



Environmental Vulnerability through Good Governance

^{*1}Loni Segun AROLAGBADE & ¹Oladehinde Ola OYADIRAN

¹Department of Urban and Regional Planning, Lead City University, Ibadan, Oyo State, Nigeria

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ABSTRACT

The effects of environmental change which include increasing temperatures, sea-level rises, changing patterns of precipitation, and more severe extreme weather events are expected to influence key determinants of human health, including access to clean water, sufficient food, and adequate shelter. The aim is to explore how good governance can mitigate environmental vulnerability by fostering sustainable development, enhancing resilience, and ensuring equitable distribution of resources. It delves into the principles of good governance such as transparency, accountability, participation, and rule of law and examines their application in environmental policy-making and implementation. Vulnerability of people to natural hazards depends on where they reside, what types of natural resource they use and above all with which resources they have to cope. It is evident that supportive governance guarantees society's coping capacity to prepare for and respond to disasters. It has an impact on how public servants, civil society, parliamentarians, private sector, and media coordinate their actions to address long-term vulnerabilities to disasters. Countries with an effective legal framework, comprehensive risk reduction policies, operational structure, multi-hazard early warning system, adequate budgeting, risk communication, public awareness, focused research and an effective civil protection system are considered as resilient to disasters.

Keywords: Vulnerability, good governance, resilient, disaster, sustainable development.

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1 INTRODUCTION

Disaster is said to happen when a sizable number of vulnerable people encounter a hazard, suffer considerable harm, and/or have their livelihood system disrupted to the point where recovery is difficult without outside assistance (Meng, 2025). A disaster is a major disruption to a society or community's regular operations that causes losses in the human, social, economic, physical, or environmental domains that are greater than what the affected individuals, society, or community can reasonably recover from with the resources at hand (Mushtaq and Muhammed, 2020). On the other hand vulnerability in the context of disaster is the characteristics of a group or person and their situation negatively influencing their capacity to anticipate the future situation, cope with, respond to and recover from the impacts of a disaster (Natasha, 2019).

In disaster risk reduction, the concept of vulnerability is of fundamental importance for understanding the negative consequences of disasters, identifies systemic weaknesses and pinpoints strategies to mitigate and prevent damages. Experts suggest that the focus of vulnerability reduction techniques should be on assessing "vulnerability in daily life" in addition to methods for involving the community as a whole in catastrophe risk reduction (Meng, 2025). Disaster vulnerability is directly concerned with the economic and political power in a society. The effects of environmental change which include increasing temperatures, sea-level rises, changing patterns of precipitation, and more severe extreme weather events are expected to influence key determinants of human health, including access to clean water, sufficient food, and adequate shelter. These effects can also directly and indirectly aggravate political and civil conflicts; destabilize agriculture, housing, and economies; and exacerbate health risks for vulnerable populations, in particular women and children. The social destabilization caused by drought, flood, famine, and diseases that follow crises, including epidemics, may aggravate political and civil conflicts as those affected compete for essential resources.

Good governance requires the relevant administrative bodies and administrators to manage various conflicts of interest among citizens and between them and the State to the maximum so as to obtain the citizens' maximum consent to and approval of their public administration activities. Governments remain the most influential players in vulnerability reduction in its regional, provincial, district and sub-district resolution. Proper governance develops and implements strategies to take necessary steps to maintain compliance with agreed policies; provides curative action where rules, regulations, policies, strategies, and plans have been overlooked or misunderstood, and monitors the ongoing projects for risk-sensitive development (Shitagsu, 2013). It is evident that supportive governance guarantees society's coping capacity to prepare for and respond to disasters. It has an impact on how public servants, civil society, parliamentarians, private sector, and media coordinate their actions to address long-term vulnerabilities to disasters. Countries with an effective legal framework, comprehensive risk reduction policies, operational structure, multihazard early warning system, adequate budgeting, risk communication, public awareness, focused research and an effective civil protection system are considered as resilient to disasters (Uwaga & Ogunbiyi, 2024). But in countries where these components are negligible or still a development stage, vulnerability to disaster is still very high and vulnerability reduction governance is questioned with each episode of disaster.

2 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Environmental Vulnerability

Environmental vulnerability refers to the degree of resistance of a system, subsystem or component of a system in the face of the two major environmental problems that are occurring throughout the planet: global warming and the loss of biodiversity. Both caused directly or indirectly by anthropic activities. Environmental vulnerability refers to the degree of resistance of the environment to natural phenomena, such as an earthquake, flood. The concept of vulnerability implies some risk combined with the level of social and economic liability, and the ability to cope with the resulting event. Vulnerability has been defined as the degree to which a system, or part of a system, may react adversely during the occurrence of a hazardous event. Thus people become "vulnerable" if access to resources either at a household, or at an individual level is the most critical factor in achieving a secure livelihood or recovering effectively from a disaster.

