Final Report

Climate Risk Register - Benue State

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GIFSEP

African Activists for Climate Justice

OXFAM

Climate Risk Register - Benue State

Compiled by:

The **Global Initiative for Food Security and Ecosystem Preservation (GIFSEP)** as part of the African Activists for Climate Justice (AACJ) project implemented by Oxfam with support from the Ministry of Foreign Affairs, the Netherlands.

GIFSEP is a Non-Governmental Organisation founded on the ideals of environmental conservation, biodiversity conservation and food security.

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Introduction

The growing crisis of climate change, marked by rising global temperatures, unpredictable weather patterns, and extreme events, poses a significant threat to the sustainability of food systems around the globe. While the importance of food security in human development cannot be overstated, it is now at risk due to the escalating disruptions in food production, distribution, and access caused by climate change.

This challenge is especially pronounced in developing countries, where agriculture is a key economic driver. The Intergovernmental Panel on Climate Change (IPCC) has pointed out that these nations will experience the most immediate effects of climate change, leading to severe consequences for water availability, agricultural output, and livelihoods. This situation disproportionately endangers rural populations, relying heavily on agriculture for income and sustenance.

According to the IPCC, the world will likely face more intense shifts in weather patterns, resulting in alterations to the production zones of essential crops, which could intensify food insecurity. As developing countries suffer the most from these effects, rural communities, already vulnerable due to their dependence on rain-fed agriculture and limited resources, face increased risks. This vulnerability is further compounded by the various socioeconomic and environmental factors that hinder communities' ability to adapt.

As global temperatures rise, the options for effective adaptation—defined as the strategies available to manage climate risks—are diminishing. Haasnoot, Lawrence, and Magnan (2021) assert that as temperatures increase, the chances for effective adaptation decrease. Therefore, climate action must concentrate on three essential areas: mitigation to slow global warming, adaptation to lessen current and future climate risks, and addressing unavoidable loss and damage where adaptation is no longer feasible.

Local Overview

Nigeria, one of the foremost agricultural producers in Africa, is not immune to the detrimental effects of climate change. With varied ecological zones ranging from arid and semi-arid regions in the north to lush, tropical landscapes in the south, Nigeria's agriculture is highly susceptible to climate fluctuations. The northern region, marked by low rainfall and high temperatures, encounters severe difficulties as climate change intensifies dry spells and diminishes agricultural output. In the middle belt, where diverse crops are cultivated, both drought and flooding pose significant challenges. The increased intensity of rainfall in recent years has resulted in frequent and devastating floods, which destroy crops, erode soils, and displace communities. Flooding is a prevalent climate risk affecting all regions of the country, including the north, middle belt, and south. The agricultural sector's vulnerability to these climate-related issues jeopardizes not just food security but also the economic stability of millions of Nigerians.

In Benue State, a primarily agricultural state and one of the top agricultural producers in the nation, the adverse impacts of climate change are evident in the agricultural performance in recent years. The state, established in 1976, boasts of a diverse landscape with the Benue River, supporting agriculture as the mainstay of the economy due to its fertile grounds.

[1]

1. https://benuestate.gov.ng/about/

Community Profile

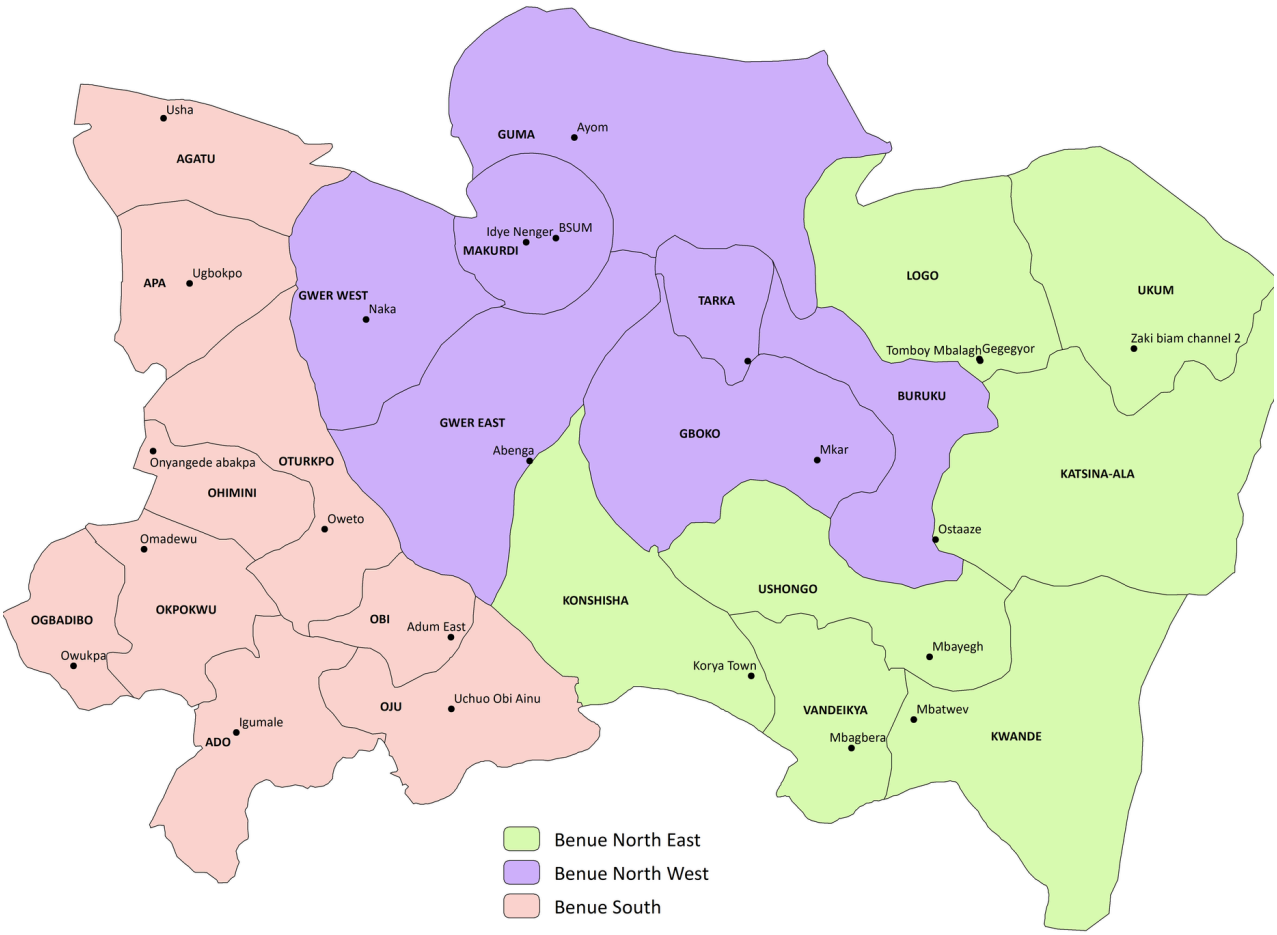


Figure 1: Map of Benue State Showing the Communities Visited

The Climate Risk Register process meticulously traversed 23 communities in the Local Government of Benue State, encompassing all three Zones of the State. This comprehensive and participatory exercise not only garnered the attention of the communities but also fostered active involvement. It is worth noting that the linguistic landscape of the state is rich, with Tiv, Idoma, Igede, and Etulo being the predominant languages. Each of these tribes is ruled by a traditional institution, presided over by a respected first-class chief. Specifically, the Tor Tiv leads the Tiv people, the Och'idoma leads the Idoma people, the Igede People are under the rule of Ad'utu, and the Etulo people are led by the Odejo. Despite their dispersion across different zones of the State, these tribes engage in intermarriage and coexist harmoniously, contributing to the vibrant cultural fabric of the region. Furthermore, the primary sources of livelihood identified during the process encompassed farming, trading, artisanal work, and active participation in politics.

Traditional Institutions in Benue State LGAs

Benue State is home to a variety of ethnic groups, each with its traditional governance structures. The institutions mentioned in various LGAs include:

- **Adirahu Ny Igede and Adirahu Ny Oju:** These are traditional rulers who preside over the Igede people, mainly located in Oju and Obi LGAs. They play key roles in maintaining the customs, traditions, and leadership of the Igede ethnic group.
- **Ward Heads:** At the local level, Ward Heads serve as leaders who manage smaller communities or subdivisions within an LGA, providing grassroots governance and a link between the traditional leadership and the people.
- **Area Traditional Councils**: These are councils that oversee various districts or clans. They ensure the administration of traditional law and order, mediate disputes and manage cultural affairs. Examples include the Area Traditional Councils in places like Yandev, Mbatyav, and Mbatierev.
- **Ter Makurdi:** The "Ter" title is given to traditional rulers in the Tiv-speaking areas of Benue. Ter Makurdi oversees the Tiv people within the Makurdi LGA, acting as a cultural and administrative leader.
- **Mue Ter:** Similar to the Ter, the Mue Ter is a highly respected traditional title among the Tiv people, serving as a chief in the traditional council, helping to mediate conflicts and maintain order.
- **District and Clan Heads:** These are leaders who administer at the clan or district levels. They are essential in maintaining the traditional hierarchy and overseeing the local customs, land, and cultural matters within their areas. District Heads like those in Mbayoo Mbagade and Clan Heads in Kasev Mbakor exemplify this role.
- **Tor Gwer:** A title held by a traditional leader in Gwer LGA, this ruler oversees significant cultural and political responsibilities within the Tiv ethnic group.

