

COP30 AND SUBNATIONAL CLIMATE ACTION: EVALUATING A GOVERNANCE INTERVENTIONS ON DROUGHT-AFFECTED FARMING COMMUNITIES IN KATSINA STATE

Umar SANI

Department of Political Science

Federal University Dutsin-Ma

Katsina State

(+234) 8035339684

usani@fudutsinma.edu.ng

Bashir YAHAYA

Department of Political Science

Federal University Dutsin-Ma

Katsina State

(+234) 8020988402

byahaya8215@gmail.com

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Abstract

The healthiness and stability of nation and subnational can be seen in the farming contribution to its Gross Domestic Product (GDP). This study evaluates governance interventions on drought-affected farming communities in Katsina State in response to COP30 decisions and subnational climate action. The objectives is to evaluate climate governance interventions adopted by subnational authorities in response to COP decisions, and to identify challenges constraining the effectiveness of subnational climate actions in improving drought-resilience among farming communities in the state. This study is anchored on environmental justice theory, because this theory focuses on equitable access to environmental benefits and protection from environmental harm. Krejcie and Morgan's table were used to select 297 drought-affected farmers. The primary data were collected using structured questionnaire, interview and documented contents. Descriptive statistics was used for data analysis. Findings of the study show subnational authorities contribute in providing farmers with drought-resistant crop varieties, agroforestry and reforestation to tackle persistent drought, CSA, and sustainable water resource management. It also identified challenges in improving drought-resilience among farming communities such as limited access to climate education, law violations, unsustainable farming practices and extreme poverty. This study concludes that subnational authorities (state and LGAs) are essential in translating global climate commitments made under the COP30 process into practical actions that directly benefit drought-affected farmers. Therefore, it recommended for both national and subnational authorities should provide more adequate funding, institutional capacity building, stakeholder collaborations, and continuous monitoring to ensure that COP30 decisions produce tangible and lasting benefits for vulnerable farming communities in Katsina State.

Keywords: COP, climate change, farming, governance, subnational authorities

Introduction

Farming has been a prominent and essential part of national and subnational development, improving human livelihoods and living standards, as well as the economic sector through the production of crops and livestock. But rural communities depend largely on their access to the natural resources, including water and lands, and they are vulnerable to climate related risks leading to drought effects on food availability, resource competition and poverty with limited opportunities due to their remoteness in rural areas (Abdulsalam et al, 2023).

As the world converges in Belem for COP30, the convention highlighted Katsina State's transformative approach to climate governance, green economy transition, and sustainable livelihoods which illustrating how subnational actions can drive Africa's collective climate ambition. This side event seeks to deepen international cooperation, attract technical and financial partnerships, and inspire replication of Katsina's subnational climate model across Africa, where a new wave of subnational climate leadership redefined the African Green Growth (AGG).

Katsina State promotes climate awareness, fight environmental degradation and support global climate actions, at which its mission aligned with the United Nations Sustainable Development Goals (SDGs). It is a Katsina State visionary move that strengthens climate governance and climate-smart agriculture (CSA) across 34 local government areas through Farmers Managed Natural Regeneration (FMNR) initiative, which focuses on sustainable land restoration, crop rotation, tree planting, and farming productivity (Sani, 2026).

Etale, Suwari and Adaka (2021) emphasized that a nation or subnational that sufficiently develops its farming sector is believed to have settled one of the major challenges bedeviling it due to their perception of agriculture being the source of food, which is one of the basic necessities of life. As opposed to a layman perception of farming which generally refers to food production, but farming goes far beyond that. This is because over 70% of Katsina State population live and earn their means of livelihoods in rural areas where farming is the most common occupation at their disposal.

Statement of the Problem

Farming productivity systems across the world are under significant pressure due to drought-effects interplay of challenges including climate change, rapid population growth, geopolitical instability, urbanization, and unsustainable farming practices (Yusuf and Tenon, 2019). These challenges are particularly acute in sub-Saharan subnational (Katsina State), where farming remains the main livelihoods source for over 70% of the population but continues to underperform in terms of productivity and resilience. According to FAO (2023) states that the number of people affected by hunger globally rose to over 735 million in 2022, with African accounting for the highest burden.

