



CLIMATE CHANGE AND CLIMATE JUSTICE: A GENDER ANALYSIS OF Reducing Emission from Deforestation and Forest Degradation (REDD+) PILOTED SITES IN CROSS RIVER STATE, SOUTH-SOUTH, NIGERIA

BASIRU ADENIYI OKANLAWON

PHD (FOREST ECOLOGY AND CONSERVATION)

FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA, NIGERIA

JULY, 2023





OUTLINE OF THE PRESENTATION

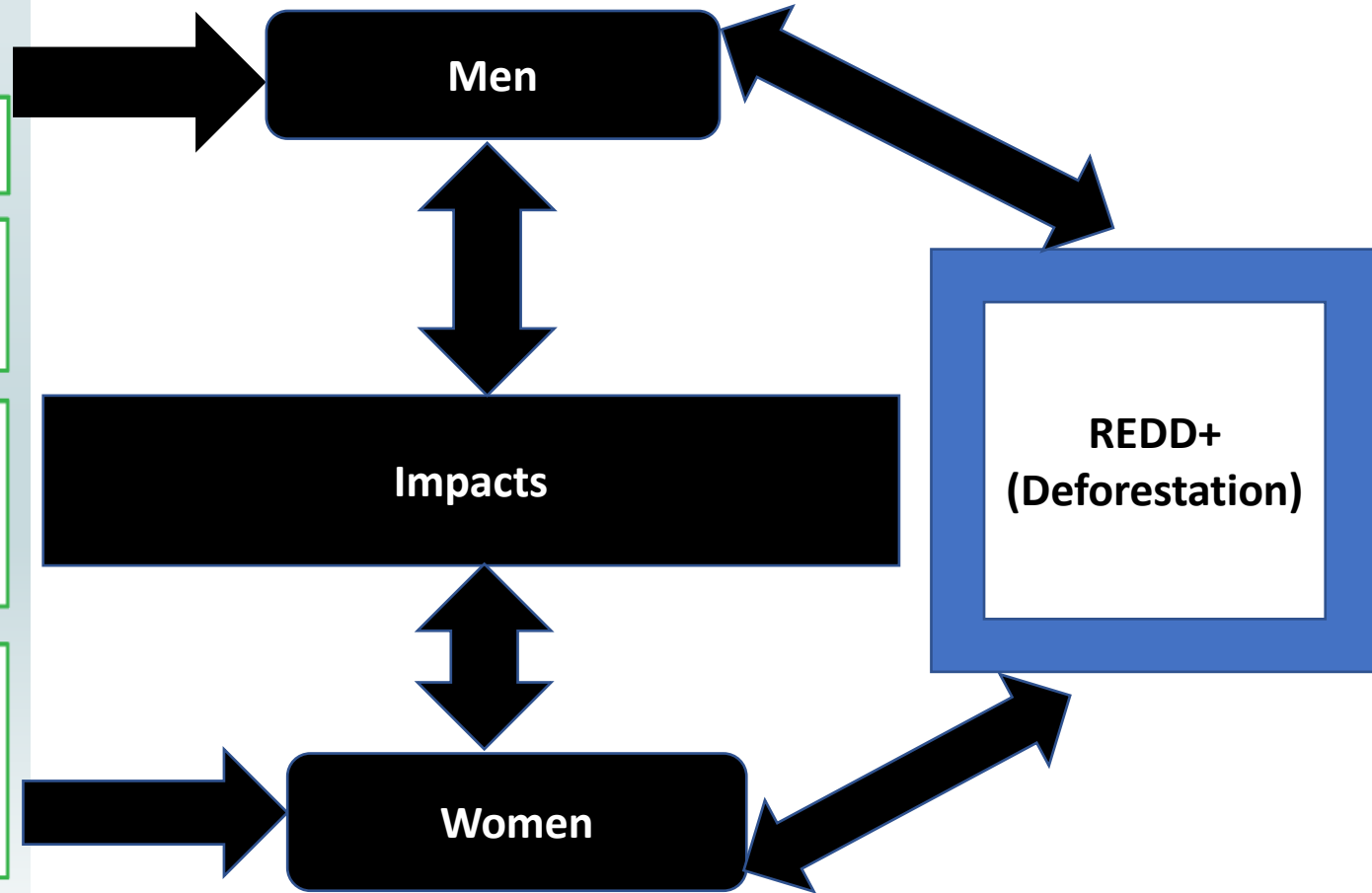
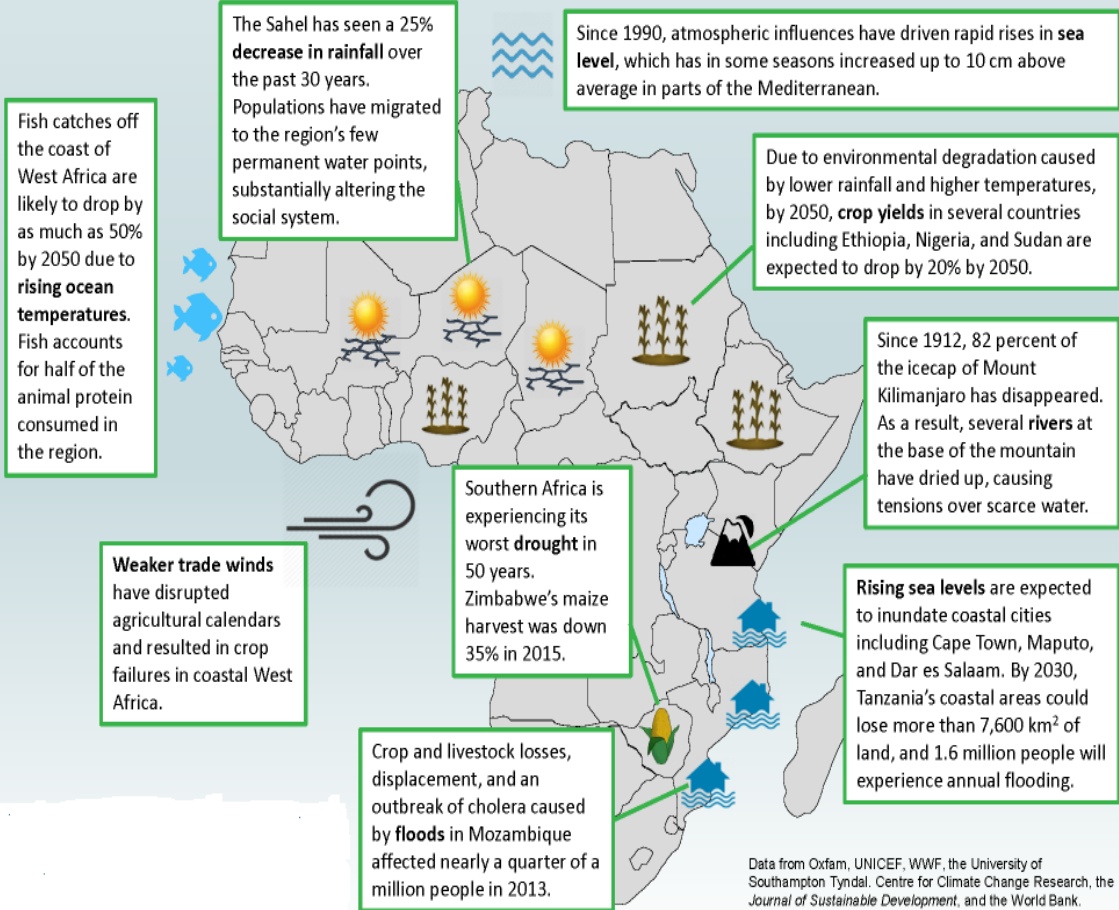
- **Introduction and rationale of the study**
- **Objectives**
- **Materials and methods**
- **Results**
- **Discussion**
- **Conclusion**
- **Recommendation**
- **Key messages and policy implications**
- **Acknowledgement**