These institutions preserve the cultural heritage of the various ethnic groups in Benue State, ensuring that traditional customs, governance, and community cohesion are maintained.

Significant Natural Resources within Benue State LGAs

Benue State is known as Nigeria's "Food Basket" due to its extensive agricultural production. However, the state is also rich in a variety of natural resources:

- Rivers Benue, Ohimini, and Ogbadibo: The presence of these rivers supports agriculture and fishing, which are major sources of livelihood in the state. The Benue River, in particular, is a significant waterway used for transport, irrigation, and fishing.

- **Coal and Petroleum:** There are deposits of coal and petroleum, particularly in regions such as Owukpa (Ogbadibo LGA). These resources have the potential for energy generation and industrial use.
- **Limestone, Clay, and Shale:** These are found in various parts of the state and are used in construction and industrial processes like cement production.
- **Bauxite and Sharp Sand:** These are valuable for both industrial and construction purposes, with bauxite being an important ore for aluminium production.
- **Gravel, Laterite, and Gypsum:** These materials are commonly used in road construction, building projects, and agriculture.
- **Glass Sand, Marble, and Granite:** Benue also has deposits of glass sand, which is used in glass manufacturing, along with marble and granite, which are important for the construction industry.
- **Economic Trees and Timber:** The forests of Benue are home to valuable trees that produce timber for building and furniture-making, as well as other economically important products like fruits and medicinal plants.
- **Zinc, Barite, and Lead:** These minerals are valuable for industrial purposes, particularly in the production of chemicals and other products. Barite is especially useful in drilling muds for the oil industry.

The Climate Risk Register (CRR)

The Climate Risk Register is an advanced risk assessment tool based on risk management concepts that aims to improve the resilience of different population sectors to climatic-related hazards. By methodically identifying and prioritising potential climate risks, local communities are more aware of and better prepared for climate events that pose serious hazards.

The Climate Risk Register focuses on risks that are both likely to occur and have the potential to cause significant disruption. These disruptions can range from environmental degradation to economic instability, public health crises, and infrastructure damage, all of which can have a significant impact on the lives and livelihoods of local communities. The register is a proactive approach that allows communities to predict and reduce the effects of climate hazards before they occur.

The tool not only highlights high-likelihood climate risks but also provides a framework for understanding the potential consequences. With this knowledge, communities can implement effective preparedness and response strategies. The tool functions as a guide for local authorities, policymakers, and community leaders in planning resilience-building activities, thus reducing vulnerability to climate shocks and stressors. In this way, it transforms into a powerful advocacy and demand tool for communities.

In practice, the Climate Risk Register was designed and implemented in 23 communities across all the local government areas of Benue State, Nigeria. This widespread application ensures that every community has access to the data and insights necessary for addressing their specific climate risks. By cutting across different local government areas, the register incorporates local nuances, ensuring that climate risks are not only identified but also contextualized to reflect the unique vulnerabilities of each community.

As a community-centred tool, the Climate Risk Register empowers local populations by giving them the information needed to understand their own risks and actively engage in climate adaptation efforts. The register's comprehensive approach ultimately promotes resilience, enabling these communities to face climate challenges with greater preparedness and reduced risk of wide-scale disruption.

Figure 2: Facilitation of a Climate Risk Register in Makurdi LGA, Benue State

The CRR Process

The processes involved in the Climate Risk Register, from development to deployment, are outlined below. Creating the Climate Risk Register entailed a systematic, multi-phase approach that blended scientific research, local insights, and risk management strategies. The objective was to develop a robust and practical tool tailored to the unique needs of communities facing climate-related challenges.

Identification of Community Activists

The initial phase focused on identifying community activists across various regions of Benue State. These individuals would lead and assist communities in pinpointing climate risks and devising mitigation and adaptation plans.

Stakeholder Engagement

Engaging local stakeholders, such as community leaders, local government officials, farmers, and other vulnerable groups, was a critical part of the development process. These stakeholders provided insights into the specific challenges their communities faced due to climate change. A workshop was organized to gather qualitative data on past climate events, like floods, droughts, and extreme temperatures, that had impacted local populations. This input ensured the tool would be relevant and actionable for the communities it aimed to serve.

Development of the Risk Register

The Climate Risk Register was developed as a tool to record, categorize, and present climate risk information in a structured way. Each risk entry in the register provided details on:

- Climate Risk
- Geographic Areas Most at Risk
- Causes of Risk
- Potential Impact on Local Communities (including economic loss, health effects, infrastructure damage, etc.)
- Risk Probability (likelihood of occurrence)
- Risk Level
- Current Community Coping Strategies (adaptation)
- Mitigation Strategies and Community Contributions

With guidance from community activists, this information was collected from community members and documented in an accessible format, making it easy for both communities and decision-makers to understand and use.

Capacity Building and Training

To ensure that the Climate Risk Register could be effectively used at the local level, a training workshop was developed for community activists, who would assist community members in identifying climate risks. The session also included community leaders, local government officials, and other stakeholders. The training focused on interpreting the risk register, developing its content, implementing its recommendations, and incorporating findings into disaster risk management and climate adaptation planning. This phase was critical for empowering communities to take ownership of the tool and leverage it for local resilience-building efforts.

Pilot Testing and Validation

Before a full rollout across all 23 local government areas, a pilot test was conducted during the community activists' training workshop. This phase allowed for real-world testing of the tool's effectiveness and usability. Participants, including community members, local officials, and other stakeholders, used the tool to assess risks and formulate preparedness plans. Feedback from this demonstration phase led to further refinements to enhance the tool's functionality and relevance.

Deployment of the Climate Risk Register and Handover

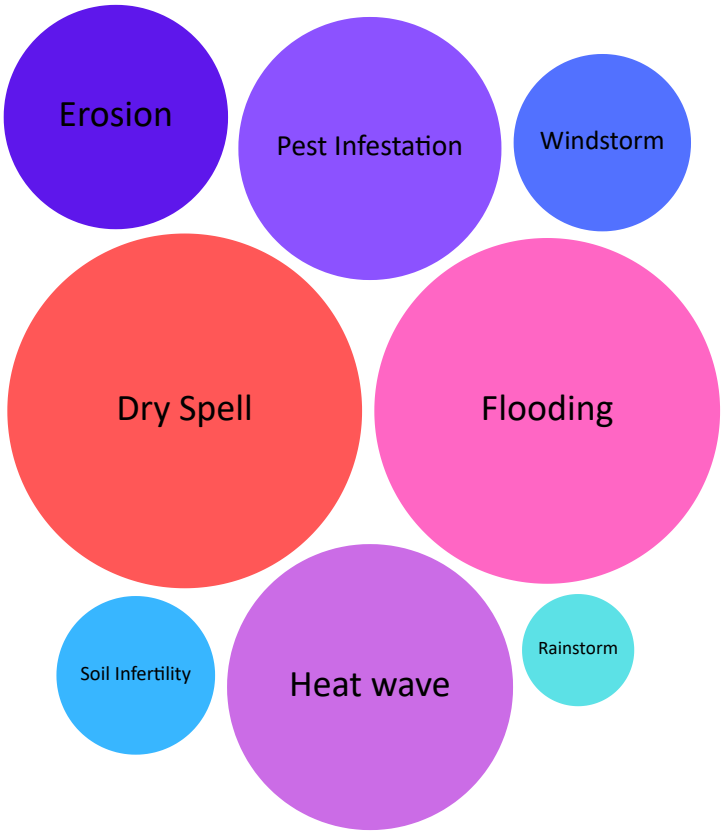
After the tool was thoroughly developed and tested, it was deployed across the 23 local government areas of Benue State. All climate risks and findings were compiled into a Climate Risk Register document, which clearly outlines identified risks, prioritization, and suggested adaptation and mitigation actions. To ensure accessibility, the document was handed over to the leadership of each community on the spot.

Additionally, a similar initiative will be carried out at the local government area secretariats, and both documents will be integrated to conduct a detailed risk assessment for the state. This assessment will identify climate risks that pose significant threats to Benue communities, examining the frequency and intensity of events like floods, dry spells, and heat waves, along with their potential impacts. This process will help prioritize the most urgent risks that need immediate attention.

Through this structured and participatory development process, the Climate Risk Register emerged as a practical and powerful tool for climate risk management in Benue State, empowering communities to anticipate, prepare for, and mitigate the effects of climate-related hazards.

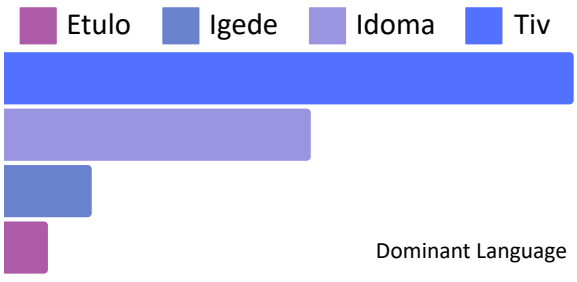
Findings

01 Identified Climate Risks



02 Major Occupations

03 Dominant Language



Identified Climate Risks

01

Dry Spell

A prolonged lack of rainfall resulting in water shortage for crops and livestock, ultimately diminishing their productivity.

02

Flooding

The overflowing of uncontrollable water into farmlands and houses after excess rainfall.

03

Heatwave

Prolonged extreme rise in temperature above room temperature, typically making the body hot and weak.

04

Pest Infestation

The emergence of insects and diseases that destroy crops, farms and livestock.

05

Erosion

Washing away of topsoil by running water.