Katsina State as subnational faces a dual challenge; increasing food production to meet growing demand, while mitigating the environmental impacts of farming expansion. Climate change has emerged as a central threat, with unpredictable rainfall patterns, drought and rising temperature severely impacting crop yields and livestock production. Consequently, farming productivity efforts must be both sustainable and climate resilient (FAO, 2023). Climate change cannot solely cause

desertification state, but modify the critical thresholds, so that the system can no longer maintain its equilibrium (Williams and Balling, 1996), and it also accelerates degradation of the sub-humid and dry land that intensifies drought condition and makes the natural environment more vulnerable (Abdulkadir, et al, 2013).

In Katsina state, the major environmental problem faced in farming communities is aridity, and it is in response to climate impacts, rainfall variability and repeated drought which is mainly an indication of intense environmental degradation due to anthropogenic activities and natural processes by God (Abdulkadir, et al, 2013). Many researches have confirmed increasing rate of drought among farming communities is caused by human activities.

Research Questions

The objective of this study was to evaluate governance interventions on drought-affected farming communities in Katsina State. However, specific questions are;

- i. What climate governance interventions have been adopted by subnational authorities in Katsina State in response to COP30 climate actions?
- ii. What challenges constrain the effectiveness of subnational climate actions in improving drought resilience among farming communities in Katsina State?

Literature Review

Conceptual Framework

COP stands for ‘Conference of Parties’ which are the supreme decision-making body of the convention on climate change, at which review progress of these Parties towards the overall international purpose, creativity and climate resilience (Sani,

2026). Conference of Parties (COP) is the United Nations principal global forum on climate changes, bringing signatory countries together and the European Union under the United Nations Framework Convention on Climate Change (UNFCCC) with the objective to stabilise greenhouse gases (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system (Burnett, 2023).

It is at the COP’s yearly meeting, the most important decisions on planet’s climate change are deliberate. Over the course of some days of each year, Head of States, specialists, civil society and private sector representatives are gathered with the purpose of accelerating global agreements and transforming promises into concrete actions for mitigating climate impacts, advancing energetic transition and promoting socio-environmental justice (Skidmore and Farrell, 2022).

Watson (2021); Parties negotiated to strengthen the global response to climate change, at which guided by recommendations from both the subsidiary body for scientific and technological advice, the Intergovernmental Negotiating Committee (INC) and the Intergovernmental Panel on Climate Change (IPCC). Notably, commitments at COP meeting were only applicable to Annex I Parties (Global North), despite universal participation. Certain Annex I Parties were discontented with a lack of universal commitments, which are US, Japan, Russia, Australia and Canada. In compromise, some Annex I Parties suggested the use of Joint Implementation (JI) to ease burden of commitments on Non-Annex I Parties (Global South) which resulted in the launch of the pilot program for joint implementation at Berlin.

Overview of the COPs Arena

The COP meets every year, unless the Parties decide otherwise. The first COP meeting was held in Berlin of Germany in March, 1995. The COP Presidency rotates among the five recognised UN Regions that is Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe (UNFCCC, 2025). However, the COP is the supreme decision-making body of the convention. All nations are Parties to the convention represented themselves at the COP, at which they review the implementation of the convention and any other legal instruments that the COP adopts and take decision necessary to promote the effective implementation of the convention, including institutional and administrative arrangements. A key task for the COP is to review the reports submitted by Parties on their greenhouse gases (GHG) emissions and climate action (Magrini, 2021).

Every year since 1995, this summit has brought together the signatory states of the United Nations Framework Convention on Climate Change (UNFCCC), i.e 197 countries and the European Union, except delayed year in 2020 by the COVID-19 pandemic, at which it supposed to be COP26. However, a significant shift occurred at COP21 in 2015 with the adoption of the Paris agreement. Unlike the Kyoto Protocol, at which established to Nationally Determined Contributions (NDCs) to limit global temperature rise to well below 2⁰C above pre-industrial levels, with aspirations for 1.5⁰C (IPCC, 2018). The Paris agreement emphasised transparency, equity, and financial support for developing nations, which reflecting the principles of common but differentiated responsibilities (CBDR).

