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Analysis of the enabling environment for delivering land degradation neutrality in Nigeria: perspectives from the sub-national to local level

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The discourse around the planning, monitoring, and assessment of land degradation neutrality (LDN) has been communicated strongly on global and national scales; however, there is relatively little information on the enabling environment that will support the achievement of LDN targets locally. Recognising the dearth of studies that apply the LDN concept at the local scale, this study investigated local stakeholders' perspectives on the progress towards, and challenges around, establishing the enabling environment for achieving LDN. It developed and used an extended LDN enabler framework that incorporates the gender component of LDN. The data for this study were collected from stakeholders from sub-national and local institutions concerned with LDN in Nigeria. The study findings indicate the presence of several relevant institutions and policy instruments to support progress towards LDN. However, this did not create an enabling environment for land users due to the lack of sufficient funding, weak systemic capacities of the relevant institutions, and the operational challenges for delivering policy incentives. Moreover, shortcomings in the regulatory framework give rise to land tenure insecurity and gender-biased land administration systems. Also, the findings indicate that entrenched traditional norms are a major challenge in achieving gender-balanced LDN outcomes. The extended LDN-enabler framework developed in this study will extend the scope of future studies examining progress toward LDN at regional and local scales.

Keywords: land degradation; land degradation neutrality; sustainable land management practices; stakeholders' assessment; enabling environment; Nigeria

1. Introduction

At the global scale, land degradation remains a major environmental concern for the agricultural sector, with negative consequences for food security and the livelihoods of land-dependent communities (Montanarella *et al.* 2016). In recognition of the need to prevent continuing global land degradation and promote the restoration of already degraded land areas, the United Nations Convention to Combat Desertification

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(UNCCD) set out the Land Degradation Neutrality (LDN) agenda (UNCCD 2016). The LDN concept is defined as a “state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystem” (UNCCD 2016). The innovative aspect of achieving “neutrality” as a goal particularly distinguishes the LDN concept from past efforts to address land degradation. The state of neutrality can be achieved when the anticipated loss of land is countered by a combination of sustainable land management (SLM) and restoration activities that leads to equivalent gains in land area (Orr *et al.* 2017). Three main indicators for planning and monitoring progress toward LDN, according to the UNCCD are: (i) land cover, measured in terms of land cover change through land conversion; (ii) land productivity, measured by assessing the net primary productivity (NPP) of the land; and (iii) carbon stock, an indicator for soil organic carbon which captures biomass change (Orr *et al.* 2017).

From a technical perspective, achieving LDN in agricultural landscapes is feasible, given that agricultural-based SLM practices can potentially provide cross-cutting contributions to the three core LDN progress indicators (see [Appendix A \[online supplementary material\]](#)). Yet, achieving the widespread adoption of these SLM practices by agricultural land users remains a significant challenge. As highlighted by Akhtar-Schuster *et al.* (2011) decisions about land management are influenced by a broad range of actors, ranging from local land users to national land administrators. Without an enabling environment where SLM and restoration activities have a higher chance of being successfully implemented, progress towards LDN may be slow (Akhtar-Schuster *et al.* 2011). In an SLM/LDN enabler framework, Akhtar-Schuster *et al.* (2011) and Verburg *et al.* (2019) conceptualise five contextual factors: institutional, financial, policy, legal and the science-policy interface, which together comprise an enabling environment within which to achieve progress towards LDN. These contextual factors address a range of important issues that should be considered when implementing LDN.

This framework has been applied in previous studies (Akhtar-Schuster *et al.* 2011; Abbas *et al.* 2022; Allen *et al.* 2020; Speranza, Adenle, and Boillat 2019; Verburg *et al.* 2019) to help assess the enabling environment for LDN in countries committed to the UNCCD LDN target-setting process. These studies have revealed several challenges in realising the five key components of an enabling environment for LDN including: fragmented and weak policies; inadequate implementation of neutrality mechanisms in land-use planning; insecure land tenure/rights; a lack of political will and weak national commitment, often linked to insufficient awareness of the LDN concept; inadequate coordination; limited scientific knowledge and understanding on the part of policymakers; limited distribution of research outputs; limited institutional channels connecting knowledge from science into the policymaking space; and difficulty in securing finance for LDN. While these studies also recommend actions to develop enabling environments that could accelerate the national implementation of LDN, they tend to ignore the specific challenges of implementing LDN at sub-national and local levels where most of the support for SLM is delivered. It has been argued that studying the implementation of LDN at the local level is necessary to inform the design of policies to support the achievement of LDN (Crossland *et al.* 2018).

Therefore, the main objective of this study is to analyse the progress towards, and challenges around, establishing an enabling environment for achieving LDN in Nigeria

based on the experiences and insights of land managers and stakeholders from sub-national and local institutions concerned with LDN. This study contributes to the LDN literature in the following ways. First, it extends the work of Speranza, Adenle, and Boillat (2019) which is the only study to examine the feasibility of LDN in Nigeria. Moreover, unlike their study, which is based on the review and analysis of existing LDN-related laws and national policy documents, the methodological approach adopted here is based on a theory-driven analysis from the perspectives of key stakeholders regarding the enabling environment required to achieve LDN. This study's methodological approach responds to the increasing need to incorporate the perspectives of local actors into the monitoring and assessment of LDN, given the frequent mismatch between the intentions expressed in national policies and their implementation on the ground (Pagella and Sinclair 2014). Similarly, from a social science standpoint, examining the lived experiences of local stakeholders helps to uncover information about locally specific challenges and opportunities for progress towards LDN, which can be used to complement the existing scientific efforts devoted towards monitoring and reporting LDN at the global and national scales.