06

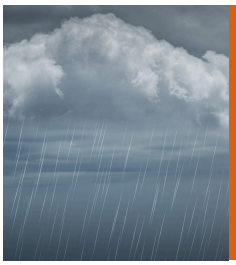
Windstorm

The natural movement of air with high speed that destroys crops and properties.

07

Soil Infertility

Reduction in soil ability to support plants with nutrients for productivity.



08

Rainstorm

Heavy downpour of rain accompanied by heavy wind.

Dry Spell

Communities have pinpointed various causes for this risk, including deforestation, bush burning, decreased rainfall, global warming, and rising temperatures. Human activities, particularly the emission of carbon into the atmosphere, are linked to these changes. Natural factors and climate variability also contribute to worsening the situation.

The communities in Benue are currently facing the harsh realities of climate change, particularly in the form of prolonged dry spells. Benue State, which is situated in the Guinean savannah region, has historically relied on agriculture and pastoralism to sustain families. However, the rains have become increasingly unpredictable, causing significant challenges. The traditional lifeline of the rainy season, which usually provides vital water to crops and livestock, is no longer as reliable as it once was. As a result, rivers and streams are dwindling, and wells are gradually drying up, posing a severe threat to the livelihood of the communities.

The impact is most keenly felt by communities that depend on agriculture, as they are experiencing reduced crop yields, directly affecting staple crops such as yam, soya beans, maize, millet, and sorghum, which are essential for the sustenance of families. Additionally, livestock herders are being forced to travel longer distances in search of water and grazing land, leading to heightened competition over diminishing resources.

In rural villages, the scarcity of rain is not just a challenge to food security but also a threat to survival itself. Women and children are now undertaking longer and more arduous journeys to fetch water, and in some areas, tensions are escalating as communities compete for access to diminishing resources. These dry spells are not isolated incidents but rather indicators of a changing climate that is significantly reshaping the lives of millions across Benue State.

Result of Risk

The result of dry spells on agriculture is devastating. Farmlands suffer and crops like groundnuts, maize, okra, and yams experience stunted growth, delayed maturity, and in many cases, total

crop failure. Livestock is also affected due to the destruction of grazing land and water shortages. Farmers witness increased pest attacks on both crops and animals, further reducing productivity. Communities face scarcity of water for human consumption, which aggravates the dryness and heat, making living conditions even harsher.

Impact

The consequences of the dry spell are far-reaching, leading to famine, hunger, and poverty. Farmers, who rely heavily on crop yields, suffer from low incomes, which exacerbates food insecurity. The economic strain leads to increased crime rates, as people struggle to meet basic needs. Food shortages also result in malnutrition and widespread disease, while the cost of agricultural production rises. In some extreme cases, death occurs due to water scarcity and lack of food. Additionally, farmers lose interest in farming as the risk of crop failure becomes too great, leading to a further decline in agricultural output and worsening the cycle of poverty and food insecurity.

Current Community Coping Strategies

Communities have developed various coping strategies to mitigate the effects of dry spells. These include constructing water holes, wells, and other sources for irrigation. Some communities practice rainwater harvesting, while others plant drought-resistant crops and trees. Early planting, crop diversification, and the use of organic substances are also employed to improve resilience. Local irrigation techniques, such as artificial irrigation and sourcing alternative water supplies, are common strategies to reduce dependence on rainfall. In addition, communities have begun planting trees to improve soil cover and are involved in rearing drought-resistant animal breeds, such as the West African dwarf.

Mitigation Strategies

To address the growing risk of dry spells, communities and governments alike should focus on long-term mitigation strategies. Irrigation farming is a crucial measure, with the construction of boreholes and dams providing more consistent access to water. Water storage systems also ensure availability during dry periods. Preventing deforestation and promoting afforestation are vital steps, as planting more trees helps regulate the local climate and maintain soil health. Other measures include planting crops that require less water, such as sweet potatoes and beans, using mulching techniques to retain soil moisture, and providing farmers with pumping machines to facilitate irrigation.

Flooding

Flooding is another significant climate risk that affects many communities in Benue state, causing widespread destruction and displacement. Defined as the overflowing of uncontrollable water into farmlands and houses after excess rainfall, the communities identified overflow of riverbanks as a natural cause. These are further aggravated by human activities such as deforestation, poor urban planning etc.

In the state of Benue State, Nigeria, communities have increasingly suffered from devastating floods, a consequence of climate change that has had a profound impact on the lives of thousands. Benue, often referred to as the "Food Basket of the Nation" due to its agricultural abundance, is now facing an unprecedented challenge—rising water levels. Floods, which were once rare, have become more frequent and severe, driven by erratic rainfall patterns and heavier storms.

During the rainy season, rivers such as the Benue overflow, leading to the submergence of homes, schools, and farmland. Families are forced to seek shelter in overcrowded camps or with relatives as they are displaced overnight. The fertile plains, once thriving with crops, are now being washed away by the torrents, leaving farmers with minimal harvests. In areas like Makurdi and its surrounding villages, floodwaters have not only swept away livelihoods but also left behind mud, debris, and a sense of hopelessness.

The repercussions of flooding extend beyond ruined crops. Stagnant waters become breeding grounds for diseases like cholera and malaria, significantly increasing health risks. Furthermore, roads and infrastructure are damaged, leading to restricted access to markets, schools, and health services. For the people of Benue, the floods serve as a stark reminder of the growing threat of climate change to their survival, transforming once-fertile lands into zones of disaster and uncertainty.

Result of Risk

The consequences of flooding are devastating for both individuals and communities. Farmlands and houses are frequently submerged, resulting in damage to property and the destruction of

crops and livestock. Many communities experience displacement, with residents losing not only their homes but also their livelihoods. Flooding can also lead to the collapse of bridges and roads, disrupting transportation and access to essential services. Fish ponds and other sources of local food production are often damaged, contributing to food insecurity. In the worst cases, loss of life occurs as floods sweep away people, livestock, and homes.

Impact

The impacts of flooding extend far beyond the immediate destruction. People displaced from their homes often experience hunger and poverty, as they lose their sources of income and food production. Migration becomes common, as individuals seek safer living conditions in non-flooded areas. Flooding also increases the risk of disease outbreaks, particularly waterborne illnesses like cholera, due to contaminated water sources. Environmental degradation follows as floods destroy ecosystems and lead to soil erosion. Dangerous animals, such as snakes, may enter homes, posing additional risks. Overall, the lower standard of living, food shortages, and health challenges resulting from flooding contribute to increased crime rates as individuals struggle to survive in difficult circumstances.

Current Community Coping Strategies

Communities have developed a range of coping strategies to deal with the recurring threat of flooding. Farmers have started to grow crops on highlands and relocate their farmland to areas less prone to flooding. Locals construct makeshift waterways to channel floodwaters and plant trees to reduce soil erosion. Planting elephant grass along riverbanks helps stabilise the soil and prevent incursion. Additionally, communities clear blocked drainage systems and dig new drainage channels. Some people raise the foundations of their buildings to avoid being submerged, and sandbags are used to create barriers during heavy rains. Desilting drainage channels and removing waste from waterways have also become common practices.

Mitigation Strategies

For a long-term reduction in flood risk, communities suggested that planting trees and enforcing laws against deforestation can help restore natural flood barriers and prevent soil erosion. Proper waste management and the development of efficient town planning strategies will help prevent the clogging of waterways. Large-scale infrastructure projects, such as the construction of dams and the opening of larger water channels, are necessary to manage floodwaters effectively. Wetland reclamation can provide natural buffers for flood-prone areas, while rainwater harvesting systems can help communities make better use of rainfall. The establishment of early warning systems can save lives by providing communities with the time to prepare and relocate when necessary.

Heatwave

Heatwaves pose a significant climate risk, marked by extended durations of extreme heat and intense sunlight. These events are intensified by several factors, including diminished rainfall, deforestation, and human activities such as bush burning, urbanization, and changes in land use. Additionally, communities recognize that overpopulation and overcrowding in urban areas further amplify this risk.

The climate risk register has provided alarming insights into the impact of climate change on the communities of Benue State, Nigeria. In recent years, these communities have been increasingly affected by extreme heatwaves, which are directly linked to climate change. Benue State, well-renowned for its rich agricultural land and moderate climate, is now grappling with sweltering temperatures that are pushing the limits of human endurance.

During the dry season, the heat becomes unbearable, with temperatures soaring to unprecedented highs. This has significantly affected the farmers, who are accustomed to working in the fields, making it harder for them to endure long hours under the blazing sun. As a result, the heat has led to reduced yields of essential staples like yams and maize.

In the towns and villages, the heatwave has forced people indoors as the usual cooling breeze has been replaced by stifling air. Vulnerable groups, particularly the elderly and children, are experiencing spikes in heat-related illnesses such as dehydration and heatstroke. Moreover, the depletion of water sources has compounded the crisis, leading to the shrinking of rivers and streams, and causing wells to run low.

The scarcity of water and pasture has also resulted in losses for herders, impacting the livelihoods of these communities. This relentless heat has disrupted daily life, making it difficult for children to concentrate in school and for traders to continue their business. As climate change intensifies, the heatwaves are becoming more frequent and severe, posing a significant threat to both livelihoods and health in Benue. Without adequate adaptation measures, these communities remain highly vulnerable to the dangers posed by rising temperatures.