Introduction and rationale of the study

Selected Effects of Climate Change on Africa





Introduction and rationale of the study (cont'd)

Primary goal of (REDD+) initiative is to discourage deforestation, enhance carbon stocks and improve **Social benefits** '*...particular attention will be given to gender...and key gender concerns will be identified especially gender-biased risks and/or unequal benefits that can hamper the welfare of different social groups, especially women...*' (Nigeria R-PP 2013: 9).

❖ However, the mode of its design and implementation determines the outcomes particularly in Nigeria where there are multifaceted and intertwined competing realities; such as **gender issues**, **poverty**, a **surging population**, **weak institutions**, **corruption**, and widespread legacies of **natural resource cursed as a nation** (Amuyou *et al.*, 2016)

❖ Therefore, this study assessed gender, climate change and climate justice in (REDD+) piloted sites, Cross River state, Nigeria.





Objectives of the study

1. Determine gender participation, decision making and level of engagement in climate change adaptation plan in REDD+ piloted sites, Cross River, South-South Nigeria
2. Determine Gender Livelihood Vulnerability Index in REDD+ piloted sites, Cross River, South-South Nigeria
3. Determine Gender Climate Resilience Index in REDD+ piloted sites, Cross River, South-South Nigeria
4. Assess institutional arrangement for implementing resilience measures in REDD+ piloted sites, Cross River, South-South Nigeria
5. Assess the benefits and challenges associated with adaptive capacity measures, implementation and identification of promising institutional frameworks supporting gender sensitivity.





MATERIALS AND METHODS

Study area

- Geographically, Cross Rivers State is situated in the South-South part of Nigeria, and bound by Latitudes 4° 27' to 5° 32'N and Longitudes 7° 50' to 9° 28'E with an approximate landmass area of 20,156 square kilometres (Figure 1).
- Nigeria REDD+ preparatory stages began in 2008 after assessing the viability of Cross River forest for a carbon concession arrangement.
- Cross River State and Federal Government of Nigeria have accessed a 4million US dollars take off grant from UNREDD program to implement the REDD+ readiness program.
- For this study, three key sites known as REDD+ piloted sites were purposefully selected.
- The sites were: Afi-Mbe, Ekuri and Mangrove forest and their adjacent communities (Figure 1)

