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Sendai Framework Awareness in Akwa Ibom State

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Abstract: Akwa Ibom State, located in Nigeria's coastal region,is becoming increasingly exposed to both natural and man-made threats such as flooding, coastal erosion, oil spills,and infrastructural failure. Effective disaster management methods are critical for lowering risk and increasing resilience. This study investigates the diverse catastrophe scenario in Akwa Ibom State, analyzing the frequency,intensity, and impact of numerous hazards while also evaluating existing response strategies. The Sendai Framework for Disaster Risk Reduction (2015-2030) is used as a benchmark in the study to assess the state's disaster management plans' efficacy. Using a mixed methodological approach incorporating questionnaires and survey, the study evaluates the state's disaster risk management, preparedness, and response systems based on risk, hazards, vulnerability, with Sendai framework as its main focus in the coastal, riverine, and crude oil producing areas within the state. It also seeks to identify the problems encountered in implementing the Sendai Framework in the state. The findings demonstrate serious gaps in Sendai awareness, risk assessment, early warning systems, and community engagement, emphasizing the importance of a more integrated, proactive, and locally focused approach to disaster risk reduction. The report makes focused policy recommendations to help Akwa Ibom State become more resilient, based on the Sendai Framework priorities (identifying risks, strengthening governance, investing and recovery).The main aim of the study was to evaluate the awareness of Sendai framework and determine how an integrated disaster management framework may be created and put into effect in Akwa Ibom State that addresses the multi-hazard vulnerabilities of disaster such as flooding, thunderstorms, heat waves, landslides, communal crises, fire outbreaks, infrastructural collapses, and chemical and environmental pollution.

Keywords: Disaster Management, Multi-hazards, risk, vulnerabilities, Resilience, Risk Reduction, Sendai Framework.

1. INTRODUCTION

The world has seen numerous disaster all through the years. The disaster situation in world right poses great treat to properties, health and life thereby affecting the society and environment at large. Disasters on the average over the last few decades have caused the death of approximately 40,000 to 60,000 people per year (Ritchie and Rosado,2022). Over the last two decades, 7,348 disaster events were recorded worldwide by EM-DAT, approximately 1.23 million lives were lost due to disasters claimed, and affected a total of over 4 billion people (UNDRR). Furthermore, calamities led to around US$ 2.97 trillion in economic losses globally. Between 2000 and 2019, Asia had the most number of disasters (3,068), followed by the Americas (1,756) and Africa (1,192). The World Meteorological Organization's 2020 report shows a 9% rise in "weather, climate, and water-related events" over the preceding decade. Small island developing nations and least developed countries are particularly vulnerable (Jakson G, 2021). An estimated 83% of catastrophic disasters were caused by climate-related heatwaves, floods, and storms (IFRC 2020). Africa's disaster are mostly epidemics, endemic illnesses, drought, floods, agricultural pests, and bush fires, although some areas are also vulnerable to earthquakes, cyclones, and volcanic eruptions. Because of the continent's vast size, each African region is vulnerable to different sorts of natural catastrophes, while droughts and floods are undoubtedly the most common. The coast of northern Africa is milder and receives frequent rainfall, the sunny desert region of North Africa, which includes the Sahara, is exceedingly dry. Precipitation is erratic and uncommon, causing in harmful droughts that cause crops like wheat to perish and communities to limit their water supply. In 2020, at least 1.6 million Somalis, Sudanese, and Ethiopians were forced to flee their homes owing to severe flooding. Approximately 1.7 thousand natural disasters in Africa have been documented during the last two decades. The majority of these were floods, accounting for 60% of all reported natural catastrophes during that time period. Africa is more sensitive to climate change than other regions of the world. A large proportion of the population lives below the poverty line, and their livelihoods are highly vulnerable to climate change and weather conditions. Floods, droughts, cyclones, storm surges, and landslides are all common in West African countries, but flooding has caused the most serious issues in recent years. In August 2021, it was reported that flooding in Gambia has killed at least 12, with over 100,000 people affected by food insecurity. Farming was difficult to rely on due to sporadic strong rains, and many public structures were damaged. Heavy floods affected at