Climate Governance Interventions adopted by Subnational Authorities in Katsina State in Response to COP Decisions

i. Safeguarding food Security and ending hunger

The COP cover decision that “safeguarding food security and ending hunger” is a fundamental priority and those communities can better protect themselves from climate effects if water systems are protected and conserved. The COP recognised how food shortages could continue to be driven by climate change. This is progress as the Glasgow Climate Pact (2021) made no mention of agriculture, food or water. However, the decision doesn’t have new dedicated funding for food systems from governments. Intergovernmental Panel on Climate Change (IPCC) estimates that food systems are responsible for between 21% and 37% of global emissions. Martin (2025) estimated that 42% of recent food price inflation has been due to climate change. In its report the Word Bank warns of ‘human catastrophe’ food crisis.

ii. Koronivia joint work on agriculture

The Koronivia Joint Work on Agriculture (KJWA) addresses issues related to agriculture, including through workshops and expert meetings, with consideration of vulnerabilities of agriculture to climate change, as well as approaches to addressing food security. Under these item negotiations focused on considering the next phase of KJWA, including an enhanced joint work programme. The COP urges Parties and other stakeholders to increase their efforts to promote sustainable agriculture, with a view to eradicating hunger and poverty while ensuring food security.

iii. *Boosting low emission energy*

Matters relating to the Work Programme for Urgently Scaling up Mitigation Ambition and implementation Mitigation Work Programme (MWP) were mandated by the Glasgow Climate Pact and aims to explore ways to raise mitigation ambition before 2030. During the negotiations the main disagreements were about identifying new categories of countries, such as “major emitters” or “vulnerable developing countries”, and timeframe of the Mitigation Work Programme (MWP), especially the end date (to conclude in 2023 or 2030) and actions. The final decision emphasized the urgent need for increasing efforts to reduce collectively emissions through accelerated action and implementation of domestic mitigation measures to achieve the Paris Agreement goal, and Parties were requested to revisit and strengthen the 2030 targets in their Nationally Determined Contributions (NDCs), aligning them with their long-term low greenhouse gas emission development strategies.

iv. *New collective quantified goal on climate finance*

The Paris Agreement states that a new collective quantified goal on climate finance (NCQG) shall be set prior to the 2035, from a floor of \$300 billion per year. Subsequently, in Glasgow Parties decided that their work will be organized in an ad hoc work programme (including technical expert dialogues (TED), submissions, ministerial dialogues, and stocktakes and guidance. At the negotiations there were discussion on the level of the new goal, with developing countries seeking to reference the need for trillions rather than billions of dollars, while developed countries considers that it was premature to consider a “quantum”, or numerical

financial goal. Also, there were significant debates on the sources of support.

Challenges Constrain the Effectiveness of Subnational Climate Actions in Improving Drought-Resilience among Farming Communities in Katsina State

Inuwa (2024) outlined the major challenges subnational are facing in achieving sustainable and resilience future while addressing climate impacts as follow;

i. Governance and policy implementation barriers

Subnational climate agenda lies in weak governance and policy implementation. Despite the subnational adoption of international climate agreements, such as the Paris Agreement, institutional inefficiencies have hindered the translation of these commitments into actionable policies. For example, the lack of inter-agency coordination between federal, state, and local governments creates delays and redundancies in implementing climate initiatives (Okonkwo et al., 2020). Moreover, bureaucratic inefficiencies often lead to poor monitoring and evaluation of ongoing climate projects, resulting in suboptimal outcomes.

ii. Financial and technological constraints

Financial constraints represent a significant bottleneck for subnational climate agenda. The subnational reliance on international donors, coupled with mounting public debt, limits the funds available for investing in renewable energy and climate adaptation projects (World Bank, 2023). Even when climate finance is secured from international donors, challenges in resource allocation and mismanagement reduce the efficiency of these investments. Technological

limitations further exacerbate the problem. Subnational renewable energy infrastructure, particularly solar and wind power, remains underdeveloped despite the country's vast potential.

iii. Socioeconomic inequalities and public awareness issues

Subnational socioeconomic disparities pose significant obstacles to the widespread adoption of climate-friendly practices. Rural communities, which are heavily dependent on subsistence agriculture, lack the resources and infrastructure to adopt sustainable farming methods. These groups are also disproportionately affected by climate change impacts, such as desertification and drought, yet they are often excluded from decision-making processes (Ojo et al., 2023). Public awareness of climate issues remains low across various demographic groups. Despite the increasing frequency of extreme weather events, many Nigerians perceive climate change as a distant or abstract problem. This disconnect stems from limited access to climate education and the dominance of other pressing issues, such as unemployment and insecurity, in public discourse (Bello & Oladipo, 2022). Without widespread understanding of the benefits of sustainable practices, grassroots support for climate policies remains minimal.

