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Appraising The Level of Climate Justice for Vulnerable Communities in Oyo State: Focus on Rural Farmers and Flood-Prone Dwellers in the Inner City of Ibadan, Nigeria

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ABSTRACT

This study appraised the level of climate justice among the rural farmers and dwellers of flood- **prone** areas of the inner informal settlements within Ibadan city. 109 semi-structured questionnaires were administered to these vulnerable people. Information sought include: their socio-demographic attributes, various ecological impact of climate change suffered and level of adaptation actions available for people. A 4-point Likert scale was used together with mean and standard deviation. Relative importance index was also used to rank the degree of ecological impacts suffered from **most** to least impactful based on group scores.The findings indicate a very low adaptation actions available for the vulnerable groups: Recognitional, procedural and distributive policy actions were not available for the vulnerable people, while restorative and transformative policy actions were rarely available for them. The study recommends empowering climate-vulnerable communities. The State must work to **better** understand and address the different and disproportionate impact of climate change on **women**, girls and indigenous groups. They should engage with customary, informal and indigenous **systems** to protect biodiversity and promote sustainable use of natural resources among others.

KEYWORDS: Climate justice, Vulnerable communities, Rural Farmers, Flood-prone settlement dwellers.

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1.1 INTRODUCTION AND STATEMENT OF THE PROBLEM

Climate change is no longer a future problem with more and more people already experiencing the impacts (UN University, 2025). Unfortunately, the ecological impacts of climate change are not felt equally as some countries and communities face far greater risks than others. The people most vulnerable to the effects of climate change are those who already experience systematic exclusion and marginalization and are disproportionately affected (Levy & Patz, 2020). People living in the least-developed, fragile and conflict-affected contexts are the most exposed, due to a combination of geographic factors, economic systems, reliant on climatethreatened sectors such as agriculture and pastoralism, and limited institutional capacity to address climate risks (Centre for International Sustainable Development Law, 2020). Climate change is a defining challenge that will undermine achievement of the Sustainable Development Goals (SDGs). As the world grows hotter, drier and hard-hit by extreme weather events and the effects of sea level rise, climate change acts as a threat multiplier disrupting livelihoods, driving displacement and migration, intensifying scarcities of natural resources which can drive violence and conflict and raising pressure on State-citizen relations and state capacity to advance development (IDLO, 2021).

Women and girls are differentially and often disproportionately affected by climate change (Dankelman, 2002).

The impacts of climate change reinforce pre-existing gender inequalities: gender differences in livelihood strategies and entrenched socio-economic inequalities coupled with lack of representation and voice in decision-making processes limit the opportunities women have to ensure their needs are adequately addressed (United Nations, 2020).

Similarly, the country's most vulnerable to the adverse effects of climate change are those where youths and children constitute the largest share of the population (IFAD, 2019). 7 of the 10 countries most at risk from the effect of climate change are in the Global South, with young and fast-growing populations (Eckstein, Künzel & Schäfer, 2021; Germanwatch, 2021).

Climate change has the greatest impact on those most dependent on natural resources for their livelihoods, those with the least capacity to respond and adapt to natural hazards and those most excluded from the exercise of state power. Indigenous people and local communities (IPLC) occupy over 20 percent of the Earth's territory (Kobbins J, 2018) and account for 15 percent of the very poorest (Thematic report of Agenda 2030, 2020). Another vulnerable group are climate migrants. By one estimate more than 200 million people may be displaced by climate-induced natural disasters and conflicts in the next 25 years (Myers N, 2005).

The destructive effects of climate change can be discerned in the short term through natural hazards including droughts, flooding, landslides, storms and tidal waves and in the long term through the continuing destruction of the environment (GU et al., 2018). In addition, the Intergovernmental Panel on Climate Change (IPCC) report in 2021 has highlighted the various threats climate change poses to the survival of the planet. The report evidences that there has been a big rise in global warming and greenhouse gas (GHG) emission, which are having negative impact on the planet and on billions of people; no part of the globe is left out from climate change impact (Mora et al., 2018).

Africa is one of the places bearing the human brunt of climate change. According to the IPCC, Africa is one of the most vulnerable continents to climate variability and change (Gemeda & Sima, 2015).

In Nigeria, climate change has led among other things to increased frequent flooding, rising sea levels and drought. For instance, the flooding that occurred in the late 2022 in Nigeria affected more than 2.5 million people and led to the widespread destruction of farm lands in the country (Berebion and Garatana, 2022).