least 158,000 people in Niger, another West African country, across almost 400 villages. More than 60 persons died as a result of being unable to flee the rushing floodwaters or being struck by construction debris from collapsed structures. Nigeria is a country located in the west part of the African continent, so it susceptible to disaster pertinent to its region. Nigerians suffer greatly from a variety of disasters. Disasters like floods, landslides, tidal waves, coastal erosion, and sandstorms, dust storms, locust/insect infestations, oil spills, and other man made calamities. Many people have died in Nigeria, and many more have become homeless. Generally speaking, Nigeria's economy is generally weak, under protected, and with a vast broad environment. These features contribute to Nigeria's environment being especially vulnerable. Nigeria experiences flooding every year for the past decade, though usually attributed to climate change but in must cause, flooding is caused by man- made activities. Such activities include improper disposal of solid waste, improper constructions on water ways and poor management in totality. One of the notable flooding in Nigeria, is the 2012 floods which started in early July 2012. As of November 5, 2012, it had killed 363 people and displaced more than 2.1 million. According to the National Emergency Management Agency (NEMA), 30 of Nigeria's 36 states were affected by the floods, with Kogi and Benue States being the two most affected areas. The floods are termed as the worst in 40 years, and affected an estimated total of seven million people, the estimated damages and losses caused by the floods were N2.6 trillion. In the past, it was widely assumed that Nigeria was completely resistant to seismic dangers because no seismic occurrences had occurred in its history. However, seismic events in Nigeria in recent years have called into question this view. Many of these seismic phenomena, such as tremors, were previously unrecorded due to Nigeria's lack of effective seismic monitoring equipment. As a result, earthquakes and tremors have been detected and recorded throughout the country. When considering seismic activity in Nigeria, it is vital to realize that any potential future earthquakes will most likely occur along Nigeria's fault lines. Recent developments have also shown that both West Africa and Nigeria are at risk of catastrophic earthquakes in the future. (Umar et al,2011; Oluwafemi et al, 2018). Nigeria is split into six distinct geographic regions, each having unique geographical peculiarities. These areas are referred to as the North-Central Zone (NC), North-East Zone (NE), North-West Zone (NW), South East Zone (SE), South-South Zone (SS), and South-West Zone (SW). Eze et al. (2014) present a detailed description of Nigeria's six geopolitical zones as follows: North Central (also known as the Middle Belt); this zone comprises the states of Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, and Abuja; Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe are part of the North East region; North West states include Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara;The South East region includes the states of Abia, Anambra, Ebonyi, Enugu, and Imo; South South: This zone comprises the states of Akwa Ibom, Cross River, Bayelsa, Rivers, Delta, and Edo and the South West: Includes Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo states. Akwa Ibom State, located in the Niger Delta region of Nigeria,is at a crossroads of natural and man-made risks that threaten the well-being of its people and the stability of its socioeconomic fabric. With its diverse topography and proximity to the Atlantic Ocean, the state faces multi-hazard vulnerabilities that demand efficient disaster management strategies.According to Ajayi (2014), the Niger Delta region in Nigeria is crucial for the country's economy, environment, and geopolitics. Despite having just 20% of the population, it generates over 80% of the country's GDP. The Niger Delta also has massive crude oil and gas deposits, creating opportunities for both domestic and foreign business. The Niger Delta also contains some of the world's most diverse flora and animals. This region also has around 200 gas flaring sites, making it one of Africa's highest greenhouse gas emission sites (Ajayi, 2014). Disasters can be natural or man-made events that result in widespread destruction and loss of life. Manmade disasters include accidents, fire incidents, insurgencies, and many others. (NEMA,2023). Flooding, thunderstorms, heat waves, landslides, communal crises, fire breakouts, building collapses, and chemical and environmental contamination are among the many catastrophes that have struck the state. To protect people, property, and the environment from these dangers, which are frequently exacerbated by climate change, urbanization, and sociopolitical factors, a comprehensive and personalized disaster management system is required.Akwa Ibom State's geographical location, with its wide coastline and riverine lands, makes it particularly vulnerable to floods during the rainy season. The ramifications are severe, resulting in displacement, loss of livelihood, and damage to essential infrastructure.