Vulnerability is an internal risk factor that relates to a subject's or a system's inherent propensity to be impacted or vulnerable to harm when it comes to exposure to hazards. It stands for a community's physical, economic, and social sensitivity to harm in the event of a dangerous situation arising from either natural or man-made sources. In general sense, vulnerability can be defined as the inability of a system to withstand against the perturbations of external stressors. It is a concept that has been used in different research backgrounds (Mushtaq A. J. and Muhammad, 2020) but there is no consensus on its meaning and definitions.

The concept of vulnerability is used today by various disciplines, and hence, it is embedded in multiple disciplinary theories underpinning either a technical or a social origin of the concept and resulting in a range of paradigms for either a qualitative or quantitative assessment of vulnerability. Based on the research interest, the term has been applied exclusively to the societal, ecological, natural, or biophysical subsystem or to the socio-ecological system. Therefore, practitioners from different disciplines use different meanings and concepts of vulnerability, which ultimately led to diverse methods of defining and measuring. The differences in concepts of vulnerability among the various disciplines can be explained by their interest to focus on different components of risk, household responses to risk and welfare outcomes. The disciplines include geography, economics, food security, asset-based and sustainable livelihoods, sociology, anthropology, disaster management, environmental science, and health and nutrition. The scientific use of vulnerability is deeply rooted in geography and natural hazard science; moreover the term is increasingly being used as a central concept in various other traditions such as ecology, public health, poverty and development, secure livelihoods and famine, sustainability science, land change, and climate impacts and adaptation. The term is used in various ways by the scientists from different knowledge areas, and even within the same research area. For example, natural scientists and engineers use the term in a descriptive ways while social scientists use it in a specific explanatory model (O'Brien, et al., 2004; Gow, 2005 cited by Ulla W et al, 2019).

Vulnerability of people to natural hazards depends on where they reside, what types of natural resource they use and above all with which resources they have to cope. It was argued that natural hazards are usually mediated by institutional structures, and in general increased economic activities not necessarily reduce the vulnerability to hazard impact. It is not only institutions rather lack of access or control over resources could mediate vulnerability. In addition, like food insecurity. Attempts to conceptualize vulnerability first appeared with the disaster and hazard studies in the 1940s. From this point onwards to the 1970s, the concept was dominated by the hazard-centred perspective. The hazard perspective viewed natural events as the only cause of disasters, belittling the importance of “human intervention” in disaster prevention (Wisner, 2016). However, empirical studies conducted in the 1970s and 1980s showed that “political and social conditions” of hazard-affected communities contributed to the occurrence of disasters. Since it is apparent that natural hazards were not the only determinant of disasters, the vulnerability approach came to replace the hazard perspective.

In sociology, the concept of vulnerability can be seen in the progress of the sociology of hazards and disasters. Some of the first sociological studies on disasters can be traced to the works by Samuel Prince (1920), a doctoral dissertation at Columbia University examining social changes in association with Halifax's ship explosion in Canada, and Pitirim Sorokin (1942) – *Man and society in calamity* (Abdillah, Widianingsih, Buchari and Nurasa, 2025). Nevertheless, during the first-half of the twentieth century, sociological thoughts were also influenced by the hazard perspective, which centred on “physical agents” or natural phenomena³. Sociologists largely deemed hazards or disasters as “physical” phenomena that were the subject of environmental studies carried out by geographers, and thus saw no room for applying the concept of vulnerability in sociological studies (Dunlap, 2011). The abandonment of the idea of disasters lasted until the 1950s, when the National Opinion Research Center at the University of Chicago was established to understand people's responses to war threats. Also, the Disaster Research Center founded in 1963 at Ohio State University helped to institutionalise disaster research as

an independent field⁴. Following the first “Earth day” in 1970, sociologists became interested in interpreting human responses to environmental problems and the environmental protection movement (UNDRR, 2024). Sociologists, after a long period of considering only the “physical environment”, started to view the social aspects of environment. In the late 1970s, sociological studies were devoted to documenting the “societal impact” of environmental problems such as energy shortages, pollution, and environmental degradation. The following decade saw sociologists searching for the societal causes and impacts of environmental hazards. The finding of societal causes (which could be later categorised as vulnerability) was crucial for sociologists who were then able to claim that environmental problems are socially constructed (UNDRR, 2024). Vulnerability, perceived as social weakness, is considered as the cause of natural disasters. The progress of sociological thought has led to the detachment of sociologists from the hazard perspective, to focus on disasters as social phenomena.