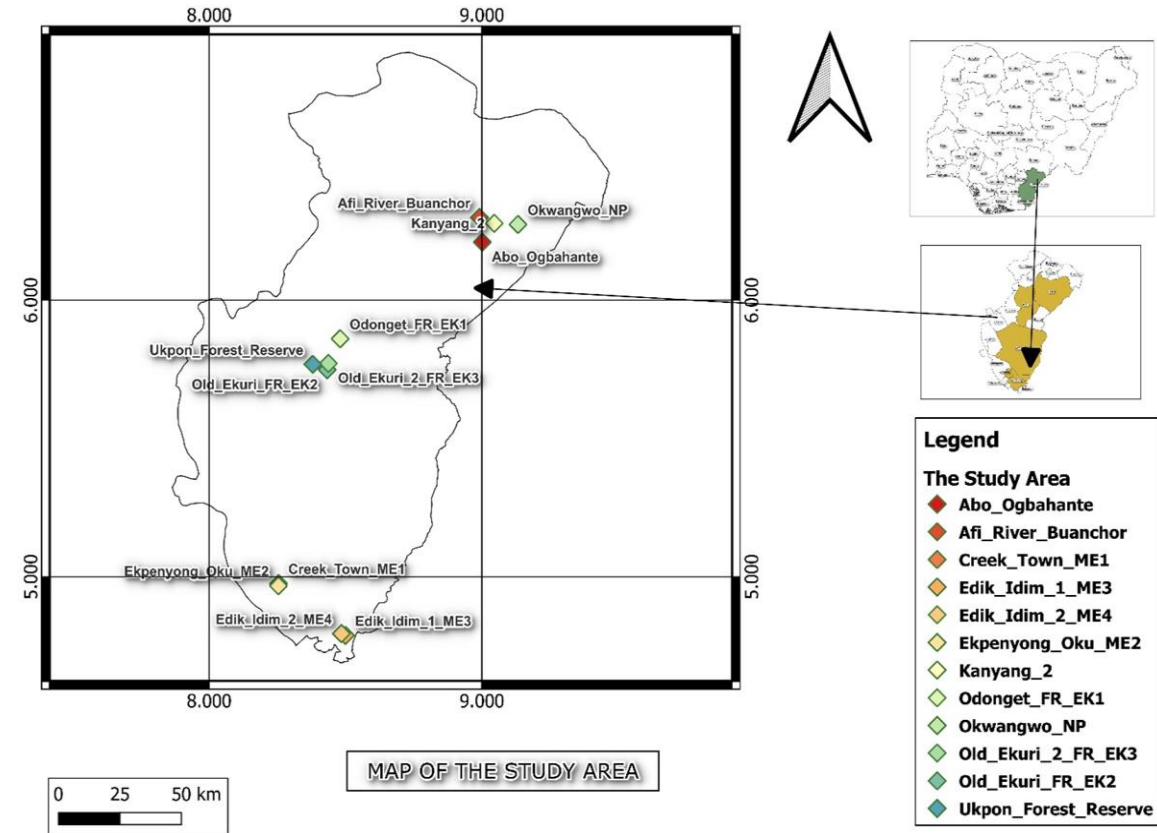


FIGURE 1: MAP OF THE STUDY AREA







**Cross River (REDD+
Piloted State)**

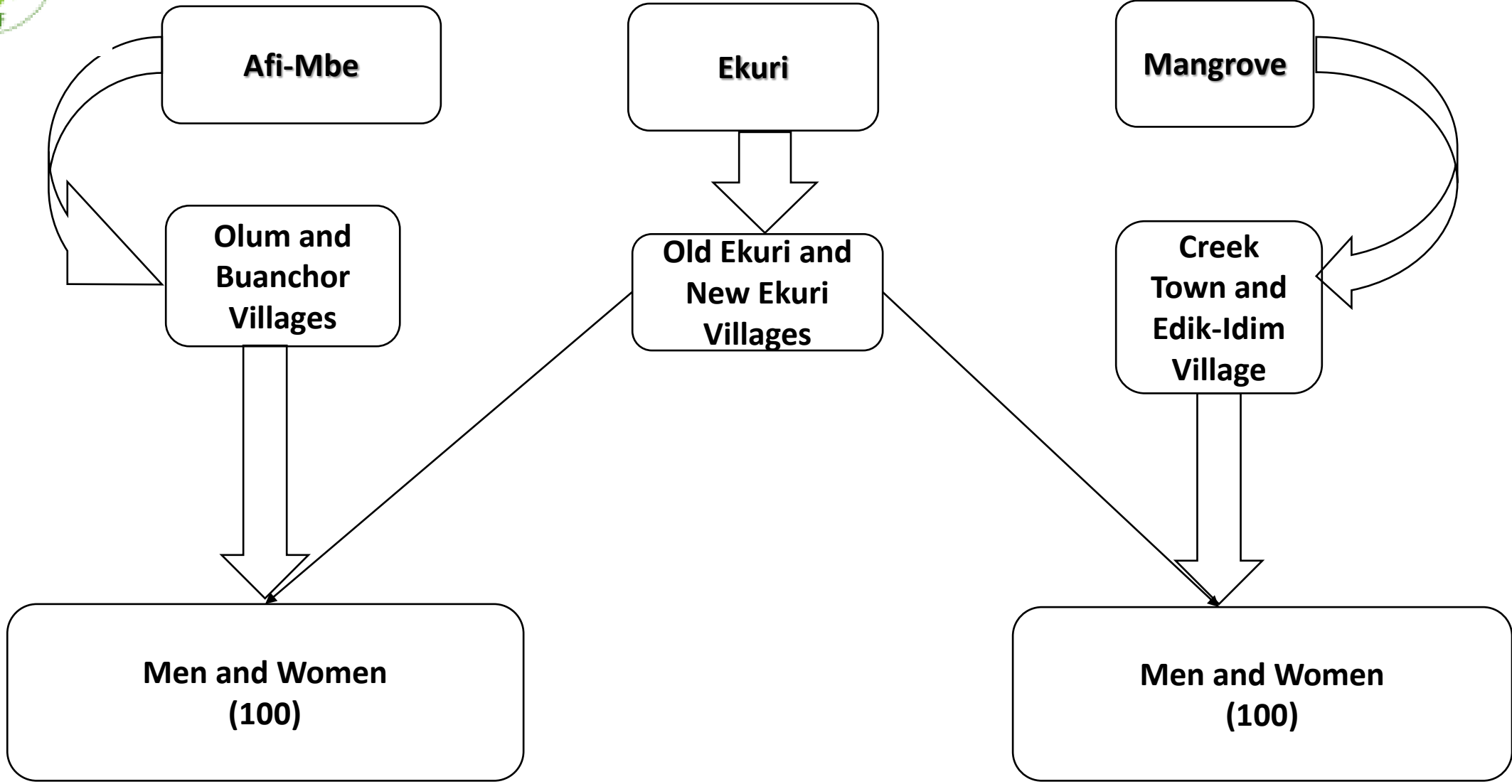


Figure 2: Sampling workflow diagram for the study (source: author).