Theoretical Framework

This research is anchored on environmental justice theory. Theory is essential part of social science research because it sets theoretical orientation where the practical aspects of the research are considered by making sense of the observed patterns. Theory also helps to shape and provide a sense of direction to research.

Environmental Justice Theory

The theoretical framework also draws from Environmental Justice Theory, which focuses on equitable access to environmental benefits and protection from environmental harm. This theory, introduced by scholars like Robert Bullard in the late 20th century, provides insights into addressing socioeconomic disparities in climate adaptation. It resonates in Nigeria's efforts to integrate local communities into climate mitigation programs, ensuring marginalized groups are empowered and actively participate in decision-making processes (Tunde et al. 2013).

The core assumptions of environmental justice theory in relation to climate change mitigation are based on the following ideas;

Firstly, environmental harms are unequally distributed: Environmental risks disproportionately affect marginalized communities (low-income groups, Indigenous peoples, racial minorities, and the Global South). Therefore, in climate mitigation effort, fossil fuel pollution and climate impacts (heatwaves, flooding, air pollution) are not experienced equally. Climate mitigation policies must prioritize communities most affected by emissions and climate risks. For instance; the transitioning away from coal plants in overburdened neighbourhoods.

Secondly, vulnerable populations contribute least to environmental degradation but experience the greatest harm, because those least responsible often suffer most. Therefore, in climate Mitigation, high-emitting countries bear greater responsibility for reducing greenhouse gases. Supports principles like "common but differentiated responsibilities" seen in global climate

agreements such as the United Nations Framework Convention on Climate Change and the climate finance and loss-and-damage funds align with this assumption.

Thirdly, environmental policies should not unfairly burden disadvantaged groups. Therefore, in climate Mitigation, carbon taxes must avoid regressive impacts, and the renewable energy access should benefit low-income households. Just transition policies should protect workers in fossil fuel industries.

Fourthly, meaningful community participation by affected communities must have a voice in decision-making. Therefore, in climate mitigation inclusion of frontline communities in renewable energy planning, the community-led climate mitigation and adaptation projects, and also the democratic governance in climate policy design.

Fifthly, cultural identities, Indigenous knowledge, and local experiences must be acknowledged, because recognition and respect of cultures is paramount. Therefore, in climate mitigation, respecting Indigenous land rights in renewable energy projects, avoiding “green colonialism” (e.g., land grabs for carbon offset projects), and integrating traditional ecological knowledge into mitigation strategies.

Lastly, intergenerational equity, at which present actions must not compromise future generations. Therefore, in climate mitigation, rapid emission reductions to limit long-term damage, and that of aligns with global goals such as the Paris Agreement 2015, which aims to limit global temperature rise.

By applying Environmental Justice Theory, Katsina State can formulate policies that align with international best

practices while addressing unique environmental challenges/climate related risks. These frameworks guide the nation’s strategies to balance development goals with climate mitigation, emphasizing systemic equity, long-term planning, and stakeholder engagement.

Materials and Methods

Research Design

A survey research design was employed for this study, as obtained information about the climate governance interventions from subnational authorities in response to COP30 climate actions and challenges constrain the effectiveness of subnational climate actions in improving drought resilience among farming communities in Katsina State. This research design therefore be used for this study because it makes possible for the collection of data from small number of population as well as gathering the demographic data that best describes their composition.

Study Area

Katsina State in the Northwest part of Nigeria is the study area for this research. The state was created on the 23rd September, 1987 and has its capital as Katsina. The total landmass of the area is 24,192 1km² (9,341 square miles) and has a total population of 5,801,584 persons in 2006 (NPC, 2006), with current estimated population of Katsina State in 2025 is approximately 11.6million people, based on demographic projections associated with World Bank and national population growth trends in Nigeria. Katsina State is bounded at the south by Kaduna State, at the East by Jigawa and Kano States, at the West by Zamfara State and at the North by the Sahara Desert and Republic of Niger.

