardizing resources of subsistence, by harming the environment on which they depend. They therefore consist of "the of the environment considered" [14].

In Niger, the assessment permits to highlight the characteristics of permanent risks such as droughts, floods, violent winds, desertification, infestation of locusts, epidemics, epizootics, heat wave, as well as fires and bushfires. All these hazards are either caused or exacerbated by hydro-meteorological phenomena, linked to climate change [3]. Thus, the country has approximately recorded 40,000 disaster cases where 56% came from droughts, 29% from epidemics and 11% from floods [18]. According to available data, disasters attributable to these phenomena have significant consequences on Niger's economy and leave households unable to cope with multifaceted shocks. This is due particularly to the structural deficits in the governance of risk of disaster prevention [15, 4]. This led the Niger's authorities, to strengthen the legal and institutional framework for natural disaster management. Therefore, a national platform dedicated to disaster risk reduction in accordance of the United Nations international strategy for disaster reduction (UNISDR) recommendation is implemented. This national platform for the prevention and reduction of risks of natural disasters is a mechanism for coordination, analysis and advice on reduction of risk of disasters. However, the platform only works during emergencies, thus neglecting prevention or resilient recovery actions which aim at enhancing preparedness, coping and adaptive capacities, and minimizing the negative effects of shocks in organization, society, and community. This may be the lack of a combination of the efforts and resources of the actors involved in the system, which could cause much more severe effects. As a result, the objective of this study is to analyse the barriers of integration of the disaster risk management system in order to increase the resilience of populations while preserving the achievements. Although there is lack of national studies addressing this topic, [19] revealed that the lack of financial backing, the limited skills, the lack of coordination among sectors, the weak political leadership, the inadequate communication, and the shallow natural hazard risk assessment, hinders effective natural hazard management in Sub Saharan African. Recently, [13] showed that most of studies in this area revealed that the lack of an overarching integrated disaster risk management (IDRM) approach contained a set of ideas and experiences on IDRM and the way to be implemented limit its implementation. Therefore, others considered the IDRM is multidimensional including sectoral, spatial, temporal and societal dimensions.

## 2. Methodology

This study is carried out in three phases: data collection via semi directive technique, transcription-analysis using sphinx software v5.1.0.3 and result-conclusion.

### 2.1. Study Area

Niger is a landlocked country in West Africa with a total area of 1.27 millions km$^2$ and about 75% of the country is located in the Sahara Desert. It is characterized by the rapid population growth, majority young and its economy is largely depended on the agriculture and livestock sectors, making it vulnerable to climate change impacts. Most of agricultural production is concentrated in the southern regions whereas the pastoralist activities are predominantly located in the northern as indicated in light green and yellow (Figure 1 below). Moreover, Niger is characterized by a hot and dry climate with the mean annual temperatures range between 23 ℃ -30 ℃ and are expected to increase with the projected impacts of climate change. The precipitation varies annually between 10 mm in the north of the country and 800 mm in the south, generating a semi-arid climate and savanna vegetation. Niger has also one rain season, from May to October, with a peak in August [18].