MATERIALS AND METHODS (CONT'D)

Sampling Design

- ❖ Both qualitative and quantitative research methods were used to collect information E.g. Questionnaires, FGD, Observation, Key Informant Interview (Village Head, REDD+ Staff) approaches were adopted.
- ❖ For the quantitative, six piloted villages were selected purposively from 3 recognized REDD+ sites
- ❖ Study population from the sample frame was determined from Ministry of Forestry Cross River State, and Cochran Formula was used to determine sample size (Cochran, 1977)
- ❖ In each village, respondents were classified by gender (men and women)
- ❖ Simple Random Sampling was applied to select household with targeted respondents.
- ❖ Sample size of 200 questionnaires in which Afi Mbe had (76), Ekuri (66) and Mangrove (62) respondents





MATERIALS AND METHODS (CONT'D)

Objective 1: Gender participation, decision making and policy formulation

❖ A 5 - point Likert rating scale was adopted. The scale was graded by gender, for each of the participant and decision statements: Always=1.0; Often=0.8, Occasionally=0.6, Rarely=0.4 and Never=0.2.

❖ Participation Index (PI) was determined by the formular below:

$$PI = [(f_a * 1) + [(f_o * 0.8) + [(f_{o'} * 0.6) + [(f_r * 0.4) + [(f_n * 0.2)]]]] / N$$

(N=Total number of respondents)

❖ The results were discussed based on the level of participation and involvement in decision making.





MATERIALS AND METHODS (CONT'D)

Objective 2: To determine gender livelihood vulnerability in REDD+ piloted sites in Cross River, South-South Nigeria.

- ❖ Vulnerability components were accounted for with 7 indicators. In total, 50 sub-components were selected (8 for exposure, 24 for sensitivity and 18 for adaptive capacity).
- ❖ Finally, all components were combined to calculate the index for gender vulnerability livelihood assessment to Climate Change impact
- ❖ Normalization using (max-min) approach depending on the chosen indicators was adopted (Hahn *et al.*, 2009)

❖ $Index_{SG} = \frac{S_G - S_{min}}{S_{max} - S_{min}}$ (where S_G is the original sub-component for gender,

respectively.....Eqn..... $\frac{S_G - S_{min}}{S_{max} - S_{min}}$ are min & max. value





MATERIALS AND METHODS (CONT'D)

- $$LVI_G = \frac{\sum_{i=1}^7 WMiMgi}{\sum_{i=1}^7 WMi} \dots\dots\dots \text{Eqn II}$$

where LVI_G = Livelihood Vulnerability Index for gender

Wmi = The weight of sub-components

Mgi = The seven major components

Socio-demographic profile (SDP),

Livelihood strategies (LS),

Social networks (SN),

Health (H),

Food and nutrition (FN),

Water (W),


Natural hazards and climate variability (NHCV)





Objective 3: To Climate Resilience Index in REDD+ piloted sites in Cross River, South-South Nigeria.

- The Climate Resilience Index development followed (Tambo, 2016)
- The tools consist of 10 major components and gender with highest average values was hypothesized to be resilient to Climate Change induced shocks.
- The CRI used a balanced weighted technique relevant indicators (Sullivan *et al.*, 2012) where 39 sub-components contributed equally to the index.
- Each major component composed of different indicators measured on different scales and normalized to get CRI (Tambo, 2016)

$$CRI_r = \frac{\sum_{p=1}^{10} WM_i M_{ri}}{\sum_{p=1}^{10} WM_{ri}} \dots \dots \dots \text{Eqn III}$$




MATERIALS AND METHODS (CONT'D)

- Where $CRIR$ =Climate Resilience Index
- Mri =Number of indicators of the major components
- WMi =Weight of major component i

Natural disaster and climate variability

Social network

Income and food access

Livelihood strategies

Health

Water

Socio-demographic profile





MATERIALS AND METHODS (CONT'D)

Objective 4: To assess institutional level of arrangement in implementing resilience (Adaptation) measures in REDD+ piloted site, Cross River, South-South Nigeria.

- Key informant interview was conducted with Donor and stakeholders both from the REDD+ and Ministry of forestry Rivers State to assess the level of development pertaining to aforementioned institutional framework REDD+ proposed plan and respective outcome indicators.
- Secondary data from appropriate quarter was perused to ascertain whether the programme is still on course to achieve its aims and objectives likewise identifying underlying challenges in respect of implementation of gender-sensitive resilience and adaptation measures to adverse effects of climate change and variability as far as REDD+ is concerned **(Using 3Es of REDD+ (Equity, Efficient and Effective))**





MATERIALS AND METHODS (CONT'D)

Objective 5: To assess the benefits and challenges associated with adaptive measures implementation and identification of promising institutional framework supporting gender sensitive resilience and adaptation measures

- **Benefit sharing and challenges:** For this component of the research, *both secondary and primary sources- literature (policy documents) and interviews groups (REDD+ staff, Village Head and Ministry of Forestry principals officer) were interviewed* to document
 - ❖ respondents' perceptions on current benefits from REDD+ to their livelihoods;
 - ❖ policy discourses on REDD+ benefits sharing;
 - ❖ respondent's views and perceptions on project benefits; and
 - ❖ how respondents perceived and evaluated various actors and institutions in forest resource governance and their role in benefit sharing.





DATA ANALYSIS

- ❖ Data collected were coded, entered and cleaned with Excel statistical package, and subjected to descriptive statistical analysis using SPSS Version (25) window packages
- ❖ The results were presented using tables, charts and vulnerability spider diagram





OBJECTIVE 1

Table 1: Gender Perception of Respondents on participation, decision making and level of engagement in climate change, REDD+ project and forest management