Furthermore, the region sees thunderstorms and heat waves, which contribute to an increased risk of wildfires and other climate-related disasters. Communal tensions, a recurring issue in Akwa Ibom State, endanger social cohesiveness and stability. These disputes, which have their roots in historical, ethnic, or resource-based tensions, have the potential to erupt into widespread violence, displacing populations and interrupting key services. While urbanization and rapid infrastructure development are necessary for economic progress, they have led in building collapses, which are frequently linked to poor construction techniques and insufficient regulatory compliance. These situations not only result in fatalities, but also place a burden on emergency response capacity. Furthermore, the state is threatened by chemical and environmental pollution, with industrial activity contaminating land and water. Because of the potential impact on human health and the ecology, such pollution occurrences require a proactive approach to mitigating and managing them. In view of these issues, there is an urgent need for a systematic and integrated disaster management framework that is specifically customized to Akwa Ibom State's unique vulnerabilities and risks. This framework should include proactive risk-reduction initiatives, effective early warning systems, community engagement, and strong multi-agency collaboration to enable a coordinated and successful catastrophe response. As the state aims for long-term growth, the ability to predict, mitigate, and respond to calamities becomes increasingly important. This thesis aims to contribute to the discourse on disaster management by presenting a comprehensive and context-specific framework that tackles the multi-hazard character of Akwa Ibom State's concerns. In the face of an increasingly uncertain and hostile environment, the goal is to strengthen the state's resilience, safeguard its communities, and support sustainable growth. This thesis will analyze the Sendai Framework and some other theories of disaster management and develops a conceptual and analytical(theoretical) framework to provide a deeper understanding of its background. Sendai framework is preceded by the Hyogo Framework for Action (HFA), a global blueprint for disaster risk reduction(DRR) efforts from 2005 to 2015. Adopted in 2005 at the World Conference on Disaster Reduction in Kobe, Japan, it aimed to significantly reduce disaster losses in lives and assets. The Sendai Framework (SF) for Disaster Risk Reduction (DRR) 2015-2030 was adopted during the Third United Nations World Conference on Disaster Risk Reduction (DRR). Sendai Framework was later supported by member States in the United Nations General Assembly and provided for all-of-society and all-of-State institutions' engagement in avoiding and mitigating catastrophe risks faced by both natural and man-made hazards and related hazards and risks to the environment, technology, and biology. The Sendai Framework for Disaster Risk Reduction 2015-2030 is an international program developed by the United Nations (UN) with the goal of preventing and mitigating the effects of existing and future disasters. The policy has today been endorsed by 187 out of 193 UN member states and provides key objectives and goals for the development and implementation of disaster risk management reduction. The year 2023 marks the halfway point in implementing the SF and other related agreements, conventions, and agendas, such as the 2030 Agenda for Sustainable Development and the Addis Ababa Action Agenda Financing for Development, the Paris Climate Agreement, the New Urban Agenda, and so forth. Low-lying coastal areas are particularly sensitive to the heightened climatic conditions (Rayner &Malone 2001). Since the 1990s, catastrophe risk reduction has advanced to become a fundamental aspect of society's growth and governance, being broadly described as "the development and deployment of policies, strategies, and practices to mitigate "vulnerabilities and disaster risks throughout societies" (Twigg 2015; Wisner et al., 2004). Corporate Social Responsibility (CSR) is critical in disaster management because it allows firms to actively contribute to the resilience and recovery of communities devastated by natural and man-made disasters. Companies can participate in disaster preparedness through CSR efforts that support early warning systems, fund instructional programs, and invest in risk-mitigation infrastructure. Businesses can give important resources, such as financial aid, logistics, and knowledge, to aid in disaster relief and recovery operations. Companies that include CSR into their operations not only fulfill their ethical commitments to the communities they serve, but also contribute to the development of more resilient societies capable of surviving future crises. In this study the crucial notion put in, elucidation stated by some writers are also put forward, in tandem with our own understanding of the definition. The basic concept behind this study is disaster management using the Sendai framework as the lens to see how disaster risk and