2.1.2 Governance

The term governance describes a group of organizations and individuals that come from the government as well as outside of it. It contends that there are other power centers within a state and questions the legitimacy of the State or the Government in the conventional sense. At a certain point, any organization, whether public or private, can become a power center as long as the public recognizes the authority it exercises. Good governance is the exercise of authority through political and institutional processes that are transparent and accountable, and encourage public participation. Governance identifies the blurring of boundaries and responsibilities for tackling social and economic issues. It indicates that, in modern society, the State is transferring its once exclusive responsibilities to civil society (i.e., private sector organizations and voluntary groups, which are undertaking more and more responsibilities that were formerly in the hands of the State). As a result, the boundaries between the State and society and between public and private sectors are becoming increasingly blurred, as are definitions of their responsibilities (PDMA, 2019).

Governance identifies the power dependence involved in relationships between institutions involved in collective action. To be specific, every organization devoted to collective action has to depend on other organizations. To achieve its purpose, it has to exchange resources and negotiate a common goal with others, and the outcome of the exchange depends not only on the resources of each actor, but also on the rules of the game and the environment in which the exchange takes place.

Good governance is a derived concept from that of governance. As such, good governance can only be properly conceptualized and understood if first we understand the concept of governance. Governance, according to Arisi and Ukadike (2011), is as old as human civilization and only became a popular concept in the 1990s due to donor activities. Like most concepts, Doornbos (2003) in Punyaratabandhu (2004), points out that there has hardly been a consensus as to core meaning of governance, how it could be applied more concretely.

Punyaratabandhu (2004) had also noted that, the governance does not possess a standard meaning. Nor has its meaning remained constant in the decade or so of its being accorded a central place in donor frameworks for development¹¹. This has given rise to a variety of definitions which, however, differ minimally in content and scope. For instance, according to Iwokwagh (2002) governance is the art of exercising authority, or control in a political system through policy formulation and implementation¹². Schneider (1999), as cited in Punyaratabandhu (2004), sees governance as the exercise of authority and control in a society in relation to the management of its resources for social and economic development¹³. Governance has been described as an approach or perspective that focuses on state, societal institutions and the relationship between them as well as on how rules are made in a society which are accepted as legitimate to enhance values that are sought by individuals and groups within the society (Arisi & Ukadike, 2011). It is generally referred to as the means for achieving directions, control

and coordination of wholly or partially autonomous individuals or organizations on behalf of interests to which they jointly contribute (Madani, et al., 2025).

Good governance is essential in creating policies and frameworks that mitigate environmental vulnerabilities.

To mitigate vulnerability to hazard/disaster through good governance, the following elements must be in place. Also, good governance help in policymaking either through formal institutions or informal consultations. They also establish mechanisms for the inclusion of multiple social groups in decision-making processes, especially locally. Finally, they may encourage civil society and local communities to formulate and express their positions on issues of importance to them.

Good governance is the very heart of development means and outcomes as well as disaster risk reduction means and outcomes. “The failures of urban planning, building regulation, environmental control, and regional development... can all be described as governance failures” |(UNDP 2004: 75-76). The conclusion is that risk reduction at all levels heavily depends on institutional innovation in governance. In order to move towards “good governance” in disaster reduction, UNDP (2004:89) argues that “There is a need for institutional systems and administrative arrangements that link public, private and civil society sectors and build vertical ties between local, district, national and global scale actors.” One of the first step towards new institutional system, it argues for the need of legislative reform (i.e. exactly the Hyogo Framework for Action Priority 1st).

2.1.3 Adaptive Capacity and Governance

Adaptive capacity refers to the ability of systems, institutions, humans, and other organisms to adjust to potential damage, take advantage of opportunities, or respond to consequences. Better governance improves adaptive capacity by providing necessary infrastructure, information, and institutional frameworks. Meng (2025) notes that governance over the allocation of natural resources such as water is a critical determinant of vulnerability to climate change. When access to such resources is inequitably distributed, the risk of conflict and social unrest escalates.

2.1.4 Disaster Risk Reduction and Governance

Disaster risk governance refers to the legal, policy, and institutional frameworks guiding disaster risk management. Strengthening these frameworks is essential to reducing vulnerabilities and enhancing resilience. The Global Facility for Disaster Reduction and Recovery (GFDRR, 2021) underscores the need for inclusive, equitable interventions that support community-driven development and involve all people, regardless of socioeconomic status.