Result of Risk

The effects of heatwaves are felt on both human health and agriculture. During such a period, many people suffer from heat-related illnesses such as dehydration, heat rashes, and skin infections. The intense heat also causes general discomfort, stress, and negative emotions like anger. Sleep becomes difficult, leading to a lack of rest and concentration. Prolonged exposure to high temperatures can result in severe conditions like skin cancer, frequent headaches, and infectious diseases such as meningitis and hepatitis. In agriculture, crops fail due to increased evapotranspiration, post-harvest losses rise, and mosquitos proliferate, leading to more cases of mosquito-borne diseases. Water scarcity worsens, as the heat speeds up evaporation, leaving communities with dwindling water supplies.

Impact

The impact of heatwaves extends beyond health and affects food security, water availability, and the economy. Crop failure leads to food shortages, while the death of plants, animals, and even humans due to extreme heat becomes a pressing issue. Water scarcity worsens, increasing the risk of disease outbreaks and hunger. The loss of agricultural productivity results in poverty and lower incomes for farmers and labourers, while the overall economy suffers from reduced productivity. High mortality rates, particularly among the elderly and vulnerable, strain healthcare systems. Tensions rise within communities due to limited resources, and there is a potential for population decline as people move away from the worst-affected areas.

Current Community Coping Strategies

In response to the frequent heatwaves, communities have adopted various coping strategies to alleviate the effects. People seek relief by staying under trees, sleeping outside, or in open spaces to avoid the stifling heat indoors. Ventilation is improved by opening windows and building homes with larger windows to allow better air circulation. Cooling equipment like fans and regular bathing are commonly used to reduce discomfort, while drinking water frequently helps combat dehydration. Shade is provided for animals to protect them from the heat. To adapt to the changing weather, many people have also changed their clothing style to lighter materials and participated in campaigns against deforestation, as trees provide much-needed shade and cool the environment.

Mitigation Strategies

Some of the mitigation strategies to reduce the impact of heatwaves include afforestation programmes that aim to restore green spaces by planting more trees, which help cool the environment and improve air quality. Improved seedlings that are resistant to excessive heat should be developed to ensure more resilient agricultural practices. Irrigation systems are promoted to provide water during dry spells, and mulching is practised to retain soil moisture and protect crops. Communities are also encouraged to adopt energy-efficient housing designs with larger windows for ventilation. Urban planning efforts focus on increasing green spaces to reduce the heat island effect in cities. Additionally, practices like mixed cropping are being promoted to diversify crops and improve resilience to heat-related challenges. Lastly, stopping bush burning and reducing deforestation are crucial to mitigating the severity of future heatwaves

Pest Infestation

Communities have recognized that factors like inadequate agricultural practices, deforestation, and poor sanitation contribute to an environment that encourages pest growth. One of the primary causes of pest infestations is the dry spell resulting from insufficient rainfall, which enables insects to thrive and damage crops.

In Benue State, Nigeria, climate change has brought more than just unpredictable weather—it has also fueled a surge in pest infestations that threaten the state's agriculture. Known for its fertile land, Benue's farmers traditionally rely on consistent seasons to grow crops like yams, cassava, and maize. However, rising temperatures and irregular rainfall have created the perfect breeding conditions for pests, such as locusts, armyworms, and stem borers, to thrive.

As these pests multiply, entire fields of crops are being devoured in days, leaving farmers helpless and crops ruined. The usual methods of pest control are becoming less effective as the infestations grow more widespread and intense, linked to the warmer, wetter conditions brought on by climate change. In communities that depend heavily on agriculture, this is devastating. Families face the threat of food shortages as the pests destroy not only current harvests but also future planting cycles.

Farmers who once produced enough food to feed their families and sell at local markets now struggle to salvage what little they can. As pest infestations worsen, the livelihoods of these communities are under siege, making it harder to sustain their agricultural way of life. Climate change, once a distant concern, is now directly endangering their food security and future.

Result of Risk

Farmers, particularly, experience the devasting result of pest infestation. Crops are destroyed, leading to low farm yields and a reduction in revenue. This agricultural decline triggers a chain reaction, causing hunger, economic hardship, and poor quality of life. Additionally, pests like mosquitoes contribute to health issues such as malaria, further compounding the community's

challenges. Animals are not spared, with livestock becoming sick or dying due to diseases carried by pests. The overall agricultural output declines, delaying seed production and threatening food security.

Impact

Pest infestation results in poor harvests, leading to widespread poverty and hunger as farmers struggle with reduced income. To combat the infestation, farmers are forced to spend extra money on pesticides, increasing their costs and further straining their finances. The infestation also reduces the quality of life, as the increased costs of pest control add to the community's financial burdens. As food becomes scarcer, prices rise, making it harder for people to afford essential goods. The long-term impact includes further poverty and weakened agricultural productivity, which hinders economic development.

Current Community Coping Strategies

To manage pest infestation, communities in Benue State employ various coping strategies. One common method is the use of biopesticides, which are considered safer and more sustainable. Farmers also use conventional pesticides and hand-pick pests from plants to control the problem. Crop diversification, mixed cropping, and crop rotation are widely practised to reduce the spread of pests across different crops. Other tactics include the use of mosquito nets, applying ashes to plants, and pruning affected branches to contain the infestation. Disease-resistant crops are planted, while chemicals and even cats are used to combat rodents. Vaccination and disinfection of animals, along with improving sanitation and hygiene, help protect both livestock and humans. Prompt medical attention is sought to address health issues caused by pests.

Mitigation Strategies

Long-term mitigation strategies are essential to reduce the risk and impact of pest infestation. Intercropping and mixed cropping are planting methods suggested to be introduced to prevent the spread of pests between crops, while farmers are supplied with improved and pest-resistant crop varieties. Afforestation will help restore natural habitats and prevent the environmental conditions that attract pests. Organic manure and biopesticides, such as Dogonyaro and ashes, offer natural alternatives to chemical pesticides. Communities can also use scarecrows to deter pests and are encouraged to improve sanitation practices to reduce pest breeding grounds. Irrigation farming is promoted to maintain crop health, while rotation farming helps break the life cycles of pests. These are natural pest resistance strategies that can offer a sustainable solution and reduce reliance on chemicals.

Erosion

Heatwaves pose a significant climate risk, marked by extended durations of extreme heat and intense sunlight. These events are intensified by several factors, including diminished rainfall, deforestation, and human activities such as bush burning, urbanization, and changes in land use. Additionally, communities recognize that overpopulation and overcrowding in urban areas further amplify this risk.

The impact of climate change is increasingly evident as communities in Benue State grapple with the devastating effects of severe soil erosion. This environmental challenge is significantly altering the region's landscape, leading to the degradation of once stable farmlands and village roads. The problem is exacerbated by erratic rainfall patterns and intense storms, which exacerbate the erosion.

The consequences of this erosion are far-reaching, particularly for farming communities whose livelihoods are at stake. The fertile soil that once supported thriving crops is now increasingly difficult to cultivate, leading to a decline in agricultural productivity. As deep gullies carve through the land, whole sections of farmland are lost, leaving the soil barren and infertile.

Furthermore, the erosion is rendering roads impassable, isolating villages from crucial services and markets, and disrupting access to education and essential resources. The threat extends beyond agricultural lands, with homes and infrastructure also facing the risk of collapse due to the eroding land on which they are built.

For the communities in Benue, erosion is not merely an environmental concern; it is a daily struggle that jeopardizes food security, safety, and the foundation of their communities. Urgent action is imperative to address this climate-induced erosion and secure a sustainable future for the land and its inhabitants.

Result of Risk

One of the most immediate effects of erosion is the destruction of houses, farmlands, and critical

nfrastructure such as roads and bridges. As topsoil is lost, the fertility of the land diminishes, leading to reduced agricultural productivity and the destruction of crops. This not only affects food security but also the economic stability of farming communities. Erosion also damages water sources, including wells and streams, by siltation, which reduces water quality and availability for both human consumption and agricultural use.

Furthermore, erosion leads to the loss of soil fertility by removing the humus, the organic component of soil that is crucial for plant growth. This degradation of soil quality results in lower agricultural yields and can make the land unsuitable for future farming activities. The removal of humus also disrupts the soil's ability to retain moisture and nutrients, further compromising agricultural productivity. Additionally, erosion contributes to the loss of biodiversity as habitats are destroyed and species are displaced or perish due to the changing landscape.

Impact

One of the most significant consequences is food insecurity, as reduced agricultural productivity leads to lower harvests and increased hunger among the population. Poverty is exacerbated as farmers struggle with diminished yields and increased costs associated with soil restoration and crop replacement. The obstruction of movement and economic activities occurs due to the destruction of roads and infrastructure, making it difficult for people to access markets, healthcare, and other essential services.

Poor harvests directly contribute to lower agricultural productivity, which in turn reduces income levels for farmers and rural households. Inaccessible roads hinder transportation and increase the cost of goods and services, while bad roads also lead to higher maintenance costs and increased risk of accidents. The overall economic impact includes decreased incomes, which can lead to a decline in the standard of living and increased poverty rates. Additionally, the physical dangers posed by eroded landscapes, such as landslides and collapsing structures, result in a higher incidence of accidents and fatalities.

Current Community Coping Strategies

In response to the threat of erosion, communities in Benue State have developed a variety of coping strategies aimed at mitigating its effects and preserving their livelihoods. One common approach is the planting of cover crops, which help to hold the soil in place and reduce the speed of water runoff during heavy rains. Ridging across slope lands is another technique used to prevent soil from sliding and to manage water flow more effectively. The construction of local bridges and the diversion of affected roads help maintain access and reduce the impact of

eroded pathways.