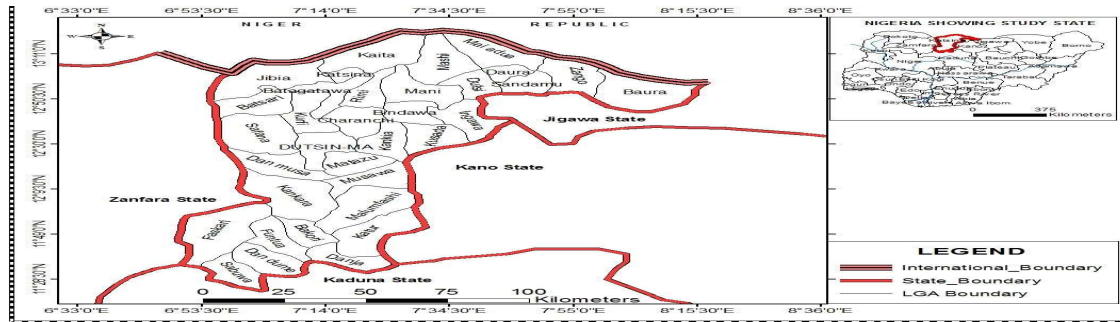


Figure 1: Map of Katsina State showing LGAs

Source: Bankole and Vincent (2021)

Population of the Study

The people used as the population for this study comprised various categories of people. Therefore, the category of people to whom copies of questionnaire were administered, constituted: people given climate information (119); the students enrolled at Meteorological Institute of Science and Technology (MIST) in 2025 (320); People trained in soil and water conservation (1,670); Farmers affected by severe drought (2,940); and households affected by flood disaster (1,100). Therefore, the population of the study was 6,149.

Sampling Frame

This is the actual section of the population that has a connection with the phenomenon under investigation and can be accessible by the researcher. This means that not all the elements in the population can be utilised for the study in the process of generating a required data. However, in this case, six (6) local government areas selected, i.e two from each Senatorial Zones of Katsina State. Therefore, the population of the study constituted 119 people given climate information, 371 people trained in soil and water conservation, and 859 farmers affected by severe drought. It made the total target population were 1,349. This is shown in the following table;

Table 1: Target Population of the Study

SENATORIAL ZONES	LGAs	People given climate information	People trained in soil and water conservation	Farmers affected by Drought
Katsina Central	Katsina	40	105	152
	Batagarawa	28	88	121
Katsina South	Funtua	11	16	198
	Malumfashi	09	21	145
Katsina North	Daura	19	81	130
	Baure	12	60	113
TOTAL		119	371	859

Source: Field Work (2026)

Sample Size

Krejcie and Morgan's method of determining sample size was used to sample 297 people from three categories mentioned across six (6) selected local

government areas. The distribution was made based on the number of people in the categories and in the local government areas by making use of simple percentage as described below:

Table 2: Sample Size of the Respondents

SENAT ORIAL ZONES	LGAs	People given climate informat ion	SAMP LE SIZE	People trained in soil and water conserv ation	SAMP LE SIZE	Farmers affected by Drought	SAMPL E SIZE
Katsina	Katsina	40	34	105	28	152	18
Central	Batagaraw a	28	24	88	24	121	14
Katsina		11	09	16	04	198	23
South	Funtua Malumfas	09	08	21	06	145	17
Katsina	hi	19	16	81	22	130	15
North		12	10	60	16	113	13
	Daura						
TOTAL	Baure	119	101	371	100	859	100

Source: Field Work (2026)

As indicated in **Table 2** out of the 119 people given climate information, only 101 were selected to serve as sampled from whom information was generated via questionnaires. As for people trained in soil and water conservation, 100 were selected out of 371 to serve as samples. Similarly, 100 out of 859 farmers affected by severe drought were selected. In addition, various documents were analysed, depending on accessibility and relevance for the content analysis method.

Sampling Techniques

In view of the nature and the diversity of the population for the study, the researcher made used of various types of sampling techniques at different levels of the selection. Firstly, the researcher used

simple random sampling technique in selecting six (6) local government areas. The researcher wrote the name of the local government areas zone-by-zone, put them in a container and selected only two. It was from those six (6) local governments selected at random that the samples were drawn. In selecting the samples from the vulnerable communities in these local governments, a snowballing sampling technique was used. This technique is a non-probability sampling method where the respondents have no equal chance of being selected.