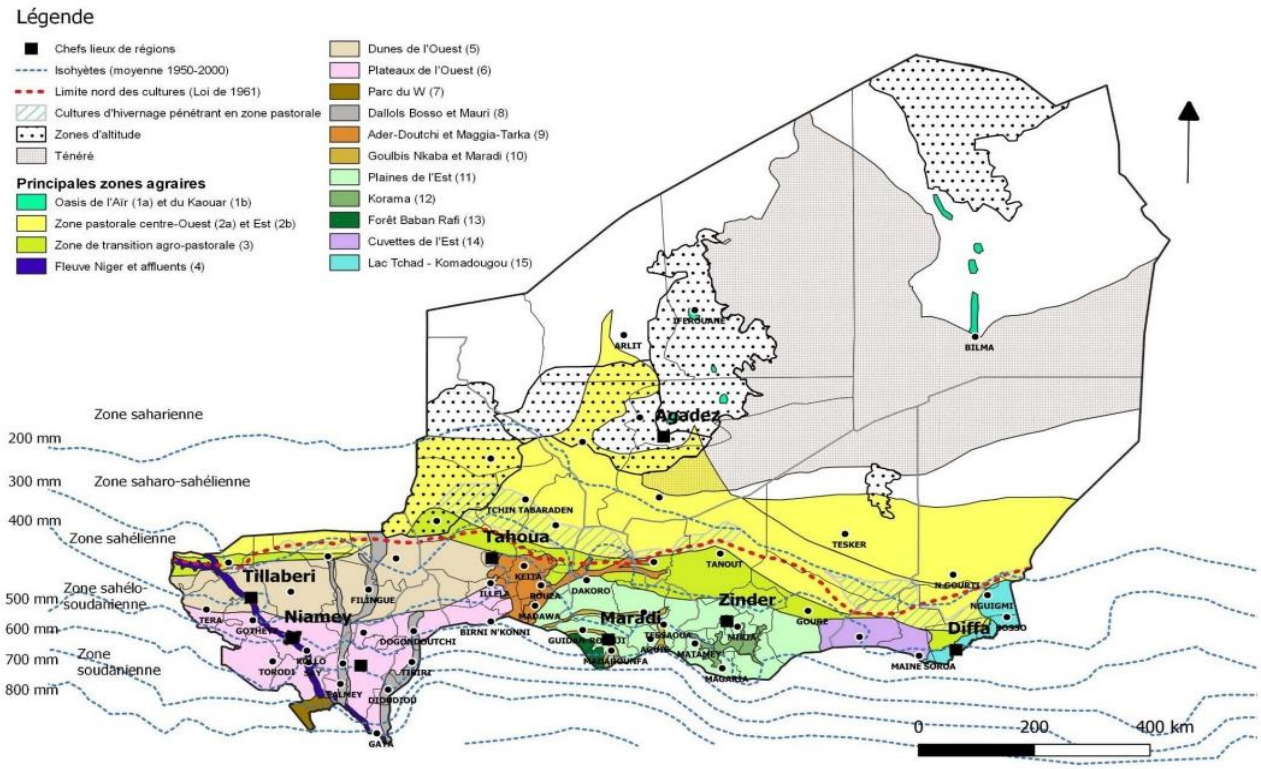


***Figure 1.*** *Zonage Agro-Écologique et Climatique Du Niger, 2023 [12].*

## 2.2. Data Collecting Process

This study is focused on institutions members of the national platform, which mission is, in relation with stakeholders, to develop a spirit of prevention and risk reduction at the level of all components of society. Indeed, the platform is made for the integration of all governmental and non governmental, public and private actors, as wall as civil society organizations, interested in disasters management and adaptation to climate change. It includes also the multilateral partners who participate as observers in platform meeting [10].

For the data collection, an interview guide was distributed to these officials in 2021 in order to learn more about the anchoring of institutions, their operating system and their level of integration in the disaster risk management system with stakeholders' presence. Therefore, we carried out thirty (30) interviews among the members of platform dedicated to disaster risk reduction, the most relevant ones according to their mandates in the management of risks and natural disasters. In addition, these institutions were selected on the basis of their territorial coverage, their staff numbers and their capacity to generate historical data related to natural disasters. As a result, the different actors of these institutions such as directors, chiefs of some services, and some persons in charge of natural disasters risk management were interviewed on the performance of system, the difficulties encumbered in the system, the inherent deficiencies of the system, and the efficiency of the system. However, the interviews were conducted in Niamey, which is the central level and provides an overview of the level of the integration and the coordination of the disasters risk management.

## 2.3. Analysis Method

Adopting phenomenological approach of [2] and [1], we explore the notion of interoperability of actors in order to highlight integrated disaster risk management in Niger. We draw inspiration from qualitative and realistic constructivist evaluation aimed at exploring the experiences and visions in depth of stakeholders to analyse the implications of different perceptions [7]. However, this technique requires a heterogeneous sample (involving beneficiaries, partners, practitioners, etc.) [8] but given the objective of this paper, the study is limited only to the management actors.