2.1.5 Gender-Inclusive Strategies

An often-overlooked dimension of governance is gender inclusion. The Economic Community of West African States (ECOWAS) developed a gender strategy for disaster risk reduction (2020–2030) to ensure that women’s perspectives and vulnerabilities are included in resilience planning (ECOWAS, 2020). Gender-responsive governance improves outcomes by fostering equitable access to resources and decision-making processes.

2.2 Conceptual Review

2.2.1 Environmental Vulnerability Assessment:

Hazard Identification: Recognizing environmental hazards such as climate change, natural disasters, and pollution.

Risk Analysis: Evaluating the likelihood and potential impact of identified hazards.

Impact Assessment: Determining the potential effects of hazards on human and ecological systems.

Adaptive Capacity Evaluation: Assessing the capability of systems to adapt to changes and recover from impacts.

2.2.2 Governance Mechanisms

- **Policy and Legal Frameworks:** Establishing laws, regulations, and policies that support environmental protection and risk management.
- **Institutional Arrangements:** Creating and maintaining institutions responsible for environmental governance.
- **Stakeholder Engagement:** Mechanisms for involving citizens, NGOs, businesses, and other stakeholders in environmental decision-making.
- **Monitoring and Evaluation:** Systems for tracking environmental conditions and governance performance, and for making necessary adjustments.
- **Interactions and Processes**

2.2.3 Risk Reduction through Policy and Regulation

- Developing and enforcing environmental laws and regulations to mitigate risks (e.g., pollution control, land use planning).
- Implementing policies that promote sustainable practices and reduce vulnerability (e.g., renewable energy incentives, conservation programs).

2.2.4 Enhancing Adaptive Capacity:

- Investing in infrastructure and technologies that improve resilience (e.g., flood defenses, early warning systems).
- Promoting education and awareness to enhance community knowledge and preparedness.
- Supporting research and innovation to develop new adaptation strategies.

2.2.5 Stakeholder Participation and Inclusiveness:

- Ensuring that all stakeholders, especially vulnerable communities, have a voice in governance processes.
- Facilitating public access to information and decision-making platforms.
- Building partnerships between government, private sector, and civil society to enhance collective action.

2.2.6 Accountability and Transparency in Governance:

- Implementing mechanisms for transparency such as open data initiatives and public reporting.
- Establishing accountability systems such as anti-corruption agencies and independent audits.
- Encouraging civic engagement and watchdog activities to hold authorities accountable.

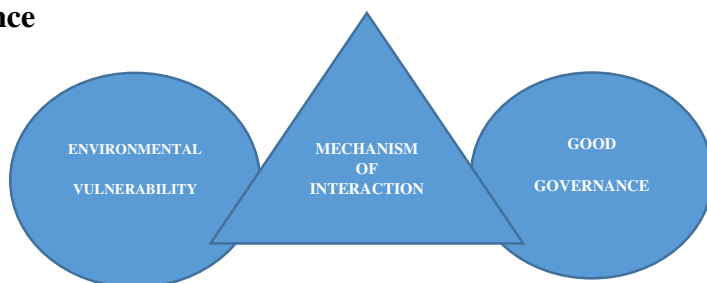
2.2.7 Responsive and Adaptive Governance:

- Developing flexible governance structures that can adjust to new information and changing conditions.
- Incorporating feedback loops from monitoring and evaluation into policy development and implementation.
- Ensuring rapid and effective response to environmental emergencies and disasters.