Similarly, the 2022 flood caused by heavier rainfall attributed to climate change and the release of excess water from the Lagdo dam affected the majority of area for instance flood-prone areas across the country have been particularly affected such as Anambra where 526,215 people were displaced because of the 2022 floods, in addition to other states (Rachel stromastar, 2024)

Climate injustice in Oyo state disproportionately exposes, marginalized the low-income populations to extreme environmental hazards such as recurring floods, soil degradation and urban heat islands, while they lack the resources to adapt (Isaac Oluwafadera et al., 2025).

Environmental degradation caused by climate change is particularly pronounced in Atiba Local Government Area of Oyo State and affects the farmers who suffer from soil fertility loss and ecological degradation which directly threaten food security and economic livelihood (Adelakun & Jimoh, 2024). This systemic inequality is most visible in the expanding informal area of Ibadan City where poor infrastructure amplifies health and economic risks (Adeoje & Fayomi, 2025; Kolawole et al., 2026).

The global ambition for climate justice is primarily addressed under SDG 13 (Climate Action) which urges urgent steps to combat climate change while overlapping with SDG 10 (Reduce inequality) Strong Institutions by focusing on vulnerable groups (United Nations safeguarding marine rights and climate vulnerable communities, sdg.un.org).

Nigeria is tackling climate injustice, the disproportionate burden of erosion, enviromental damage and marginalized communities through the Climate Change Act, the Energy Transition Plan and community-led resilience projects (REAN, 2022; World Bank, 2022; Renewable Energy Association of Nigeria, 2020).

Oyo State is tackling climate vulnerability and environmental inequality by localizing climate governance, boosting grassroots resilience and launching inclusive sustainability frameworks (Oyo State Govt., 2026).

Despite all these efforts, the level of climate injustice in Oyo State in particular and Nigeria in general remains high and persistent driving by systemic vulnerabilities in informal urban settlements, unequal burden on smallholding women farmers and gap in grassroots policy execution (Akinkuolie, T. A. et al., 2026).

1.2 Aim and Objectives

The aim of this research is to appraise the level of climate justice for the vulnerable communities in Oyo State.

In order to achieve this aim, the objectives are to:

1. Examine the socio-demographic characteristics of the vulnerable people in the study area
2. Investigate the perceived ecological impact of climate change on the vulnerable groups in the study area
3. Investigate the level of adaptation policy available for the vulnerable groups in the study area
4. Proffer suggestions to the vulnerable and policy makers on how to reduce the ecological impact of climate change on the most vulnerable people through best practice and policy actions to reduce climate injustice in Oyo State in particular and Nigeria in general.

1.3 Justification for the Study

Nigeria has high climate vulnerability ranking 58th most vulnerable and 176th in readiness globally on the ND-GAIN index (Federal Ministry of Environment, 2026). Unfortunately, the ecological impact of climate change differs from place to place; some countries and communities face far greater risks than others.

Most extant studies carried out in Oyo State focused on different areas, for instance Olufadewa et al. (2025), Adelakun & Jimoh (2024), Arimi S.K. et al. (2026), Oke et al. (2026) among others. This study used the perspective of the vulnerable group to evaluate the level of adaptation policy actions available to them to determine their level of climate justice as contrast with previous studies .

MATERIALS AND METHOD

The rural farmers and the Ibadan inner informal settlement dwellers who are the most climate vulnerable groups are the focus of this study. This study used their viewpoint to evaluate the level of climate adaptation policy actions available to them. Semistructured questionnaires were administered and purposive sampling procedure was adopted to select 109 respondents — rural farmers and inner flood-prone Ibadan informal settlement dwellers who also engage in farming and trading as livelihood. The farmers were met in Bodija Market and Ojo Market on Msarket days. Also, the flood-prone dwellers of Agbowo, Apete among others were sampled in their residences.

Section A

Table 1: Socio-Demographic Characteristics of the Vulnerable Communities in Oyo State.