Perceptual Procedural statements	Men		Women	
	Mean	S.D	Mean	S.D
I have heard of climate change before	3.45***	1.21	2.95**	1.82
I know climate change mitigation programme is going on in this community	2.64**	1.12	1.88*	0.62
I have participated or called upon concerning ongoing REDD+ in the community	2.96**	0.56	2.09*	0.98
We discussed climate change programme in my house	3.00**	1.14	2.51*	1.19
I am involved in community management of forest resources	2.98**	1.16	2.35*	1.18
I belong to decision making organ in the community	3.14**	1.25	2.46*	1.17
I have been involve in the decision that deals with climate change and forest management in the community	3.01**	1.29	2.40*	1.16
I made decision in my household	3.45***	1.23	2.69*	1.10
I have voice in decision making in this community	3.04**	1.83	2.16*	1.02
I was recognized in all activities in this community	2.91*	0.69	2.54*	1.12
I always included in community activities and vital dialogue	3.14***	0.87	2.38*	1.23
I belong to community institution composition	2.95**	0.71	2.20*	1.03
I always contacted for forest management and conservation	2.75*	0.53	2.07*	0.89
I always contacted before any vital decision being made concerning on-going climate change adaptation plan in the community	2.56*	0.40	1.99*	0.77
Decision and management of forest reserve is a joint action of both community and the government	3.47***	1.12	2.73*	1.63
I belong to village cabinet member	2.83*	0.60	2.19*	1.06

*** Often

** Occasionally

* Never



OBJECTIVE 2

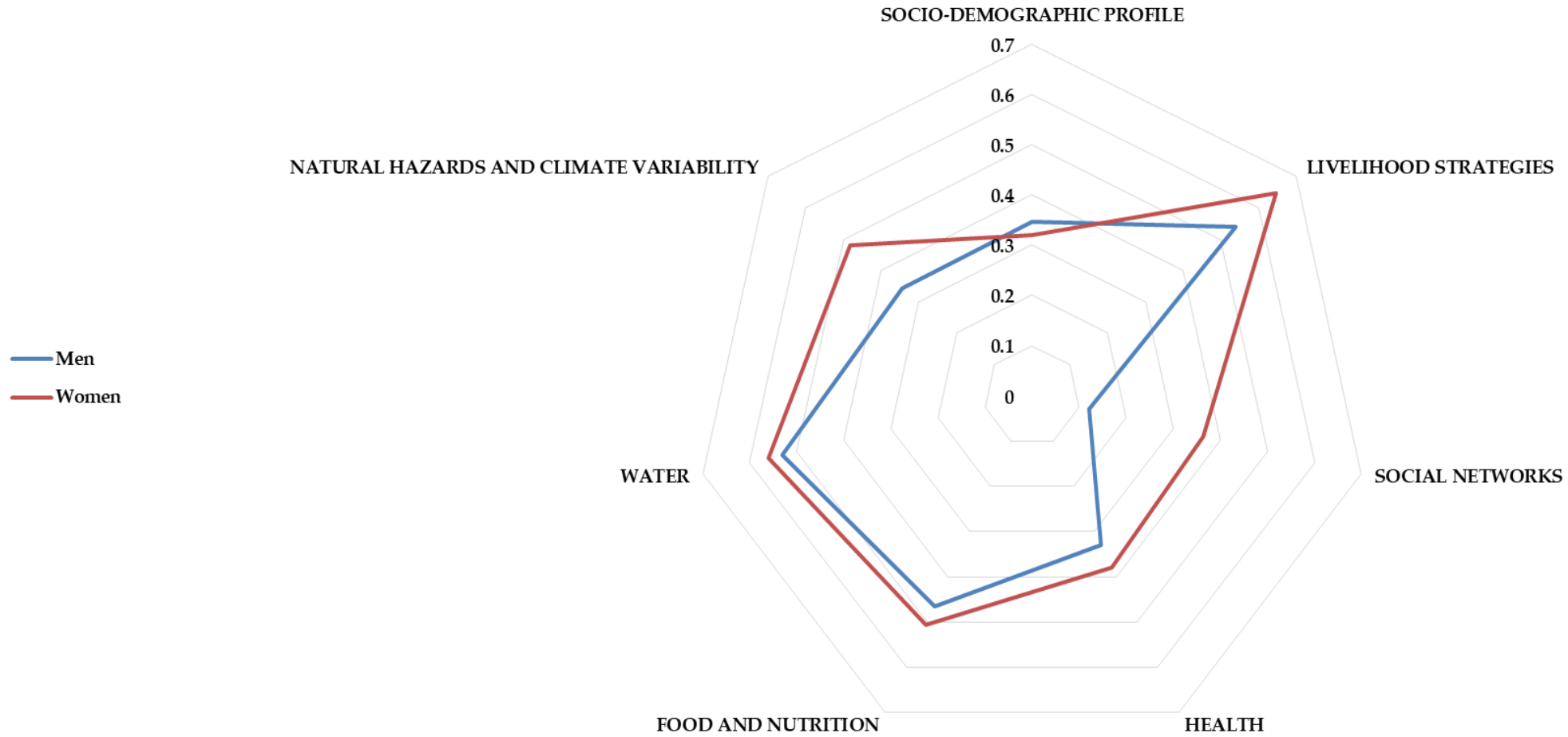


Figure 3: Vulnerability spider diagram of the major components of the livelihood vulnerability index (LVI) for men and women in REDD + sites, Cross River, State, Nigeria.





OBJECTIVE 2 (Cont'd)

Table 2: LVI-IPCC computed index with contributing factors and two-sample *t*-test results for gender categories in REDD+ piloted sites, Cross River state, South South Nigeria

Contributory Factor	Computed Index		Two—Sample <i>t</i> -Test	
	Men	Women	<i>t</i> -Value	<i>p</i> -Value
Exposure	0.344	0.482	-10.576	0.000
Sensitivity	0.463	0.489	9.753	0.000
Adaptive capacity	0.364	0.462	8.974	0.000
LVI-IPCC	-0.0093	0.0098	2.581	0.002

$$LVI - IPCC_{Men} = (e_{Men} - A_{Men}) * S_{Men} = (0.344 - 0.364) * (0.463) = -0.0093. \quad LVI - IPCC_{women} = (e_{Women} - A_{Women}) * S_{Women} = (0.482 - 0.462) * (0.489) = 0.0098.$$

LVI: men -0.0098. LVI: women 0.0098.