2.3 Conceptual Framework

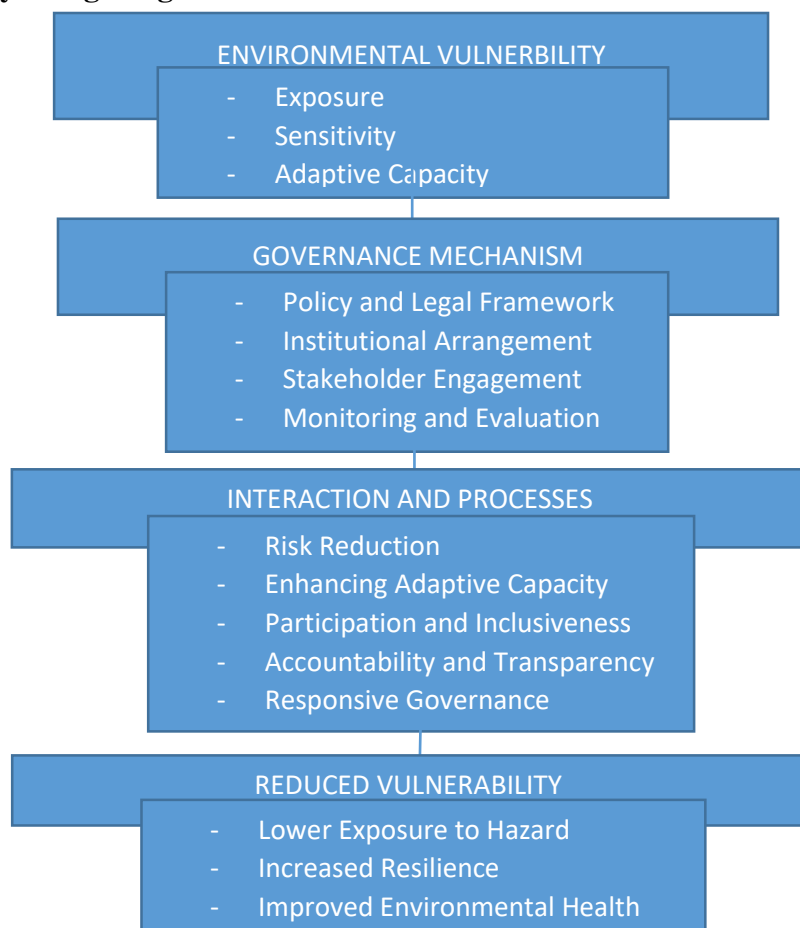
The conceptual framework illustrates the dynamic relationship between environmental vulnerability and good governance. By understanding and applying this framework, policymakers and stakeholders can develop effective strategies to reduce environmental risks and enhance the resilience of both human and ecological systems. This framework emphasizes the importance of comprehensive governance mechanisms that incorporate transparency, accountability, participation, rule of law, responsiveness, and inclusiveness, all of which are critical for sustainable development and environmental protection.

Figure 2.1a: A framework showing the interaction between environmental vulnerability and good governance



Source: Author Computation, 2026

Figure 2.1b: A conceptual framework showing the relationship between environmental vulnerability and good governance



Source: Author Computation, 2026

2.2 Case Study Review

Case Study: Northern Ireland

The environmental degradation of Northern Ireland serves as a cautionary tale about the consequences of poor governance. Lough Neagh, a lake supplying 40% of Northern Ireland's drinking water, suffers from a severe algal bloom due to agricultural runoff and sewage discharge. The root of the crisis lies in governance failures specifically, the absence of an environmental strategy, oversight agency, or active political executive (The Guardian, 2024). Despite the application of stringent EU environmental laws via the Windsor Framework, lack of enforcement has earned Northern Ireland the label "the dirty corner of Europe."

Case Study: Nigeria

Nigeria, Africa's most populous country, faces a complex interplay between environmental vulnerability and governance challenges. Its diverse ecological zones from the arid Sahel in the north to the oil-rich Niger Delta in the south are increasingly impacted by climate change, unsustainable land use, and environmental degradation. These vulnerabilities are exacerbated by governance failures, including corruption, weak institutions, and inadequate policy implementation (Adeniyi, 2021). Nigeria is highly vulnerable to climate-related risks, including desertification in the north, coastal erosion in the south, flooding in urban areas, and declining agricultural productivity. The Lake Chad basin, once a major freshwater source for over 30 million people, has shrunk by over 90% since the 1960s, largely due to climate variability, population pressure, and poor water governance (UNDP, 2021). This has triggered mass displacement, unemployment, and regional conflicts particularly in the North-East where competition for water and land resources has intensified the activities of armed groups like Boko Haram. Additionally, seasonal floods have become more destructive due to deforestation, blocked drainage systems, and poorly regulated urban planning. In 2022, Nigeria experienced its worst floods in over a decade, displacing over 1.3 million people, damaging infrastructure, and disrupting food systems in more than 30 states (NEMA, 2022). These disasters were worsened by weak disaster preparedness and limited investment in early warning systems.

3 Summary, Conclusion and Recommendation

3.1 Summary

Environmental vulnerability poses significant risks to ecosystems and human societies, but good governance can play a crucial role in mitigating these risks. By adhering to principles of transparency, accountability, participation, and rule of law, governments can develop and implement effective policies that promote environmental sustainability.

3.2 Conclusion

Case studies from the Netherlands and Costa Rica demonstrate the positive impact of good governance on environmental management. Strengthened governance structures not only improve policy implementation but also enhance community resilience in the face of climate-induced hazards.

3.3 Recommendation

Addressing gaps in governance, especially in developing countries and politically fragile regions, is imperative to building a safer, more equitable, and sustainable future. However, challenges such as corruption, political instability, and limited resources must be addressed to ensure that governance frameworks are robust and effective. Ultimately, enhancing good governance is essential for reducing environmental vulnerability and achieving sustainable development.

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