Variable	Categories	Frequency	Percentage
Gender	Male	90	82.56
	Female	19	17.43
Age	18-30 years	6	5.5
	31-45 years	85	77.98
	46 & above	18	16.51
Marital Status	Single	5	4.58
	Married	84	77.06
	Divorced	0	0
	Widow	20	18.35
Level of Education	No Formal Education	20	18.35
	Primary	25	22.94
	Secondary	50	45.87
	Tertiary	14	12.84
Employment	Farming	80	73.39
	Trading	10	9.17
	Artisan	19	17.43
	Civil Servant	0	0
Income Per month	Below ₦70,000	92	84.4
	₦71,000 – 100,000	17	15.59
	101,000 – 150,000	0	0
	151,000 – 200,000	0	0
	200,000 & Above	0	0

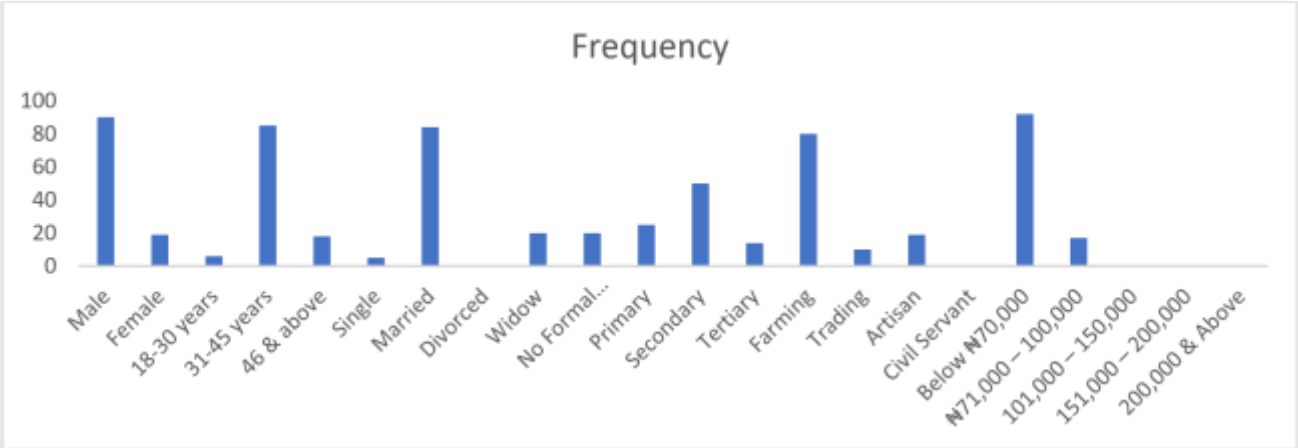


Fig 1: Demography Chart

Table and Fig 1 reveal the socio-demographic profile of the 109 respondents. Which reveal that the vulnerable communities studied are predominantly male (82.56%), with the majority aged between 31 and 45 years (77.98%). Most are married (77.06%), while a notable proportion are widows (18.35%). Educational attainment is modest, as nearly half (45.87%) stopped at secondary school and 18.35% have no formal education. Farming remains the dominant livelihood (73.39%), with very few engaged in trading or artisan work. Critically, the overwhelming majority (84.4%) earn below ₦70,000 monthly, confirming that these climate-vulnerable groups are largely low-income, economically fragile, and heavily dependent on climate-sensitive agriculture.

Table 2: Perceived Ecological Impact of Climate Change Among the Vulnerable Communities in Oyo State

Variable	SA	A	D	SD	Mean	Std. Dev	Rank
We suffer infrastructure deficit	80	21	7	1	1.35	0.91	2
We suffer from poor drainage system	83	21	4	1	1.29	0.92	1
Residents are susceptible to water-borne diseases & respiratory illness	43	32	24	10	2.11	0.75	10
Residents suffer from flood disaster and displacement without access to compensation or resettlement	53	36	17	3	1.88	0.82	8
People suffer from massive soil degradation, runoff and route erosion	47	29	21	12	2.14	0.73	11
Loss of life and properties	61	31	11	6	1.92	0.84	6
Loss of soil fertility as a result of degradation	39	34	22	14	2.14	0.72	12
Delay on onset of rain leads to stunted growth of crops	54	38	9	8	1.88	0.82	9
Increase in drought & water shortage affect agricultural practice	69	31	6	3	1.82	0.88	3
Reduction of crops yield occasioned by climate factors	53	51	3	2	1.59	0.85	4
Increase in pest & disease outbreak for crops like cassava, maize & vegetable	55	44	6	4	1.72	0.84	5
The impact includes poverty & food insecurity	52	46	6	5	1.72	0.83	7

Table 2 above shows the broad factors identified by the respondents to be the ecological effects of climate change among the vulnerable communities in Oyo State. Poor drainage system was ranked 1st, infrastructural deficit 2nd, increase in drought & water shortage 3rd, reduction of crops yield caused by climatic factors was ranked 4th, increased pest and diseases outbreak which affect crops 5th, loss of life and property 6th, poverty and food insecurity 7th, flood disaster 8th, delay on onset of rain which is responsible for stunted growth of crops was ranked the 9th factor. Residents are susceptible to water-borne diseases and respiratory illness was ranked 10th, soil degradation and route erosion 11th & the loss of soil fertility as a result of top soil degradation was ranked 12th of the listed options. From the analysis it is easy to identify the most and least impactful factors in the study and offers an important contribution to guide the policy makers in designing and implementing actionable interventions to meet the priority needs of the vulnerable communities in the study area.