Communities also employ physical barriers such as sacks of sand to prevent soil erosion and divert water away from vulnerable areas. Refilling washed sections of roads and digging gutters are essential for maintaining infrastructure and preventing further erosion. Building ridges against slopes and avoiding farming in erosion-prone areas are additional strategies that communities adopt to protect their land.

Mitigation Strategies

To effectively combat erosion and its detrimental effects, communities and authorities should implement a range of mitigation strategies. The construction of comprehensive drainage systems is essential to manage excess rainfall and prevent water from overwhelming the soil. Diversion of waterways ensures that water flow is controlled and directed away from vulnerable areas, reducing the risk of erosion during heavy rains.

Planting trees is a fundamental mitigation strategy that helps restore natural barriers against erosion. Trees stabilise the soil with their root systems, increase water infiltration, and reduce surface runoff. Planting covered crops and economic trees not only supports soil health but also provides additional sources of income for farmers. Campaigns against bush burning aim to preserve existing vegetation cover and prevent the removal of trees that protect the soil.

Improved town planning and land use management are critical to preventing erosion caused by urbanisation and construction activities. Establishing buffer zones and enforcing regulations against illegal structures help maintain natural land cover and reduce the vulnerability of communities to erosion. Promoting the use of organic manures and sustainable farming practices enhances soil fertility and resilience against erosion. Additionally, establishing communication task forces focused on sanitation and illegal structures ensures ongoing community engagement and adherence to erosion prevention measures.

Windstorm

Windstorms are also identified as a climate risk in Benue state. These violent wind events can cause extensive damage to both infrastructure and agriculture, negatively impacting the livelihoods of the communities. The lack of adequate environmental protection, particularly due to deforestation and the absence of windbreaks, exacerbates the intensity and frequency of windstorms in the state.

Climate change has brought an alarming increase in the frequency and intensity of windstorms, wreaking havoc on local communities. Once occasional events, these violent storms now arrive more often, tearing through villages with powerful gusts that rip roofs off homes, uproot trees, and damage vital infrastructure. Farmers, already facing challenges from unpredictable weather, watch helplessly as windstorms flatten their crops and destroy years of hard work in minutes.

In rural areas, these windstorms also disrupt daily life. Schools and health centers, often constructed with minimal reinforcement, are left in ruins, leaving children without classrooms and communities without essential services. Power lines are knocked down, plunging entire neighborhoods into darkness, while roads are blocked by fallen trees and debris, isolating villages from one another.

For many, rebuilding after each storm is a struggle, as resources are scarce and recovery efforts slow. The windstorms, intensified by climate change, are becoming a destructive force that not only causes immediate damage but also leaves long-term scars on the livelihoods and resilience of the people of Benue. Without greater preparation and adaptation measures, these storms threaten to destabilize the state's already fragile communities.

Result of Risk

Windstorms lead to the destruction of homes, farms, and businesses. Crops are particularly vulnerable, with strong winds uprooting plants and causing significant losses in agricultural yield. The destruction of houses not only displaces people but also halts business activities, creating economic challenges. In some cases, windstorms result in accidents, especially on roads and in

areas where infrastructure is weakened. The cumulative impact is the devastation of property, reducing the quality of life for affected families and disrupting daily activities.

Impact

The impact of windstorms in Benue State is wide-reaching, with severe consequences for food security, economic stability, and overall community well-being. Windstorm-related damage to farms leads to famine, as crops are destroyed and agricultural production declines. Loss of property, including homes and businesses, leaves people without shelter and livelihood, increasing poverty levels. Livestock and animals also fall victim to the storms, resulting in further economic loss and food insecurity. The loss of means of livelihood, combined with the destruction of essential infrastructure, contributes to deepening poverty and reduced resilience against future disasters.

Current Community Coping Strategies

To cope with windstorm risks, communities in Benue State have developed several adaptive strategies. One common approach is relocation, where families move to less vulnerable areas during storm-prone periods. Planting cover crops helps protect the soil from being blown away and provides some buffer against the winds. Communities are also encouraged to build stronger houses with reinforced structures to withstand the force of windstorms. Planting more trees is another strategy aimed at restoring windbreaks and reducing vulnerability to storms. In addition, placing heavy stones or other objects on rooftops is a practical measure taken to prevent roofs from being blown away during strong winds.

Mitigation Strategies

To mitigate the risks posed by windstorms, long-term solutions are being promoted within the communities. Planting trees as windbreaks is a key strategy to reduce windstorm intensity and protect both infrastructure and agricultural land. Implementing laws that prevent deforestation is crucial to ensure that natural barriers against windstorms are preserved. Sensitizing the population about the importance of building stronger homes is also essential for improving resilience. Strengthening construction practices, especially for homes and public infrastructure, can help reduce the damage caused by future windstorms and ensure that communities are better protected against this climate risk.

Soil Infertility

Soil infertility is a growing climate risk in Benue State, significantly affecting agricultural productivity and food security. Soil infertility occurs when the soil loses its ability to provide the necessary nutrients for crops to grow, leading to lower yields and reduced agricultural output. This challenge is particularly concerning for rural communities that rely heavily on farming as their primary source of livelihood.

The analysis from the climate risk register provides compelling evidence of the gradual erosion of the land's fertility in Benue due to the impacts of climate change. The once abundant agricultural output of the state is now under threat as the soil faces increasing infertility caused by unpredictable weather patterns. Prolonged dry spells, intense heat, and irregular rainfall are depleting essential nutrients from the soil, while extended droughts are causing it to become parched and unable to retain moisture.

Farmers, whose livelihoods depend on the land, are experiencing declining yields of staple crops such as yams, cassava, and maize. The diminished fertility of the soil has made it difficult for these crops to thrive, forcing farmers to resort to costly fertilizers to achieve only a fraction of their previous harvests. This loss of soil fertility not only undermines food production but also jeopardizes the ability of communities already grappling with poverty and food insecurity to sustain themselves.

As climate change continues to exert its toll on the land, farmers find themselves with fewer and fewer viable options. The gradual loss of productivity in the once fertile fields of Benue is setting off a distressing cycle of hardship for those reliant on agriculture to provide for their families and preserve their traditional way of life.

Result of Risk

The immediate result of soil infertility is poor crop yields, as crops struggle to access the nutrients they need to grow. This significantly hinders agricultural productivity, leading to lower food production. Farmers face reduced yields from their efforts, which, in turn, affects their

economic stability and the availability of food within the community. The inability of the soil to support healthy crop growth is a major setback to agricultural sustainability in the state.

Impact

The impact of soil infertility touches on economic, environmental, and social aspects. One of the most direct consequences is hunger, as lower agricultural productivity reduces the availability of food, leading to food shortages. Poverty is exacerbated as farmers struggle to earn an income from their low yields, pushing many into deeper financial hardship. The reduced availability of food also contributes to inflation, as the price of food in the market increases due to scarcity. Soil infertility also affects biodiversity, as degraded soils cannot support diverse plant and animal species, further weakening the ecosystem. Additionally, infertile soils require increased water usage to support even minimal crop growth, putting further strain on water resources.

Current Community Coping Strategies

Communities in Benue State have adopted several coping strategies to address soil infertility. One common practice is the application of fertilizers to replenish lost nutrients and improve soil fertility. Mixed cropping and crop rotation are also widely used to maintain soil health and prevent nutrient depletion. Shifting cultivation, where farming is rotated across different plots of land, allows the soil to recover before being reused. Planting cover crops helps protect the soil from erosion and adds organic matter back into the soil. No-till farming, which avoids disturbing the soil, and the application of organic manure are other strategies employed to improve soil quality and support crop growth.

Mitigation Strategies

To mitigate the effects of soil infertility, focus should be aimed at restoring and maintaining soil health. Planting a variety of crops can help prevent nutrient depletion and support biodiversity. Relocating farms after using them for several years allows the soil to recover naturally, improving its fertility over time. The application of organic plant boosters and organic farming practices reduces dependence on chemical inputs and supports sustainable agriculture. Government support is essential for providing farmers with the resources and education they need to adopt better soil management practices. Creating awareness about the dangers of overusing chemicals and promoting the benefits of fallowing (leaving land uncultivated to recover) is also key to improving soil health. Furthermore, reducing bush-burning practices helps preserve the organic matter in the soil, ensuring that it remains fertile for future farming.

Rainstorm

With increasing climate variability, rainstorms have become more frequent and intense, causing flash floods, structural damage, and reduced agricultural productivity in many communities. The causes of rainstorms in Benue State are multifaceted and closely linked to environmental and climate-related factors. Climate change plays a major role, as rising global temperatures lead to altered rainfall patterns and more intense storms.

The communities in Benue State have been experiencing a significant rise in the intensity of rainstorms, which is attributed to the impact of climate change. The formerly predictable rainy season has now given way to sudden and violent downpours, resulting in flash floods that inundate homes, devastate crops, and cause soil erosion. The repercussions of these storms are particularly dire for farmers, as fields of yams, maize, and cassava are often washed away before they can be harvested, leaving families with limited food supplies and economic resources.

Moreover, the persistent heavy rainfall exacerbates soil erosion, further degrading the farmland and diminishing its productivity for subsequent seasons. The adverse effects of these increasingly severe rainstorms are not limited to agriculture; they also extend to urban areas. The violent winds and heavy rainfall have led to the destruction of infrastructure and homes, leaving residents grappling with constant repairs and financial strain.

These challenges underscore the urgent need to address the impact of climate change on Benue State, as it not only jeopardizes the livelihoods of its people but also poses a threat to their safety and ability to adapt to a rapidly changing environment.