Instruments of Data Collection

Various instruments were used in generating data required for answering research questions in the study area. One

of the instruments to be employed was questionnaire. This instrument was used in collecting primary quantitative data, which is suitable for addressing the identified issue, from the vulnerable communities in the study area. This instrument was designed in such a way as to allow the respondents to choose from some alternatives answers to the questions posed. For the purpose of this study, only closed-ended questions were presented to the respondents in the copies of questionnaires to be administered, specifically the 5 Likert scale of measurement. This form of questions (close-ended) is chosen by the researcher due to their simplicity and efficiency in terms of time consumption for the respondents. Another instrument to be used in collecting data for this study was key informant interview. The last but not the least instrument of data collection to be employed in this study is content analysis. This instrument was utilised by the researcher to gather qualitative data from secondary source, as it allows for the

measurement of opinions and views expressed by experts, scholars, and other prominent individuals through documented sources.

Method of Data Presentation and Analysis

The data to be generated from the field was presented and analysed using a Descriptive Statistical Tool. The purpose of which was to present to-be collected data in a summary form which was made it easier for the researcher made meaning out of it. The version of the SPSS used to describe the summarised data through SPSS IBM 23.

Results and Discussion

Socio-economic characteristics of the respondents

This section outlined the fundamental socio-economic characteristics, also known as Bio-Data of the sampled respondents as presented in the table below:

Table 3: socio-economic characteristics of the respondents in the study area

VARIABLES		F	%
Gender	Male	216	74.2
	Female	75	25.8
Age	18 – 25	94	32.3
	26 – 35	61	21.0
	36 – 45	86	29.6
	46 – 55	29	10.0
	56 and above	21	7.2
Education qualification	Primary	30	10.3
	Secondary	113	38.8
	Tertiary	115	39.5
	Informal	33	11.3
Occupation	Student	100	34.4
	Business	29	10.0
	Farmer	93	32.0
	Civil servant	35	12.0
	*Other	34	11.7

***Other:** Mechanic, Widow, Watchman

Source: *Fieldwork, 2026*

The socio-economic characteristics of the respondents are examined in this section as shown in table 2. It revealed that a total number of 216 males and 75 females were interviewed in the selected areas of this study. Male gender has the highest number of the respondents. In age distribution, it demonstrates a significant proportion of the sampled respondents to whom copies of questionnaire administered were 241 people belong to the age bracket of 18 – 45, while the remaining 50 people belong to the age bracket of 46 and above.

With respect to the educational attainment of the sampled respondents shows the majority of them have acquired formal

qualifications at different levels. This illustrated by the fact that only 33 people have no formal education, while a combined total of 258 people possessed educational qualification that enable them at least be able to read and write in their mother tongue while many of them can understand English language. The occupation distribution showcases that 100 people were identified as students, 93 people were listed as farmers, 35 people were civil servants. Additionally, 34 people were identified as Others (mechanic, widow, and watchman), and 29 people were also identified as business people.

Awareness on Conference of Parties

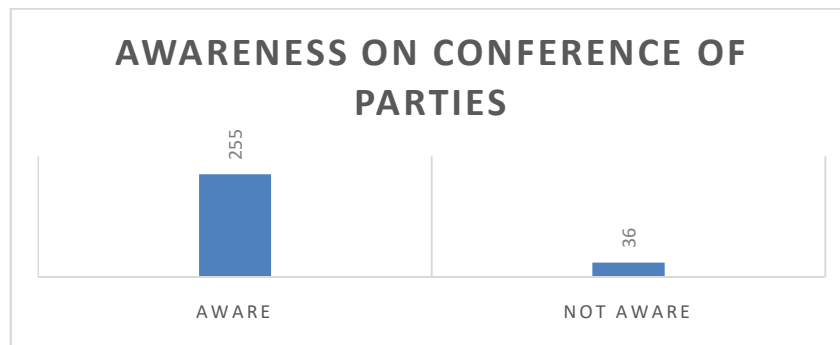


Fig 1: Source: *Fieldwork, 2026*

With regard to the awareness on Conference of the Parties, Fig 1 indicates 255 sampled respondents were aware on COP activities. This illustrated by the fact that only 36 were not aware on COP

existence and activities. Therefore, it is a clear indication that the COP's objectives can easily be achieved in Katsina State, and the communities have witnessed a positive impact of COP activities.