Table 3: Evaluating Perceived Level of Recognitional Adaptation Actions Available for the Vulnerable Communities in the Study

HA = Highly Available, MA = Moderately Available, RA = Rarely Available, NA = Not Available; Mean; SD = Standard Deviation; D = Decision

Variable	HA	MA	RA	NA	Mean	SD	D
The policymakers in their policy value different voices especially indigenous communities & vulnerable groups	1	7	21	80	1.35	0.49	NA
The climate decision making values the indigenous people's traditional knowledge in climate decision making	1	4	21	83	1.29	0.43	NA

The government recognises that climate change affects their farming & livelihood	1	6	23	79	1.35	0.49	NA
The government recognises the vulnerable in the provision of renewable energy e.g. solar	1	6	23	79	1.35	0.49	NA

Table 3 above presents evaluation of the perceived level of recognitional adaptation actions taken by the policymakers to ensure climate justice for the vulnerable communities in the study area. The options (items) include: the policymakers recognize the voice of indigenous communities in their policy; they recognize their traditional knowledge in their climate decision; they understand that the farmers suffer from climate conditions which have direct effect on their livelihood; and finally, the government takes care of the vulnerable communities in the provision of renewable energies such as solar among others. Each of the four (4) items was rated not available because their means were within 0.000–1.499. The weighted mean of 1.335 confirms generally that recognitional adaptation actions were not available for the climate vulnerable communities in the study area. This is further confirmed by the calculated weighted mean which falls below the benchmark cutoff which shows that the tested proposition is judged as negative.

Table 4: Evaluating the Level of Procedural Adaptation Policy Action Available for the Vulnerable Communities in Oyo State
HA = Highly Available, MA = Moderately Available, RA = Rarely Available, NA = Not Available; Mean; SD = Standard Deviation; D = Decision

Item	HA	MA	RA	NA	Mean	SD	D
Involvement of the vulnerable people in the design of climate policies that affect them	2	3	29	75	1.38	0.45	NA
The vulnerable people were invited into climate adaptation planning and design e.g. farmer to design drought-resilient farming policy	2	6	23	78	1.46	0.45	NA
The procedural process that is open and transparent are available for the vulnerable groups	2	10	24	73	1.45	0.47	NA
The indigenous people have a direct seat at the table in shaping state adaptation plans	1	6	23	79	1.35	0.45	NA

Criterion mean = 2.50; Weighted mean = 1.390; SD = 0.443; Overall Decision = Not Available

Table 4 above presents the availability level of procedural adaptation policy actions for the vulnerable communities in the study area which include involving the vulnerable groups in the design of climate policies that affect them, involving the farmers on climate adaptation plan e.g. design of drought-resistant farming policies, open procedural process for the vulnerable groups and involvement of the indigenous groups in shaping climate adaptation plans among others. Four (4) items were used as shown in the table to evaluate the availability level of procedural adaptation policy actions available for the climate vulnerable groups in the study area. Each item was rated not available (1–4) as their means were within 0.000–1.499. The weighted mean 1.390 & SD 0.45 confirm generally that adaptation policy actions were not available for the climate vulnerable groups in the study area.

Table 5: Evaluating the Level of Perceived Distributive Action Available to the Vulnerable Communities in the Study Area
HA = Highly Available, MA = Moderately Available, RA = Rarely Available, NA = Not Available; Mean; SD = Standard Deviation; D = Decision

Item	HA	MA	RA	NA	Mean	SD	D
Subsidies were provided for the vulnerable groups so everyone can benefit from cleaner energy	2	6	23	78	1.38	0.45	NA
Aids were received from wealthier nations to help the poor to adapt and recover from climate impact	1	4	21	83	1.29	0.43	NA
The flood-affected people enjoy relocation & resettlement	2	10	24	73	1.46	0.47	NA
The vulnerable people enjoy infrastructure cost of mitigation	1	6	23	79	1.34	0.45	NA

Table 5 above presents analysis of the evaluation of the level of the perceived distributive justice available for the vulnerable communities in the study area. These are actions taken by the policymakers such as subsidies to the vulnerable groups, aids from

wealthier nations to assist the poor to adapt to climate change, relocation or resettlement of the displaced groups, and lastly the vulnerable enjoying infrastructure cost of mitigation among others. It is revealed in the table that each of these options (items) was rated not available because of the mean threshold which falls between 0.000–1.499. The weighted mean 1.368 informs generally that distributive actions from the policymakers were not available for the vulnerable groups in the study area. Also the calculated weighted mean falls below the benchmark cutoff of 2.500, indicating that distributive climate justice was not available for the vulnerable communities in the study area.