Given the nature of data which is qualitative, we favored verbatim content. Although it is admitted the possibility of quantifying qualitative variables and testing them statistically after coding - such as binary variables [9], our approach is also participatory. That is to say that the researcher takes an active part as a professional in the field, to better understand the phenomena [13]. In addition, the facts are studied using situational analyse which compare field observations, documents and data collected [11]. The development entry and processing of data were done with sphinx software v5.1.0.3.

## 3. Results and Discussion

The analysis of the data collected shows that the actors have a dense anchoring in integrated management of natural disasters. The dates of creation of the institutions, members of platform vary the day after independence in 1961 to 2016. The institutions interviewed intervene in various fields. Indeed, the mandates are diverse such as climate risk management (20,9%), emergency, humanitarian aid or rehousing of vulnerable (19,8%), plant protection-agriculture-food security and nutritional (14,4%), protection of people and properties (11,2%), defense-security and environment (9,7%), and others (24%). We observe that their levels of intervention are transversal and overlap at various times in the disaster management cycle. We also note a multiplicity of mandates of the actors, which makes the analysis of attributions confusing.

The data shows that the actors work interoperability, that is to say that there is close coordination during natural disasters. Therefore, the level of coordination is captured by the interoperability variable. Among these actors, 40% declare acting in prevention, 5% for rapid intervention, 10% reduction-recovery. We observe that the remaining 45% of actors are vegetating in all directions probably due to their mandate. This leads to wasted resources and makes their intervention ineffective. Indeed, the effectiveness of actors stems from their mastery of the system in which they operate, in parallel with the theory of Adam Smith that warned since 18$^{th}$ century of the advantages linked to specialization.

The level of collaboration of the actors in their interventions is respectively 65% with the organizations responsible for civil protection, 55% with the organizations coordinating the early warning system and 55% with the advocacy organizations in humanitarian action. These organizations are therefore the key collaborators of all the actors in disaster management in Niger. In their majority (80%), actors organize training for the benefit of their staff firstly in link with their mandate and secondly in disaster prevention and management. They all benefit equally from the budgets of the State and technical and financial partners. They are more concentrated at the central level (100%) than at the municipal level (60%). The 40% of actors have budget of around 1 billion Francs (XOF), 25% below 500 million Francs (XOF) and 35% did not declare the amount of their budget for reasons specific to them.

Half of stakeholder estimate that the current disaster management system is not effective. They explain their points of view by the absence of leadership, the insufficiency of resources for action, the lack of synergy and above all, the lack of training of the actors. However, others who estimate the performance of the system defend their assertion by the institutionalization of crisis management issues, the capacity for anticipation, the commitment of the State and its partners. The difficulties encountered by the actors are of several orders. From the different points of view, we note especially the lack of material and financial resources of action, the lack of sustainability of financing the insufficiency of preventive investments etc. On the attributions side, the actors evoke the confusion in the missions of the participants, the conflict of competence, the complication of certain actors, the insufficient functioning of the ramifications of the platform. For the competence of actors present, the lack of training and retraining for coordination, collection and analysis, archiving documentation and past studies on the cases are mentioned.

***Table 1.*** *Main issues to emergence of integrated disaster management system.*

| Topic/issues | Percent |
|---|---|
| Lack/weak of skills | 26.7 |
| Conflict of competences | 40.0 |
| Resources/fund issues | 33.3 |

Source: authors, 2021

Others problems mentioned are that most projects, plans and strategies are carried out by international organizations or donors. The latter once at the end of their mandate, they stop financing the projects, plans and strategies. This results in difficulties experienced for continuity at the national level, thus bringing the population and system to more acute level of vulnerability than before. In fact, the process is called into question, sometimes rejected, even though the whole problem is linked to concrete political commitment. In addition, no fewer marginal reasons such as corruption, the lack of civicmindedness on the part of populations even the vulnerable when settling in risk areas, or even entrepreneurs in the design of protection works, poor communication from the State and lack of up-to-date planning documents mainly explain the problem encountered in the disaster management process in Niger. All these problems constitute a blockage for the emergence of an effective disaster management system. The expectation of assistance from the populations constitutes another concern calling into question the effectiveness of the actions of the actors according to the interviewees. This study allows us to understand that we live in a multifaceted risk environment where political commitment to better governance is struggling to materialize. This environment requires stakeholders to pool their efforts and resources for efficient management of the few resources they have to ensure the continuity of socioeconomic activities. This is what was understood by international bodies which recommended the development of proactive visions focused on understanding governance, preventive, investment and better planning for preparing for events in the context of climate change. The latter, with its corollaries, namely extreme weather phenomena and the exacerbation of vulnerability, has imposed itself as a key word in all public policy planning, projects and development plans in Niger [11].