OBJECTIVE 3

Table 3: Indexed major components, core capacities and overall Livelihood Resilience Index of gender in REDD+ piloted sites, Cross River, Nigeria



		Gender			
		Men		Women	
Resilience capacities	Major component	Component value	Resilience score	Component value	Resilience score
Absorptive capacity	Natural disaster, climate change and variability	0.119	0.240	0.089	0.185
	Social network	0.485		0.377	
Adaptive capacity	Income and food access	0.589		0.584	
	Livelihood strategies	0.488	0.429	0.414	0.431
	Health	0.233		0.354	
	Water	0.508		0.490	
Transformative capacity	Socio-demographic status	0.337		0.354	
	Social network	0.408		0.252	
	Access to basic services	0.495	0.458	0.479	0.378
	Assets	0.452		0.356	



OBJECTIVE 4

Institutional arrangement for REDD+ implementation in Cross River State, Nigeria

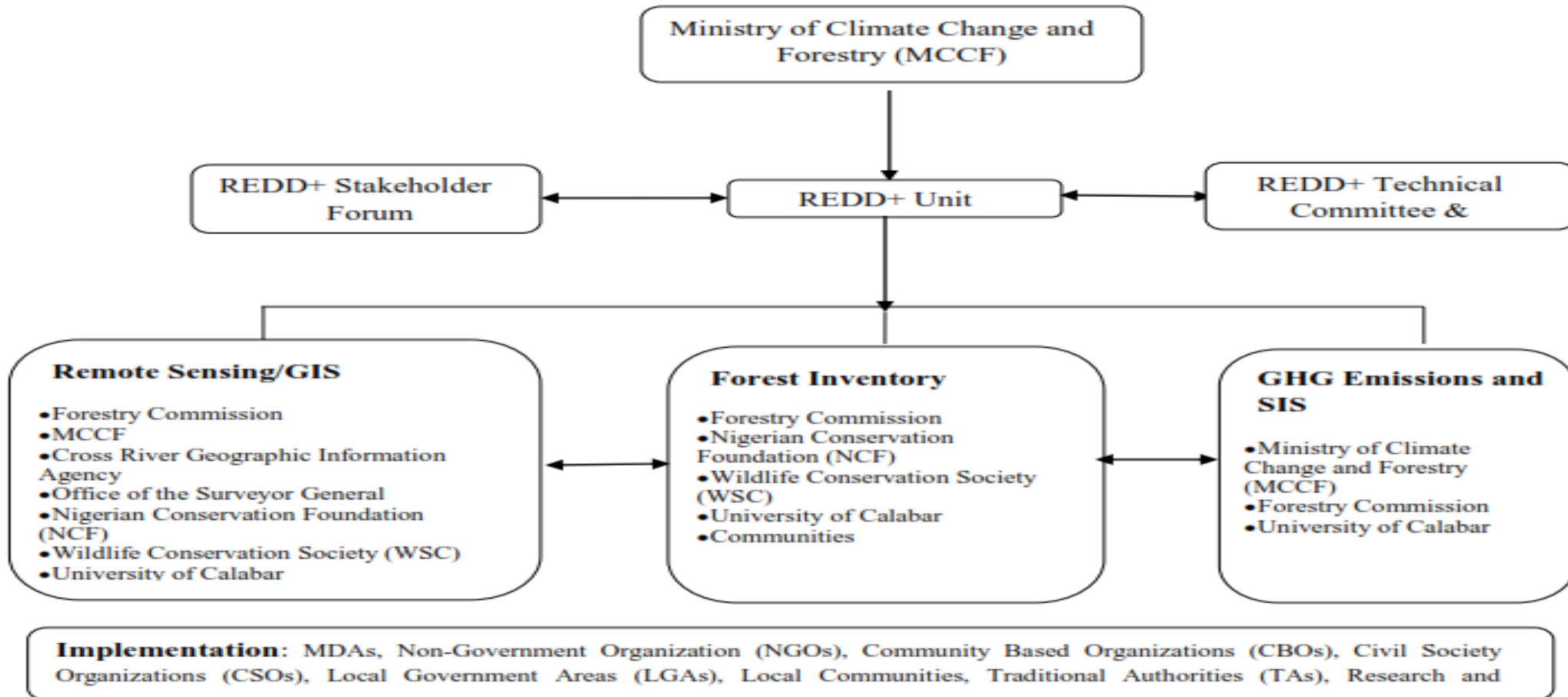


Figure 4: Institutional arrangements for REDD+ implementation at the study site (Cross River State)





OBJECTIVE 4

Table 4: Gender inclusion in REDD+ documents by level and language in Nigeria

Total number of documents analyzed: 270

Any level			Level 1			Level 2			Level 3		
Language	Number	% of total	Number	% of total	% of gender	Number	% of total	% of gender	Number	% of total	% of gender
English	95	100%	48	51%	40%	35	37%	19%	12	12%	7%





OBJECTIVE 4 (Cont'd)

Table 5: Level of inclusion by responsible agencies

	Any level	Level 1		Level 2		Level 3	
		Number	% at level 1	Number	% at level 2	Number	% at level 3
Intergovernmental	34	14	41%	15	44%	5	15%
National/Sub-national	23	10	43%	11	48%	2	9%
International NGO	32	18	56%	9	28%	5	16%
Business	6	6	100%	0	0%	0	0%
Total	95	48		35		12	





OBJECTIVE 5

Table 6: Gender Assessment of benefits associated with adaptive capacity measure and implementation in REDD+ piloted sites, Cross River state, Nigeria