Awareness on Climate Change

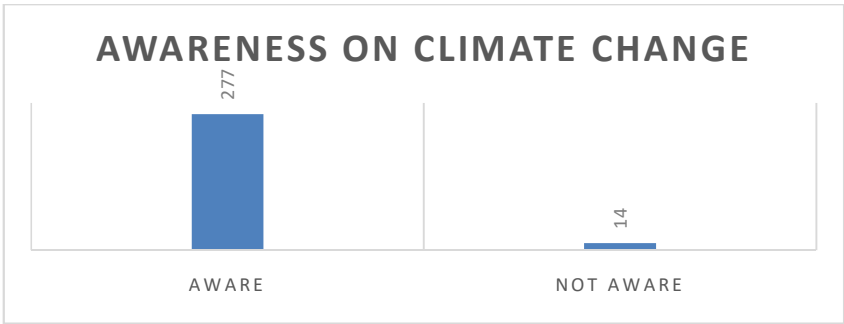


Fig 2: Source: *Fieldwork, 2026*

Fig 2 illustrated by the fact that 277 sampled respondents were informed and aware on climate change, while only 14 sampled respondents were not aware on climate change. Regarding the percentage of sampled respondents that aware on climate change, it is clear direction that COP’s objective can easily be achieved in

the area of the study and majority of the farming communities can easily understand the initiatives and training when they were to be given as they are already in possession of experiences and knowledge about safeguarding environment and improving farming productivity among local communities.

Table 4: What climate governance interventions have been adopted by subnational authorities in Katsina State in response to COP30 climate actions?(N = 291)

Items	SA = 5 (%)	A = 4 (%)	D = 3 (%)	SD = 2 (%)	U = 1 (%)
Cultivating drought-resistant crops	226 (77.7)	60 (20.6)	3 (1.0)	1 (0.3)	1 (0.3)
Support for climate-smart agriculture	204 (70.1)	79 (27.1)	5 (1.7)	1 (0.3)	2 (0.7)
Disaster response and recovery	222 (76.3)	63 (21.6)	3 (1.0)	1 (0.3)	2 (0.7)
Agroforestry and reforestation to tackle persistent drought	219 (75.3)	66 (22.7)	3 (1.0)	2 (0.7)	1 (0.3)
Sustainable water resource management	206 (70.8)	72 (24.7)	4 (1.4)	3 (1.0)	6 (2.1)

Source: *Fieldwork, 2026*

The data in Table 2 shows that 98.3% of the sampled respondents testified that subnational authorities provided farmers with drought-resistant crops in places

where rainfall is low, erratic and unpredictable so that the State to achieve stable food productivity despite severe droughts in those communities. Similarly,

climate change is causing long dry spells and unpredictable rainfall in Katsina State, and due to this challenge, government provided farmers in affected communities with drought-tolerant crops, because those crops continue growing under water stress and maintain yields better than traditional crops, at which it also helps farmers to adopt instead of frequent loss. This shows drought-resistant crops varieties can increase yields and improve welfare of farming households. Data in Table 2 regarding the support for climate-smart agriculture (CSA) as part of climate actions by subnational authorities in mitigating climate vulnerability in the state, at which it helps farmers to adopt harsh environmental conditions like drought. This is understood to be true as 97.2% of the sampled respondents to whom copies of questionnaire were administered testified to the assertion.

According to the data in Table 2 also reveals that 97.9% of the sampled respondents confirmed that disaster

response and recovery are critical role of subnational authorities in climate mitigation where droughts and extreme heat are common found in communities. But policies properly implemented, a climate vulnerability will reduce by improving food availability, protecting livelihoods and strengthening long-term resilience. Data in Table 2 also indicates agroforestry and reforestation by subnational authorities is nature-based solutions, which it significantly improved climate resilience in Katsina state, where drought is major climate shocks faced by its farming communities. This confirmed by cumulative responses 98.0% of sample respondents. Data in Table 2 shows cumulative responses 95.5% of sampled respondents agree subnational authorities contributed in sustainable water resource management as its communities facing water scarcity, erratic rainfall, and drought, because managing water wisely helps drought-affected farming communities to adopt to these climate shocks by protecting their farmlands.