vulnerabilities are handled. Under disaster management, the Sendai framework is employed. The Sendai framework practice includes, Implementation, effectiveness, challenges encountered, management practices and lots more. Implementation will be view in terms of its location, i.e. the coastal areas, riverine areas, crude oil producing areas and of course the communities. These concept work in tandem to understand disaster management in Akwa Ibom State. In the face of an increasingly uncertain and hostile environment, the goal is to strengthen the state's resilience, safeguard its communities, and support sustainable growth. The Sendai Framework is based on the lessons learnt from its predecessors, including recognized gaps and future difficulties (UNDRR 2015). The Sendai Framework promotes four key priorities for action: "Understanding disaster risk"; "Strengthening disaster risk governance to manage disaster risk"; "Investing in disaster risk reduction for resilience"; and "Enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery, rehabilitation, and reconstruction" (UNDRR 2015). These priorities have been set to tackle factors that include producing more accurate evaluations and advances for disaster preparedness, enhancing the relevance of integrating disaster risk reduction measures at the governmental and diverse sectors levels, effective implementation of measures, as well as the critical relevance of necessary investments for disaster risk prevention and reduction to develop the area. The study's conceptual framework consists of three distinct components. This may be seen in the variables of the problem statement, which are risk, uncertainty, community resilience and implementation. The chosen ideas aid in understanding the circumstances surrounding catastrophe risk reduction in the context of the empirical data and analysis presented in this study.

1.1 Research Question and Objectives

The aim of this study is to determine the awareness and the extent of implementation of Sendai framework in Akwa Ibom State, the level of its effectiveness and the challenges encountered. In general, the purpose of this study is to determine how an integrated disaster management framework may be created and put into effect in Akwa Ibom State that addresses the multi-hazard vulnerabilities of disaster such as flooding, thunderstorms, heat waves, landslides, communal crises, fire outbreaks, infrastructural collapses, and chemical and environmental pollution. Specifically, it sought to answer the following questions:

1. What is the extent of awareness of the Sendai framework in Akwa Ibom State along risk, hazard, vulnerabilities and capacity in:

a. coastal areas;

b. riverine areas;

c. crude oil producing areas

2. What is the level of effectiveness of the Sendai framework in Akwa Ibom State along:

a. implementation;

b. disaster risk; and

c. community resilience

3. What are the challenges encountered in the implementation of Sendai framework in the Akwa Ibom State

2. METHODOLOGY

The study employed a mixed methods approach, integrating qualitative and quantitative research methods to understand the handling of Sendai Framework (SF) awareness in Akwa Ibom State. This approach was chosen to leverage the strengths of each method for a comprehensive view, particularly beneficial for complex issues like disaster management. Data collection involved surveys, structured questionnaires, and secondary data to gather both numerical evidence on hazard occurrence, effects, and readiness, and qualitative insights into root causes and human experiences. Using multiple methods facilitated triangulation, enhancing the study's trustworthiness and validity. The study's population consisted of key stakeholders, including community members, disaster management officials, environmental experts, and community leaders from Akwa Ibom State, Nigeria, a state vulnerable to hazards like floods due to its geography. Akwa Ibom State's economy is significantly based on crude oil and natural gas production, alongside agriculture. The primary data collection tool was a custom-built questionnaire covering multi-hazard exposure,

readiness, response, and socioeconomic effects. This questionnaire was pilot tested with 20 participants, demonstrating strong reliability with a Cronbach's Alpha of 0.89. Data analysis utilized descriptive statistics, frequency counts, percentages, and tabular and pictorial forms.

3. RESULTS AND DISCUSSION

The study's findings reveal insights into the level of awareness and effectiveness of the Sendai Framework (SF) for Disaster Risk Reduction in Akwa Ibom State, along with the challenges faced.

3.1 Extent of awareness of the Sendai framework in Akwa Ibom State along risk, hazard, vulnerabilities, and capacity:

The study investigated the level of awareness regarding disaster management concepts (risk, hazard, vulnerabilities, capacity/resilience) and the Sendai Framework itself across different geographical areas of Akwa Ibom State.

a. Coastal areas:

Overall awareness towards disaster management, specifically regarding risk, was found to be Moderately Aware. Coastal communities are moderately aware of potential risks in their area, including the existence of risk. They are also moderately aware of the government's response and traditional/indigenous practices for managing risks. This moderate awareness of general risks, hazards, vulnerability, capacity, and resilience is largely due to their familiarity with issues like coastal erosion, flooding, storm surges, and rising sea levels.Awareness of hazards in coastal communities was generally Slightly Aware. While moderately aware of potential hazards, awareness of government response to mitigating hazards and community-based/indigenous practices used to manage hazards was only slightly aware. Coastal communities are very familiar with specific hazards like flooding, erosion, storm surges, and rising sea levels, but may be ignorant about government mitigation programs. Awareness of indigenous hazard mitigation practices was considered moderate.Awareness of vulnerabilities in coastal communities was Moderately Aware overall. Residents were found to be highly aware of their community's vulnerability to various hazards. Awareness of gaps in government approaches to reducing vulnerability, ecological/environmental factors exacerbating vulnerability, and challenges in accessing timely information during emergencies were all rated as moderately aware. This high awareness of vulnerabilities is likely due to direct exposure to climatic and environmental issues like flooding and coastal erosion.Awareness of capacity or resilience in coastal communities was rated as Slightly Aware overall. Residents were slightly aware of existing social networks/community organizations that enhance resilience and infrastructure projects or improvements that have enhanced resilience. Awareness of ecological or environmental practices that enhance resilience was rated as not aware. This suggests residents are only slightly aware of their capacity and resilience to disaster.Critically, across all aspects in coastal areas, awareness of the Sendai Framework for Disaster Risk Reduction was consistently found to be Not Aware.

b. Riverine areas:

Overall awareness of risk in riverine communities was Slightly Aware, although described as moderate in some parts of the text. Awareness of the term disaster management and potential risks in their area was moderately aware. This understanding comes from exposure to environmental risks like erosion, flooding, and oil spills, as well as past experiences with flooding and adverse weather. Awareness of government response and indigenous practices for managing risks was slightly aware.Overall awareness of hazards in riverine areas was Slightly Aware. Awareness of different types of hazards and potential hazards was moderately aware. Awareness of government response to mitigating hazards and community based indigenous practices to manage hazards was slightly aware or moderate. Riverine communities are highly aware of specific hazards like flooding, riverbank erosion, and waterborne diseases.Overall

awareness of vulnerabilities in riverine communities was Moderately Aware. Residents were knowledgeable about their community's vulnerability to various hazards, such as floods and erosion. Awareness of gaps in government approaches, ecological/environmental factors exacerbating vulnerability, and challenges in accessing timely information was all rated as moderately aware. While awareness of vulnerability is high, control measures and emergency responses led by the government are perceived as low.Overall awareness of capacity or resilience in riverine communities was Moderately Aware. There was a moderate level of awareness of infrastructure projects and improvements enhancing resilience, such as the construction of culverts and river embankments. Awareness of existing social networks or community organizations playing a role in resilience was moderately aware. However, residents were only slightly aware of environmental and ecological practices that enhance resilience, indicating poor practices like indiscriminate garbage disposal in waterways.Similar to coastal areas, awareness of the Sendai Framework for Disaster Risk Reduction in riverine communities was found to be Not Aware. This is described as a substantial gap in understanding international disaster management frameworks.

c. Crude oil producing areas:

Overall awareness of risk in crude oil producing communities was Moderately Aware, although awareness of SF is low. Awareness of potential risks in disaster management was rated as moderately aware. Residents are generally well-informed about the risks they face, likely due to direct exposure to environmental and industrial risks like oil spills and gas flaring. Awareness of government response and traditional/indigenous practices for managing risks was moderately aware.Overall awareness of hazards in crude oil producing areas was Slightly Aware, although some indicators were moderately aware. Awareness of different types of hazards and potential hazards was moderately aware, reflecting consciousness of environmental and industrial hazards linked to petroleum extraction. Awareness of government response and community-based/indigenous practices to manage hazards was slightly aware. Overall awareness of vulnerabilities in crude oil producing communities was Moderately Aware. Awareness of the vulnerability of their community to various hazards was rated as highly aware. Awareness of gaps in government approaches, ecological/environmental factors, and challenges in accessing timely information was all rated as moderately aware. This community is fully aware of their exposure to climatic, environmental, and industrial vulnerabilities due to crude oil explorations.Overall awareness of capacity or resilience in crude oil producing communities was Moderately Aware. There was a moderate level of awareness of infrastructure projects and improvements enhancing resilience, such as oil spill cleanups. However, residents were slightly aware of ecological or environmental practices that enhance resilience and not aware of existing social networks or community organizations that enhance resilience.In crude oil producing areas, awareness of the Sendai Framework for Disaster Risk Reduction was rated as Slightly Aware or Low. This highlights a significant knowledge gap regarding internationally recognized frameworks designed to enhance disaster resilience.While awareness on the different disasters and their consequences is high, the study concluded that their resilience and capacity to handle an event is low, similar to the low awareness of the Sendai Framework.Across all communities, there is a substantial level of awareness of local vulnerabilities and a moderate awareness of government mitigation efforts and indigenous coping mechanisms. However, awareness of how these practices align with the Sendai Framework is low throughout all communities. Residents are only slightly aware of their overall capacity and resilience to disaster.