Benefits	Frequency	Frequency	% Men	%Women
	(n) Men	(n) Women		
Project awareness	10	7	59	41
Bridge/culvert construction	5	0	100	0
Livelihood enhancement	7	3	70	30
Livestock production	8	4	67	33
No REDD+ benefits	11	13	46	54
Preservation of the forest	1	0	100	0
Social trust and togetherness	1	1	50	50
Training on conservation and sustainable forest management	2	1	67	33
REDD+ shirts	1	0	100	0
Mosquito nets	1	0	100	0
Good forest management for sustainability	2	0	100	0
Creation of knowledge of forest management	2	0	100	0
Land use plan techniques	1	0	100	0
The role trees play in storing carbon	1	0	100	0
Distribution of seedlings to plant on our farm	9	0	100	0
Grading of roads	1	0	100	0
Taken care of farm	1	0	100	0



OBJECTIVE 5 (Cont'd)

Table 7: Gender Assessment of challenges associated with adaptive measure and implementation in REDD+ piloted sites, Cross River state, Nigeria

Challenges	Men		Women		z proportion test indicator
	Frequency	(%)	Frequency	(%)	
1. Accessibility	30	78	8	22	***
2. Active participation	33	87	15	13	***
3. Benefit sharing	36	94	2	6	***
4. Community members were not carried along in decision making	34	89	4	11	***
5. Poor community organisation and planning	29	75	9	25	***
6. No idea	3	8	35	92	***
7. REDD+ project implementation	30	78	8	22	***
8. REDD+ project comes in phases	32	83	6	17	***
9. Logging	37	96	1	4	***
10. REDD+ blocked several livelihoods of the community	19	50	19	50	
11. No benefit derived from REDD+ project since inception	4	10	34	90	***
12. No community empowerment since inception of REDD+ project	34	90	4	10	***
13. No payment for community conservation since REDD+ initiative inception	37	97	1	3	***
14. No knowledge of REDD+ initiative	2	5	36	95	***
15. Inequality	2	6	36	94	***
16. No access to credit facilities for alternative livelihoods	3	9	35	91	***
17. No community development initiative	4	10	34	90	***
18. Source of revenue has been blocked	5	14	33	86	***
19. No youth empowerment	5	13	33	87	***
20. Only selected members of the community are involves in the REDD+ programmes	3	7	35	93	***

Asterisks indicate where there was significant difference between the gender categories (z—proportion test) at 95% (***) level of significance



OBJECTIVE 5 (Cont'd)

Table 8: Promising Institutional framework supporting sensitivity

Men

Promising framework

- Provision of succor materials in face of climate change impact
- Provision of alternative livelihood support
- Creation of public awareness about climate change
- Capacity building on forest management and impact of climate change
- Community development and empowerment programmes
- Conservation techniques on forest resources
- Creation of job and employment opportunities
- Educating people on alternative natural resources usage
- Practicing incentive agriculture
- Provision of infrastructural facilities
- Training and skill acquisition programmes

Women

Promising framework

- Provision of alternative livelihood strategies
- Creation of public awareness about climate change
- Conservation techniques on forest resources
- Creation of job and employment opportunities
- Provision of infrastructural facilities
- Practicing incentive agriculture
- Capacity building on forest management and impact of climate change





❖ DISCUSSION

Gender participation and decision making in REDD+ project and forest management

- ❖ Women participation, decision making and level of engagement in REDD+ project was low. This is an indication of gender imbalance in designing and implementation of the project.
- ❖ This is similar to Ise and Mariaty (2018) findings who reported that women are always excluded or mere represented when it comes to intervention programs such as REDD+





Gender Livelihood Vulnerability Index (LVI) and Climate Resilience Index (CRI)

- ❖ Women were more vulnerable to CC impact compared to men in livelihood strategies, food and nutrition, health, water, social networks and natural hazards/disasters components (Nong *et al.*, 2020)
- ❖ Men were more transformative in capacity due to proximity and access to schools, hospital, social capacity, assets and electricity (Frankenberger *et al.*, 2013)
- ❖ Men were also absorptive in capacity due to access to early warning systems, preparedness for climate induced shocks and capability to withstand the future induced-shocks. Ownership of large farms and livestock, and migration, among others might have empowered them in absorbing shocks better than women (Alston, 2014)
- ❖ Access to improved water, knowledge to resolve water related conflicts and livelihood diversification among women might have also be a significant factor in enabling them to adapt quickly to any climate related shocks. (Choden *et al.*, 2020)





Institutional level of arrangement in related to gender and REDD+

- ❖ Level three of the assessed documents showed that the lowest percentage of gender active inclusion was mainly from international organizations such as (UN-REDD) which demonstrate consistency.
- ❖ This implies that majority of agencies involved display less compliance with the gender mainstreaming guidelines in their documents while executing the REDD+ programs.
- ❖ This findings agrees with Yasmi *et al.* (2009), who reported that the representation of gender-related problems in REDD+ is insufficient.





Benefits sharing associated with adaptive measures implementation in REDD+ piloted sites

- ❖ Due to unclear criteria across gender divisions, the benefits sharing structure for REDD+ in Cross River State was met with a lot of skepticism and inequity.
- ❖ The inability to identify beneficiaries among REDD+ actors have led to the men predominance of all small benefits (such as project awareness, livelihood improvement, livestock production, preservation of the forest, training on conservation, distribution of materials such as (T-shirts and Face caps) among others (Luttrell *et al.*, 2012)





Challenges associated with adaptive measures implementation in REDD+ piloted sites

- ❖ Accessibility, active participation, benefit sharing, decision making, planning, awareness, among others were identified as the main challenges in REDD+ project implementation, particularly for women in the study area.
- ❖ This agrees with Corbera and Schroeder (2011), that understanding benefits and challenges between actors in decision-making at different spatial scales is required when looking at REDD+ from a governance viewpoint.