Table 5: What challenges constrain the effectiveness of subnational climate actions in improving drought resilience among farming communities in Katsina State? (N = 291)

Items	SA = 5 (%)	A = 4 (%)	D = 3 (%)	SD = 2 (%)	U = 1 (%)
Limited access to climate education	219 (75.3)	67 (23.0)	3 (1.0)	1 (0.3)	1 (0.3)
Poor enforcement on environmental laws and regulations	224 (77.0)	62 (21.3)	3 (1.0)	1 (0.3)	1 (0.3)
Poor community-based natural resource management	220 (75.6)	65 (22.3)	3 (1.0)	1 (0.3)	2 (0.7)
Inadequate grass root support for climate policies	214 (73.5)	71 (24.4)	3 (1.0)	2 (0.7)	1 (0.3)
Extreme poverty	188 (64.6)	51 (17.5)	20 (6.9)	16 (5.5)	16 (5.5)

Source: Fieldwork, 2026

Data in Table 3 shows that 98.3% of the sampled respondents agree limited access to climate education as a key challenge constrain the effectiveness of subnational climate action in achieving sustainable and resilient future in Katsina State because climate ignorance weakens communities' ability to understand, prepare for and respond to climate events like droughts. Data in Table 3 reveals poor enforcement on environmental laws and regulations as a key challenge constrain the effectiveness of subnational climate action in achieving sustainable and resilient future in Katsina State because environmental violations weaken the entire systems meant to protect the environment and support adaptation efforts for sustainable development. This assertion, as seen in the above Table, received the endorsement of 98.3% of the sampled respondents. As seen in Table 3 shows that 97.9% of the sampled respondents testified that poor community-based natural resources management as a key challenge constrain the effectiveness of subnational climate action in achieving sustainable and resilient future in Katsina State because communities in the State livelihoods heavily depend on farming and livestock, at which some communities and government officials poorly managed shared resources like forest, grazing land and water, at which engaged themselves in trees cutting, overused of water sources and open grazing.

According to Data in Table 3 shows that 97.9% of sampled respondents expressed agreement that inadequate grass-root support for climate policies as a key challenge constrain the effectiveness of subnational climate action in achieving sustainable and resilient future in Katsina State because climate action is only most effective when local communities (farmers and households) are actively involved, informed and empowered, so that this

support could create a proffer solution against the interconnected climate problems. Finally, in Table 3 reveals that 82.1% of the sampled respondents confirmed that extreme poverty stands as a challenge constrain the effectiveness of subnational climate action in sustainable and resilient future in Katsina State because poverty weakens vulnerable communities' ability to prepare for, respond to and recover from climate shocks. Katsina already vulnerable to drought, at which poverty deepens the impact of these interconnected problems.

Findings

- Subnational authorities develop climate-smart agriculture to promote drought-resistant crop varieties. Subnational authorities train farmers on conservation agriculture, efficient irrigation and sustainable land management. It also implemented policy on agroforestry and soil restoration to improve resilience among drought-affected farming communities in Katsina state.
- Subnational authorities invested in water resource management, at which government constructs and rehabilitate small dams, boreholes, and irrigation systems to boost food productivity among drought-affected farming communities in Katsina state.
- Subnational authorities strengthens climate information services by providing timely weather forecasts, and drought early-warning systems, so that to disseminate seasonal climate information through extension officers, radio, television, mobile platforms etc among drought-affected farming communities in Katsina state.
- Subnational authorities implement COP-aligned climate policies by

integrating national climate commitments into state development plans. It also allocates budgetary resources for climate adaptation and resilience projects among drought-affected farming communities in Katsina state.

- Subnational authorities strengthened rural infrastructure by improving rural roads, storage facilities, and market access to reduce post-harvest losses and increase farmers' income in Katsina state.

- Subnational authorities build partnerships by collaborating with federal agencies, development partners, NGOs, research institutions, and local communities to mobilize technical and financial support that can help drought-affected farming communities in Katsina state.

Conclusion/Recommendations

This study on evaluating governance interventions on drought-affected farming communities in Katsina State concludes that subnational authorities (state and LGAs) are essential in translating global climate commitments made under the COP30 process into practical actions that directly benefit drought-affected farmers in Katsina state. Through climate-smart agriculture, improved irrigation, provision of agricultural inputs, extension services, climate information systems, financial support, and strengthened local governance, the state and local government areas authorities can enhance farmers' resilience to the increasing impacts of droughts.

Therefore, it is recommended that the effectiveness of subnational climate actions among drought-affected farmers in Katsina state, both the international, national and subnational authorities should

provide more adequate funding, institutional capacity building, stakeholder collaborations, and continuous monitoring to ensure that COP30 decisions produce tangible and lasting benefits for vulnerable farming communities. These interventions not only support the implementation of international climate agreements but also contribute to sustainable agricultural development, food security and poverty reduction among drought-affected farmers communities in Katsina State.

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