Table 6: Evaluating the Level of Perceived Restorative Action Available for the Vulnerable Communities in the Study Area
HA = Highly Available, MA = Moderately Available, RA = Rarely Available, NA = Not Available; Mean; SD = Standard Deviation; D = Decision

Variable	HA	MA	RA	NA	Mean	SD	D
Indigenous people received financial aids for the loss of life and properties through flood disasters	1	5	54	49	1.62	0.51	RA
The poor people enjoy renewable energies	5	11	52	41	1.82	0.53	RA
The policymakers paid for infrastructure cost	3	7	56	43	1.73	0.51	RA

Table 6 above presents evaluation analysis of the level of the perceived restorative climate actions by the policymakers to reinstate the climate victims (the vulnerable communities). Such as financial aids to assist the indigenous communities for the loss of life and properties occasioned by disasters such as floods, renewable energies such as solar provided for the vulnerable groups and payment for infrastructure cost by the government among others. It is revealed in the table above that each of the three (3) options provided was rated rarely available. That is not easily obtained or found among the vulnerable groups. This is because from the analysis the mean of each item falls within 1.500–2.449 which indicates rarely available. Also the weighted mean of 1.719 confirms generally that restorative climate actions from the policymakers are not easily obtainable in the study area.

Table 7: Evaluating the Perceived Level of Transformative Action Available for the Climate Vulnerable Communities in Oyo State
HA = Highly Available, MA = Moderately Available, RA = Rarely Available, NA = Not Available; Mean; SD = Standard Deviation; D = Decision

Variable	HA	MA	RA	NA	Mean	SD	D
The policymakers invest in renewable energy to replace energy from fossil fuels for the vulnerable	6	12	69	22	2.01	0.57	RA
The government is using law and regulation to reduce pollution	7	10	51	41	1.84	0.53	RA
The government increases investment in green infrastructure to reduce urban heat island effect and greenhouse gas emissions	5	11	65	28	1.94	0.56	RA
The policy makers are promoting climate-tolerant variety of crops in order to adapt to climate change	4	7	51	47	1.71	0.53	RA

Criteria mean = 2.50; Weighted mean = 1.876; SD = 0.548; Overall Decision = Rarely Available

Rating scale used: Highly Available (HA) = 4; Moderately Available (MA) = 3; Rarely Available (RA) = 2; Not Available (NA) = 1; SD = Standard Deviation; D = Decision.
Mean threshold: 0.00 – 1.499 = Not Available; 1.500 – 2.499 = Rarely Available; 2.500 – 3.499 = Moderately Available; 3.500 – 4.00 = Highly Available

Table 7 above presents evaluation analysis of the perceived level of transformative climate actions enjoyed from the policymakers by the vulnerable communities such as investment in the renewable energies to replace energy from fossil fuel, the use of legislative strategies and regulations to reduce pollution, investment in green infrastructure to reduce urban heat island and greenhouse gas emissions, promotion of climate-tolerant crop varieties in order to adapt to the climate change among others. It is shown in the table that each of the four (4) options was rated rarely available for the vulnerable groups. This is because according to the mean threshold, the means fall between 1.500–2.499 and also the calculated weighted mean of 1.876 is less than the criterion mean of 2.500 indicating that transformative climate action is not easily obtainable in the study area.

DISCUSSION AND CONCLUSION

The analysis above shows that the majority of the vulnerable communities in Oyo state suffer disproportionately from ecological impact of climate change. These category of people are poor and could not (afford) not avoid the cost of adaptation and as shown in table 3 to 7, the five dimensions of adaptation actions from the policy makers are rarely available to the people in these communities.

In conclusion therefore these communities suffer climate injustice and need adaptation actions from the policy maker to reduce ecological impact of climate change among these communities.

RECOMMENDATIONS

1. Empowering climate-vulnerable communities, particularly smallholder women farmers.
2. The State must work to better understand and address the different and disproportionate impact of climate change on women, girls and indigenous groups.
3. They should engage with customary, informal and indigenous systems to protect biodiversity and promote sustainable use of natural resources among others.

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