Result of Risk

The results of these intense rainstorms include substantial damage to both crops and buildings. Crops, especially those nearing harvest, are easily destroyed by heavy rains and strong winds, leading to lower yields and economic losses for farmers. Buildings, particularly those made from less durable materials, are often damaged or even destroyed. Rainstorms can also result in flash floods, which cause further damage to homes and infrastructure, exacerbating the impacts on communities.

Impact

Food security and housing are the most hit by rainstorms. Rainstorm damage to homes and buildings leaves many families displaced, while crop destruction reduces agricultural productivity, leading to hunger and economic hardship. The low productivity from damaged crops directly affects the livelihoods of farmers, driving food shortages and increased prices in local markets. These cascading effects contribute to poverty and food insecurity in already vulnerable populations.

Current Community Coping Strategies

To cope with the risks posed by rainstorms, communities in Benue State have developed several strategies. One of the most common practices is water storage, which helps mitigate the impact of water scarcity following heavy rainfall. Changing dress styles to suit the wet conditions and planting more trees (afforestation) to act as windbreaks are also common strategies. Additionally, using more durable building materials in construction has become a key method for ensuring homes can withstand the strong winds and heavy rains associated with rainstorms.

Mitigation Strategies

Mitigating the risks associated with rainstorms requires both immediate and long-term actions. Water storage systems are crucial for managing excess rainfall and ensuring that water is available for agricultural and domestic use during dry spells. Planting trees serves as both a windbreak and a means of reducing soil erosion caused by heavy rainfall. Installing thunder arrestors on buildings can protect structures from lightning strikes during storms. An east-west orientation of houses can reduce wind resistance, thereby minimizing damage during storms. Afforestation and cover crop planting are also essential mitigation strategies, as these practices help protect the land and maintain soil stability, reducing the impact of heavy rainfall.

Community Coping Strategies

During the development of the Climate Risk Register, community members actively participated by enumerating their existing coping strategies to address climate risks. These strategies, often based on traditional knowledge and local experience, play a crucial role in building resilience against the impacts of climate change. By sharing these practices, the communities contributed to a more comprehensive understanding of how they are adapting to environmental challenges. Some of these strategies are highlighted below:

Dry Spell

- Construction of wells for irrigation
- Early planting
- Rainwater harvesting and collection.
- Planting drought-resistant crops and trees.
- Planting of cassava

Flooding

- Growing of crops on Highlands
- Construction of local waterways
- Planting of trees
- Relocation from affected areas.
- Awareness creation
- Clearing of drainages
- Fortifications of building foundations

Heat wave

- Staying under trees
- Sleeping outside
- Avoiding crowded places
- Afforestation
- Changing building styles to allow for more windows
- Frequent bathing
- Planting of trees

Pest Infestation

- Crop rotation
- Companion planting
- Application of agro chemicals
- planting pest resistant varieties

Soil Erosion

- Afforestation
- community sanitation to clear drainages
- Community sensitization
- mulching
- Terraces

Windstorm

- Plant windbreaks
- community sanitation to clear drainages
- Community sensitization
- mulching
- Terraces

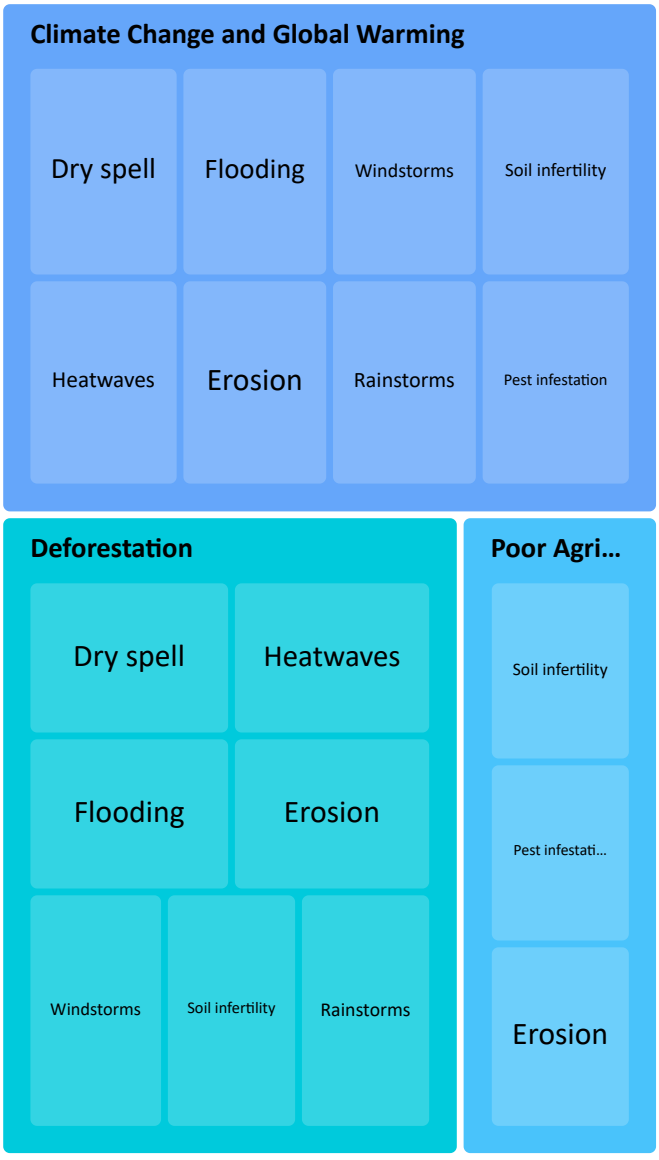
Soil Infertility

- Application of chemical fertilizer
- Application of animal droppings
- Afforestation
- Crop rotation
- Mixed farming

Commonalities Among the Risks

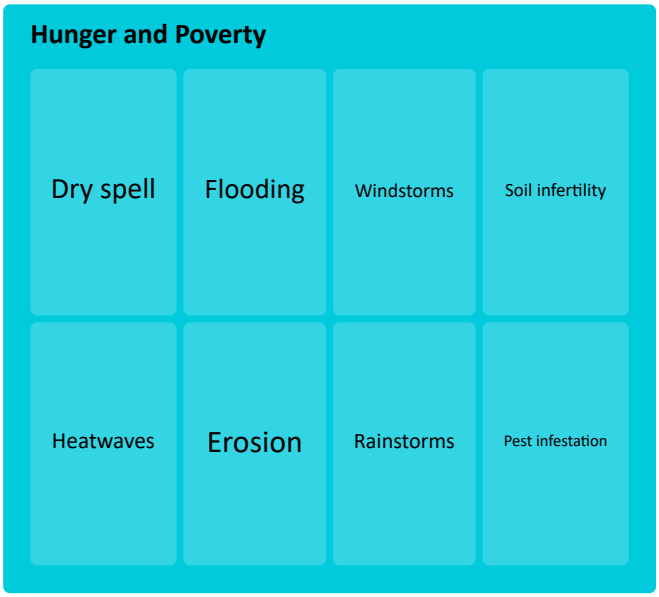
Common Causes of Risk

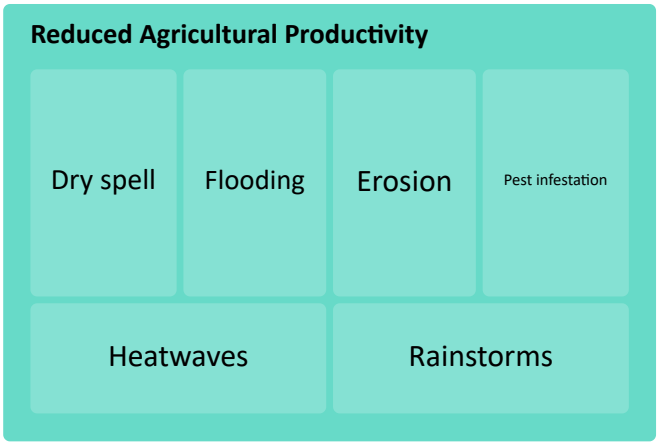
- **Climate Change and Global Warming**: Factors such as shifting weather patterns, excessive evaporation, and global warming appear in almost all risks (rainstorms, heatwaves, dry spells, etc.), exacerbating the frequency and severity of climate impacts.
- **Deforestation**: Most of the climate risks (dry spells, flooding, heatwaves, erosion, windstorms, soil infertility, and rainstorms) are directly linked to deforestation. The removal of trees increases exposure to extreme weather events, worsens soil conditions, and reduces natural barriers.
- **Poor Agricultural and Land Management Practices:** Overuse of chemical substances, continuous farming, bush burning, and poor waterway management contribute to various risks like soil infertility, pest infestation, and erosion.

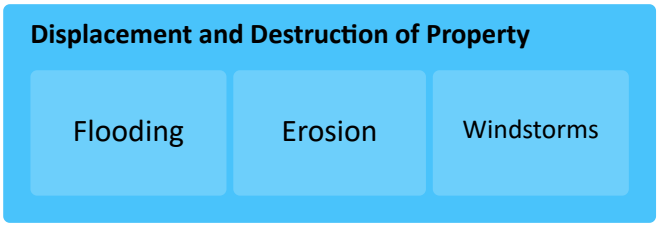


Common Impacts of Risk

- **Hunger and Poverty:** The most common impact across all risks is increased hunger and poverty due to reduced income from farming, loss of crops and livestock, and economic disruptions.
- **Reduced Agricultural Productivity:** Many risks (dry spells, flooding, heatwaves, pest infestation, erosion, and rainstorms) lead to crop failure, low yields, and poor harvests, threatening food security.
- **Displacement and Destruction of Property:** Flooding, windstorms, and erosion often result in the displacement of people and the destruction of houses and infrastructure.