The services responsible for climate forecasts, for their part are increasing communication on adaptation, the best measures and practices to protect themselves and their livelihoods from the effect of climate change. In this perspective, the national disaster risk reduction strategy has been revised to take this dimension into account. Likewise, the population aware of the degradation of its environment and increasingly harsh changes, is actively using local adaptation techniques and strategies. Numerous studies have highlighted peasant innovation in the face of climate change. The results of the studies and feedback have shown the importance of planning, the coordination and unit of command as the best means for efficiency and effectiveness in disaster management. We thus understand that research, documentation of events and data management are inexhaustible source of valorization of acquired knowledge, development and flexibility of stakeholders. This emerges in the recommendations of the interviewees in this study. The latter, for the emergence of an effective disaster management system, recommend that the effort be accentuated on the leadership of state, the effective functionality of the platform bodies, the clarification of the missions and the implementation of common means. In addition, mechanisms are needed to measure progress made in the terms of resilience. At the same time, the resource mobilization subcommittee must be coercive and fluid for all stakeholders and for all types of projects for better fundraising. Thus, the problem of dispersion of resources, duplication of activity and waste of resources would be reduced substantially. The objectives must be consensual and communication between actors and with the population must be fluid in an ascending and descending manner.

## 4. Conclusion

The natural disasters experienced in Niger have multifaceted effect on the population. They have profound impacts on agro-pastoral production, leading to facto food nutritional insecurity when certain number of conditions happened. These natural disasters such as the droughts of and flood destroy crops, homes, business but also small livestock across the country. These effects are amplified by factors such as poverty, conflicts in various forms, massive movements of populations, the inadequacy of construction materials, the establishment in risk areas, the weakness of construction works sanitation and protection, the silting rivers and inadequacy or absence of development plans. The adversity of the effects of natural disasters are especially due to the weakness of prevention and public information mechanism. As a result, this study is to analyse the barriers of integration of the risk management system in order to increase the resilience of populations to climate change while preserving the achievements. For that, the phenomenological and the participatory approaches are applied on the qualitative data collected from 30 key informants of 50 institutions in charge of natural disasters risk management.

The results show that although there is awareness among the authorities, there is a lack of support from a ‘’common and integrated global vision’’ at the stakeholder level. Thus, the actors only work in synergy ephemerally and during emergencies masking the deficiencies of the existence of a unifying and integrated framework able to meeting the challenges of climate change and population resilience. The results revealed also the insufficient resources and training of actors hamper the effective functionality of this framework which is the platform for the prevention and reduction of disaster risk. As perspectives, we note that efforts should be made to allocate resources for prevention, preparation and communication to the public. Also, the mechanism to measure progress made in terms of resilience should be created in a consensual manner, given the accountability of the state. To go further, an analysis on a heterogeneous sample involving populations, partners and practitioners deserves to be conducted.

## Abbreviations

| | |
|---|---|
| XOF | Franc CFA |
| UNISDR | United Nations International Strategy for Disaster Reduction |
| AU | African Union |
| UNDRR | United Nations Disasters Risk Reduction |
| ECOWAS | Economics Community of West African States |
| IDRM | Integrated Disaster Risk Management |

## Author Contributions

**Issa Habou:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Software, Validation, Visualization, Writing - original draft, Writing - review & editing

**Yahaya Maazou Moussa:** Conceptualization, Formal Analysis, Methodology, Validation, Writing - original draft, Writing - review & editing

**Malam Maman Nafiou**: Conceptualization, Formal Analysis, Methodology, Supervision, Validation, Writing - review & editing

## Conflicts of Interest

The authors declare no conflicts of interest.

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