CONCLUSION

- ❖ The participation, decision making and level of engagement of women in the REDD+ project sites was weak (low) (**Procedural Justice**)
- ❖ Women are more vulnerable to the impact of CC (in terms of food, health, social networks, water, socio-demographic profile, natural hazards, and climatic variability major components)
- ❖ Climate Resilience Index (CRI) score showed that men were more transformative and absorptive in capacities of resilience than women.
- ❖ The literature and assessed documents related to **design and implementation** of REDD+ in Nigeria do not include the women in “**practice**” but at the level of “*tokenism*” or “*mere-representation*” (**Procedural justice**)
- ❖ The community members have very little knowledge about the project’s objectives, how they can participate, or process through which their representatives were selected and benefits sharing (**Distributive Justice**)





RECOMMENDATION

- ❖ This study recommends that tackling problems like climate change and its related justice should incorporate gender mainstreaming with maximum sincerity.
- ❖ This study emphasized the importance of embracing complexity of key actors with their different uniqueness in REDD+ design and implementation to address the **CLIMATE JUSTICE**.
- ❖ The study should serve as a “Baseline study” for other potential REDD+ states in Nigeria in terms of gender justice, livelihood, vulnerability and forest resources management.(Using 3Es of REDD+ : Equity, Efficient and Effective)





Key messages and policy implications

- ❖ Theoretically, this study builds on the argument and distinctive approach to the theory of justice that is explicit on the complexities of gender participation, decision making, vulnerability, resilience, institutional and actor arrangement, benefits and challenges within the context of REDD+ **design and implementation**.
- ❖ Debates about the dangers of gender segregation, livelihood, vulnerability, resilience, and adaptation of designing and implementing REDD+ mandate still persist.
- ❖ The study also makes a novel contribution to the broader literature on climate justice by bringing critical institutionalism and REDD+ together and discussing them around the concept of gender responsibility more explicitly.





- ❖ By implication, policies are supposed to be pieced together, negotiated and implemented in a gender bottom-up approach instead of gender-blind dominated top-down arrangement.
- ❖ REDD+ in its previous COP meetings, representatives have raised critical questions on how to solve problems such as benefit sharing and participation but they have not been addressed in this project
- ❖ The REDD+ proponents in Cross River State should understand that allowing gender-blind in resources allocation, decision making and overall governance arrangement will only stagnate the process and implementation further.
- ❖ The situation of REDD+ initiative in Cross River State, Nigeria does not follow set procedure in distribution of benefits and does not exercise justice as far as gender is concerned.
- ❖ Consequently, designing and implementing REDD+ mandate using gender lens will strengthen local governance arrangements and tap into conservation cultures that have been practiced for decades. **This is a huge opportunity moving forward.**





ACKNOWLEDGEMENT

- ❖ Sole appreciation goes to the African Forest Forum (AFF) team for providing funds through fellowship for this work: Many thanks to Professor Godwin Kowero, Professor (Mrs) Marie Louise Avana, Dr. (Mrs) Doris Mutta, Dr. Dayamba Djibril, Dr. (Mrs) Ojoyi Mercy, Dr. Daud Kachamba, Mrs Owuor Barbara and Mrs Kajuju Caroline. Thank you All !
- ❖ Appreciation also goes to my supervisors: Professor Olusegun Abiodun Oladoye, Professor Clement Adekunle Adetogun and Professor Hakim Oludare Adedeji for their supports and encouragement.
- ❖ Cross River State Ministry of Forestry and the support staffs, Thank you All!

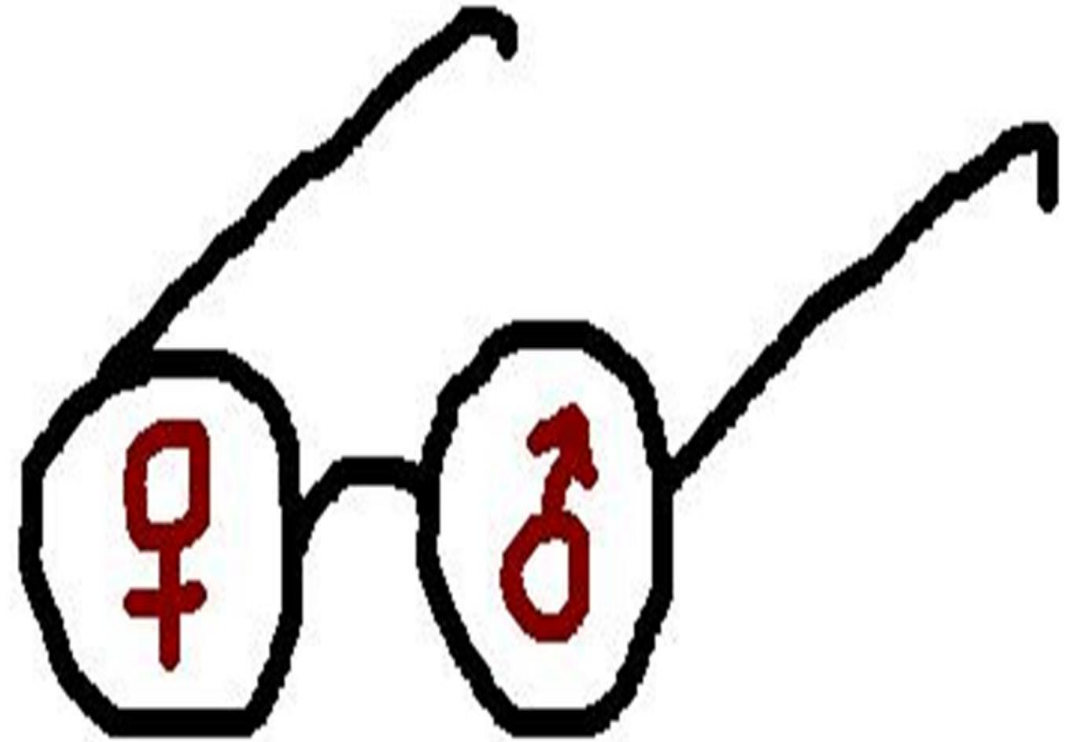




THANKS FOR LISTENING



Humanity is made up of two wings, one represents male and the other female. It will be difficult for a bird to fly with A WING.



Africa needs to wake up and put her gender analysis glasses in climate change mitigation and adaptation