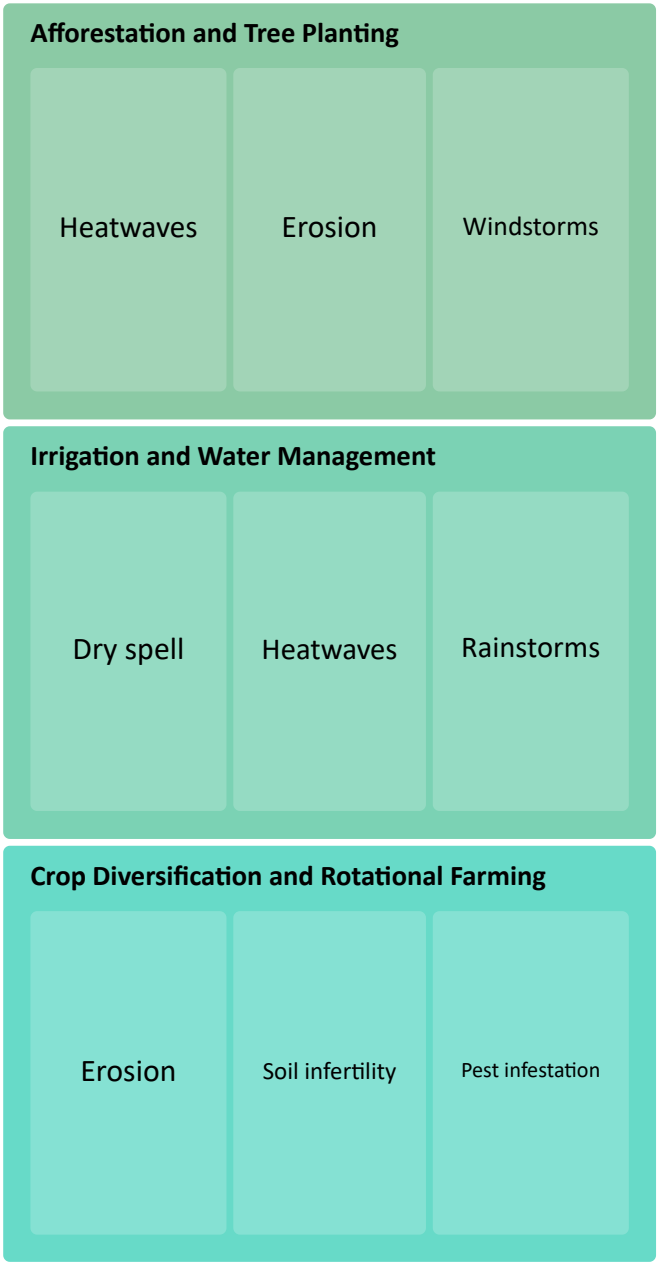






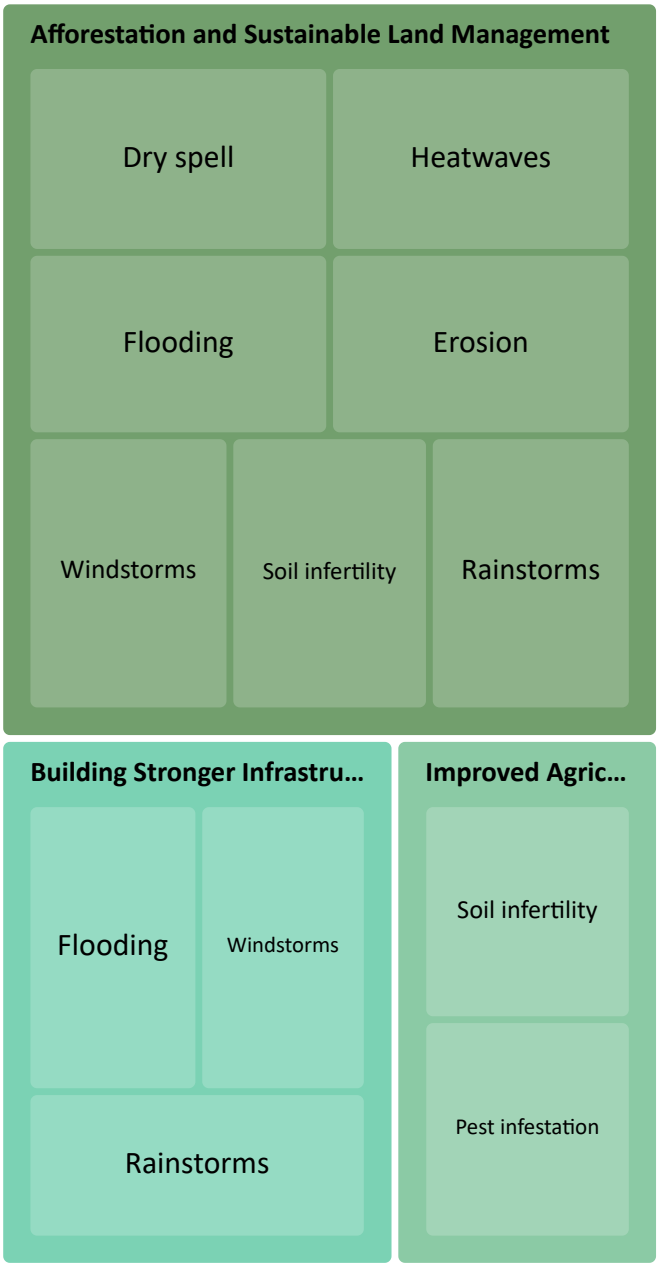
Common Community Coping Strategies

- **Afforestation and Tree Planting:** Communities commonly respond by planting trees and engaging in afforestation (to combat deforestation, soil erosion, windstorms, and heatwaves). Trees help stabilize soil, act as windbreakers, and restore ecological balance.
- **Irrigation and Water Management:** To manage dry spells, heatwaves, and rainstorms, water storage, irrigation, and rainwater harvesting are frequent coping strategies.
- **Crop Diversification and Rotational Farming:** To address soil infertility, pest infestation, and erosion, communities rely on crop rotation, mixed cropping, and planting of resistant varieties.



Common Mitigation Strategies

- **Afforestation and Sustainable Land Management:** Like coping strategies, afforestation and tree planting are primary mitigation efforts to control windstorms, erosion, and other risks related to deforestation and land degradation.
- **Building Stronger Infrastructure:** Communities mitigate the impact of windstorms, rainstorms, and flooding by constructing more durable houses, improving drainage systems, and planting trees as windbreakers.
- **Improved Agricultural Practices:** Introducing organic farming, using biopesticides, reducing chemical use, and promoting crop variety are common strategies to mitigate risks like soil infertility, pest infestation, and low crop yields.



Conclusion and Recommendations

These recommendation will collectively address various aspects of climate resilience, sustainable development, and community engagement needed in Benue State for a holistic approach to climate action.

- **Public Commitment and Awareness:** Authorities should not only publicly express commitment to climate action, but also implement and create monitoring mechanisms for climate action projects like reforestation across the state.

- **Transparency and Accountability:** Establish mechanisms for transparent reporting and accountability in implementing climate action initiatives, ensuring that promises translate into tangible results.

- **Stringent Regulatory Measures:** Strengthen and enforce laws related to carbon emission reduction, sustainable resource management, and climate change mitigation.

- **Incentives for Compliance:** Provide incentives for businesses, communities and individuals adopting sustainable practices, encouraging widespread adherence to climate-related regulations.

- **Support for Indigenous Knowledge:** Allocate resources for research that explores and scales indigenous climate solutions, recognizing the valuable insights and practices of local communities.

- **Community Engagement in Conservation:** Involve local communities in the protection and sustainable use of natural resources, recognizing their role as stewards of the environment.

- **Community-Based Adaptation Programmes:** They can also initiate and Implement community-led adaptation programs, ensuring that interventions are tailored to the specific needs and vulnerabilities of each locality.