3.1.1. Level of effectiveness of the Sendai framework in Akwa Ibom State along

implementation, disaster risk, and community resilience:

The study assessed the effectiveness of the Sendai Framework across three key areas in Akwa Ibom State.

a. Implementation:

Overall, the level of effectiveness of the implementation of the Sendai Framework in Akwa Ibom State was found to be Slightly Effective.This is directly attributed to the lack of awareness of the framework itself among the affected communities and stakeholders. Because people and communities are not fully aware of the framework's declarations, its effectiveness is marred.The level of implementation was rated as slightly effective, and there isn't adequate coordination among relevant stakeholders in implementing the framework. Awareness of government initiatives to implement the framework was rated as slightly effective, due to low community awareness of these initiatives. Challenges hindering implementation were observed as slightly effective, again linked to low awareness of the framework.

b. Disaster risk:

Overall, the level of effectiveness of the Sendai Framework in Akwa Ibom State concerning disaster risk protocols was found to be Slightly Effective.This suggests that the necessary steps and procedures outlined by the framework are not widely known or implemented, and its awareness and implementation are slight. Effectiveness regarding whether current infrastructure and development projects consider disaster risk reduction was slightly effective.The state's preparedness in mitigating the impact of natural disasters was rated as slightly effective. The way recent disasters were managed with respect to the framework was also slightly effective. More attention, education, and sensitization are needed regarding implementation along disaster risk.

c. Community resilience:

Overall, the level of effectiveness of the Sendai Framework in Akwa Ibom State with respect to community resilience was found to be Slightly Effective.Awareness about disaster risks within the community was rated as slightly effective. The community is considered slightly equipped to respond to and recover from disasters. Participation in training or workshops related to disaster preparedness and resilience was also rated as slightly effective. The level of education on disaster preparedness and resilience is good but needs more encouragement from the government and stakeholders. There is a high need for additional support or resources to strengthen community resilience, which is often provided by the government and foreign NGOs. However, further investigation suggested that affected communities might not fully receive this help due to issues like corruption, embezzlement, and misappropriation of funds.While residents demonstrate some level of preparedness, incorporating traditional mitigation strategies and local response programs, there is still a wide gap in fully integrating these with international frameworks like the SF to enhance long-term resilience.The study suggests that the overall effectiveness of the Sendai Framework across implementation, disaster risk, and community resilience is low or slightly effective, directly correlating with the low awareness levels of the framework in these areas.

3.1.1.1 Challenges encountered in the implementation of Sendai framework in the Akwa Ibom State:

The study identified several challenges that hinder the effective implementation of the Sendai Framework in Akwa Ibom State.

Major challenges reported include:,Education and awareness gaps regarding Disaster Risk Reduction (DRR) measures and the Sendai Framework itself.,Environmental pollution.,Erosion and rising sea levels.,Flooding and erosion.,Limited access to emergency response.,Issues with policy and law,Storm surge and infrastructure

weakness,Weak governance. According to the research findings, the most common challenges specifically affecting implementation are education, weak governance, and DRR policy in Akwa Ibom State.The study concludes that effective disaster risk management policies and practices must be based on a comprehensive understanding of disaster risk in all its dimensions, including vulnerability, coping capacity, exposure, nature of hazard, and environmental settings, as these are seen as significant hindrances.

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