Annexes

- Photos of the CRR Training: https://bit.ly/crrbenue
- Benue State Climate Risk Register

S/N	Climate Risk	Risk Definition	Causes of Risk	Result of Risk	Impact	Risk Probability	Risk Level	Current Community Coping Strategies	Risk Mitigation Strategies	Community Contribution
1.	**Dry Spell**	A prolonged lack of rainfall resulting in water shortage for crops and livestock, ultimately diminishing their productivity.	• Bush burning • Deforestation • Global warming • High temperature • Human activities with the introduction of carbon in to space • Inadequate rainfall • Natural occurrence • No rainfall • Shift in weather condition from normal rain calendar	• Crops failure • Delay in maturity • Destruction of crops and livestock • Increased pest attack on crops and animals • Low crops yield and output such as groundnut, maize, Okro, yam etc. • Low quality yield • Low revenue • Water scarcity	• Death • Famine • Food shortage • Hunger • Increased cost of production • food insecurity. • Insecurity (increase in crime rate) • Lack of animal feeds • Lack of interest in farming and discouragement from farming activities • Loss of income • Malnutrition • Poor harvest • Poverty and diseases • Water scarcity	Likely	High	• Avoid bush burning • Construction of well • Crop diversification • Cultivation of drought resistant crops and animals such as west African dwarf, Faro 61 and 67 • Depending on other community for water and survival • Early planting • Planting of cassava • Planting trees to hold soil • Rain water harvesting and collection • Replanting where possible • Use of organic substance such as SI-SolB" • Waiting for rain	• Afforestation • Avoid burning of fossil fuels • Construction of boreholes by government • Construction of dams • Digging of local wells and damps • Irrigation farming • Planting of crops that require less water • Planting of sweet potatoes and beans • Provision of pumping machines • Stop tree cutting / deforestation • Storage of water • Use of mulching	• Awareness creation of digging of local wells for irrigation and water storage • Carrying water from our little stream to water farms • Construction of local dams. • Construction of manual borehole • Continue praying to God • Early farming • Education on need to have good environment • Encourage Tree planting • Planting of trees • Practicing water harvesting • Provision of land for construction of dams • Provision of local deep wells • Restriction of bush burning.
2.	**Flooding**	The overflowing of uncontrollable water into farmlands and houses after excess rainfall.	• Building houses on waterways • Cutting down of trees (deforestation) • Dumping of refuse on waterways • Heavy rainfall • Lack of proper drainage system • Over-saturation of sandy soil which reduces the soil's ability to absorb water • Poor drainage system • Prolonged rainfall • Release of water from Ladgo dam • Siltation	• Collapse of bridges and roads • Damage of fish ponds • Damage to farmland • Damage to Houses • Kills livestock • Loss of farm crops • Loss of lives	• Dangerous animals in our homes • Disease outbreak • Displacement of People from their homes • Environmental degradation • Famine • Food shortage • Hunger • Increase in crime rate • Lower standards of living • Migration • Poverty • Waterborne disease and sickness eg. Cholera etc	Likely	High	• Afforestation • Clearing of drainages • Digging of drainages • Early warning • Farming in areas less prone to flooding • Growing of crops on Highlands • Moving farm lands to non-flood areas • Planting of elephant grasses along river banks • Planting of trees • Raising of buildings • Relocation from affected areas • Use of sand bags to create barriers	• Construction of buffer dams • Early warning system • Law against deforestation • Open larger channels • Planting of Trees • Proper dumping of Refuse • Proper town planning • Wetland reclamation	• Adopting environmentally farming practices" • Afforestation • Avoidance of flood prone areas • Cleaning of drainages and form a committee to monitor the drainage so that they won't be more dumping of refuse • Construction of local drainages • Construction of local/wooden bridges across the roads" • Contribution of food items • Creation of community dump sites • Donation of lands and houses to affected persons • Education on need to have good environment • Establishment of reserve areas • Planting Trees • Revegetation • Stop building on drainage ways
3.	**Heat wave**	Prolonged extreme rise in temperature above room temperature, typically making the body hot and weak.	• Bush burning • Deforestation • High sunlight and temperature • Lack of rain • Land use changes • Over population and urbanisation • Overcrowding within the city	• Crop failure • Dehydration • Discomfort • Frequent headaches • General weakness • Heat rashes • Increase in mosquitos • Increase in water scarcity • Increased evapotranspiration • Lack of concentration • Lack of sleep at night • Negative emotions (anger and stress) • Post-harvest losses • Restlessness • Sickness and diseases such as Hepatitis, Meningitis, Chicken pox • Skin Cancer	• Death of plants, animals and humans • Decrease in population • Food shortage • Hunger • Increased tensions • Loss in productivity and poverty • low income • Outbreak of diseases	Almost Certain	High	• Avoiding crowded places • Bath regularly • Campaign against deforestation • Change of dress style to suit the weather • Changing of building styles • Drink water regularly • Opening of windows for proper ventilation • Planting trees • Sleeping outside at night • Staying under trees • Use of cooling equipment	• Afforestation • Improved seedling that are resistant to excessive heat and planting trees • Increase green spaces • Irrigation • Practicing mulching • Promote energy-efficient housing such as larger windows • Stop burning of bushes	• Creation of natural relaxation parks • Education on heatwave safety • Planting of trees • Punishment for people who cut down trees anyhow • Support health facilities

4.	**Pests Infestation**	The emergence of insects and diseases that destroy crops, farms and livestock.	• Deforestation • Excess grasses on the farmland • Imported seedlings • Indiscriminate use of farm inputs • Lack of improved variety • Lack of pest control • Lack of rainfall • Overuse of pesticides • Poor agricultural practices • Poor sanitation • Sins committed by us	• Destruction of crops like Rice, Maize, Yam, vegetables etc and poor yield harvest • Discomfort • Health hazards • Low yield or harvest • Poor yield of plant and delay in seed production. • Sicknesses of humans and animals	• Death • Extra cost on farmers to purchase pesticide to reduce the effect. • Food Scarcity • Increase in the cost of pest control • Loss of lives • Low income • Poor harvest • Poverty and hunger • Reduced quality of life • Sicknesses	Likely	Medium	• Application of ashes • Crop rotation • Diversification of crops cultivated • Hand picking • Mix cropping • Pest monitoring • Pruning of affected plant branches • Use of Bio pesticides • Use of Herbicide and Pesticide • Use of Mosquitoes net	• Clearing of grasses • Consult professionals and extension workers • Crop rotation • Doing Regular inspection • Improve Compulsory sanitation • Intercropping and mixed farming • Planting of Trees • Pouring of animal dung before farming • Practicing irrigation farming • Supply of improved and resistant varieties • Task force to enforce the law • Use of Bio pesticides like Dogonyaro, ashes etc • Using mosquito nets • Using scarecrow • Vaccination	• Focussing more on organic products instead of chemicals on farmlands • Forming of cooperatives to attract government interventions • Mixed cropping System • More accessible education on ways to prevent pest and disease infestation on their farm lands without the use of pesticides. • Sharing pesticide with neighbours. • Use of ashes and Pesticides
5.	**Erosion**	Washing away of topsoil by running water.	• Bush Burning • Cultivation along the slope • Deforestation • Excess rainfall • Nature of the soil (largely sandy and laterites) • Overflow of rivers • Regular use chemical substances	• Crop destruction • Destruction of Houses, Farmlands and infrastructures • Destruction of water sources e.g well water and stream • Loss of biodiversity • Removal of humus part of the soil • Road damage	• Bad roads and high cost of road construction • Hunger • Increase cases of accident • low income • Lower Agricultural productivity • Obstruction of movement and economic activities • Poor harvest • Poverty	Almost Certain	High	• Avoid farming on erosion prone areas • Construction of local bridges • Digging of gutters • Diversion from affected roads • Making ridges against the slope • Planting of cover crops • planting trees to hold soil • Refilling of washed section of roads • Sack sand to prevent soil erosion • Shifting cultivation • Strip cropping • Use of stop wash lines	• Afforestation • Campaign against Bush burning • Construction of Drainages • Diversion of water ways • Establishment of community task force on sanitation and illegal structures • Planting of cover crops • Planting of economic trees.	• Avoid bush burning and deforestation • Awareness creation • Construction of drainages • Encouraging grass growing in affected areas • Maintenance of bad roads • Mobilize youths to fix the roads, bridges through manual labour • Planting of trees.
6.	**Windstorm**	The natural movement of air with high speed that destroys crops and properties.	• Deforestation • Lack of trees and other wind breaker • Squall line	• Accident • Destruction of farm crops • Destruction of houses and business activities	• Famine • Loss of means of livelihood • Loss of properties • Lower yields and deaths of animals • Poverty	Likely	High	• Encouraging building of stronger houses • Planting more trees • Planting of cover crops • Putting heavy Stones and other objects on top of the roof" • Relocation	• Pass law against deforestation • Planting of trees as wind breaker • Sensitization of the people to construct stronger and building	• Awareness creation for planting of trees to serve as wind breakers. Mostly economic trees like mango trees, pear and orange trees. • Awareness on the impact of climate change • Pass community by-law against deforestation • Plant trees • Tree planting
7.	**Soil Infertility**	Reduction in soil ability to support plants with nutrients for productivity.	• Bush burning • Excessive use of chemicals • Repeated farming • Too much or less rain • Use of chemicals	• Hinders agricultural productivity • Low crop yield	• Hunger • Increased water use • Inflation on the price of food in the market • Low income • Poverty	Likely	High	• Application of organic manure • Crop rotation • Fertilizer application • Mixed cropping • No-till farming • Planting cover crops • Shifting cultivation	• Creating awareness • Fallowing • Government support • Organic farming • Planting variety of crops • Reduce excessive use of chemicals • Relocation of farm after using for some years to aid its recovery and application of organic plants boosters • Stop bush burning	• Adoption of nature-based solutions to improve soil fertility without the use of chemicals • Application of animal dump • Awareness creation on dangers of excessive use of herbicides/chemicals • Awareness creation on the importance of farrowing • Creating ponds and reservoirs • Intensify campaign on the dangers of bush burning • Planting of trees
8.	**Rainstorm**	Heavy downpour of rain accompanied by heavy wind.	• Climate Change • Deforestation • Excess evaporation from the river • Heavy rainfall	• Damage to buildings • Damage to crops • Result to flash flood	• Destruction of buildings, Homes and crops • Hunger • Low productivity from crops	Almost Certain	High	• Afforestation • Change of dress style • Using of durable building materials to withstand heavy rainfall • Water storage	• Afforestation • Cover crop planting and vegetation • East-west orientation of building houses • Installation of thunder arrestors on buildings • Planting of trees to serve as wind breakers • Water storage system	• Construction of water path way • Planting of trees

Climate Risk Register - Benue State

Contact

@gifsep4climate

@gifsep

info@gifsep4climate.org

www.gifsep4climate.org