Finally, this study contributes to the LDN enabler framework by identifying various themes capturing stakeholders' perspectives about "gender mainstreaming" which should play an important role in shaping the enabling environment for LDN but is not included in the existing LDN enabler framework. When emphasising the importance of gender mainstreaming as an enabling condition for LDN, this study's arguments are premised on the established strong connection between gender, land degradation, and land restoration initiatives in the extant literature (Okpara, Stringer, and Akhtar-Schuster 2019; Collantes *et al.* 2018). These studies indicate that gender is a relevant area of concern for LDN implementation. This is because tackling land degradation hinges largely on addressing gender inequalities in land property rights, opportunities for accessing key resources, and participation in decision making around land improvement (Okpara, Stringer, and Akhtar-Schuster 2019; Collantes *et al.* 2018). Thus, integrating an understanding of the role of gender in LDN plans is fundamental to achieving LDN targets, as well as leveraging the potential synergies that exist between LDN and other sustainable development goals (e.g. SDG 5). Therefore, this study argues that gender is an important addition to the LDN framework. The extended LDN enabler framework developed in this paper will extend the scope of future studies examining progress towards LDN at regional and local scales.

This paper is structured as follows. The next section presents the extended LDN enabler framework, while Section 3 presents the study methodology. Section 4 presents the results of the study and Section 5 discusses the results. Section 6 reports some of the study's limitations and makes suggestions for future research. Finally, Section 7 concludes the paper.

2. Extended LDN enabler framework

Based on the review of relevant literature relating to LDN, and the inductive thematic analysis of data from this study, the sub-dimensions of the LDN enablers were modified to fit the sub-national and local context of the study. The extended LDN enabler framework presented in Table 1 describes several aspects that should be considered to improve the likelihood of the successful achievement of LDN and consists of six dimensions.¹ This framework was used as a benchmark for the

Table 1. Extended LDN enabler framework.

Key/sub-dimensions	Descriptions
1. Institutional Environment	
i. Bottom-top and Participatory approaches	Structures for stakeholders, including the local land users, to co-design and implement SLM practices. Mechanisms for a two-way communication system between stakeholders. Structures in place to test the compatibility of SLM practices to local land users' contexts before scaling up.
ii. Coordination and collaboration	Systems in place for horizontal and vertical coordination/collaboration across and between upper (federal level) and lower (sub-national/local land users) level institutions. Lead agency responsible for LDN at the national and regional levels across the country.
iii. National political commitment to LDN/ SLM projects	High level of interest and commitment of the national government to tackle land degradation through policies and strategic plans, clearly defined targets and priorities. High level of interest and commitment of the national government towards research activities to enable evidence-based research output, and the implementation of specific projects based on evidence.
iv. Institutional capacity	Strong institutions to support planning, promoting, implementing, monitoring, and enforcing SLM/LDN initiatives at all levels.
2. Finance	
v. Finance and budgeting for SLM/LDN operations	Ring-fenced funds in the national budget for SLM. Public funding to support the operation of institutions directly and indirectly involved in delivering SLM/LDN related projects and activities. Extra sources of finance for SLM/LDN implementation (e.g. operations, supervising, assessment, etc.); donor funding, blended public-private financing.
3. Political framework	
vi. Market-based policy instruments	Market-based policy instruments (such as tax incentives, grants, credit, and payment for ecosystem services) to incentivise land users to manage land resources sustainably. Effective implementation, monitoring, and enforcement of policy instruments.
vii. Non-monetary policy instruments	Non-monetary assistance such as providing technical support for SLM implementation through the farm advisory services.

(Continued)

Table 1. (Continued).

Key/sub-dimensions	Descriptions
4. Legal/Regulatory framework	
viii. Land governance	Land tenure security: rights to use; access; control and transfer land for both male and female land users. Governance of land use and ownership – traditional/statutory land ownership structures; rental contracts – duration and documentation; land registration process – formal and informal land markets. Land grabbing by speculators.
ix. Gendered tenure insecurity	Land tenure security skewed in favour of male land users.
5. Mainstreaming scientific knowledge into the policy arena	
x. Science and policy interaction	Awareness of LDN concept; Mechanisms for channelling research knowledge to the policy arena; Political buy-in for SLM-related activities; Consideration for incentivising uptake of science by policymakers; Effectiveness of science knowledge in influencing policies at the national level; Consideration of technical and systemic capacities of policymakers.
6. Gender mainstreaming	
xi. Gender sensitivity	SLM and LDN interventions are sensitive to the different needs of each gender group.
xii. Women empowerment	Mechanisms in place to tackle patriarchal traditions and culture that affect the equal treatment of male and female land users and their equal opportunities to access resources and support services. Women empowerment initiatives.
xiii. Gender representativeness	Gender representativeness in group formation; gender recognition in decision-making processes at all levels; gender quota systems.

subsequent thematic analysis. See [Appendix B \(online supplementary material\)](#) for a detailed review and discussion on the components of the extended LDN enabler framework.

3. Methodology

3.1. Study area

In Nigeria, LDN has become a priority in the development agenda following the country's commitment to the UNCCD process to address land degradation through setting voluntary LDN targets to be achieved by 2030 (Nigeria-LDN-TSP 2018). In 2018, Nigeria identified 13 states which are "hot spots" of land degradation. In the southeast (SE) region of Nigeria, Imo and Anambra states were among the areas identified

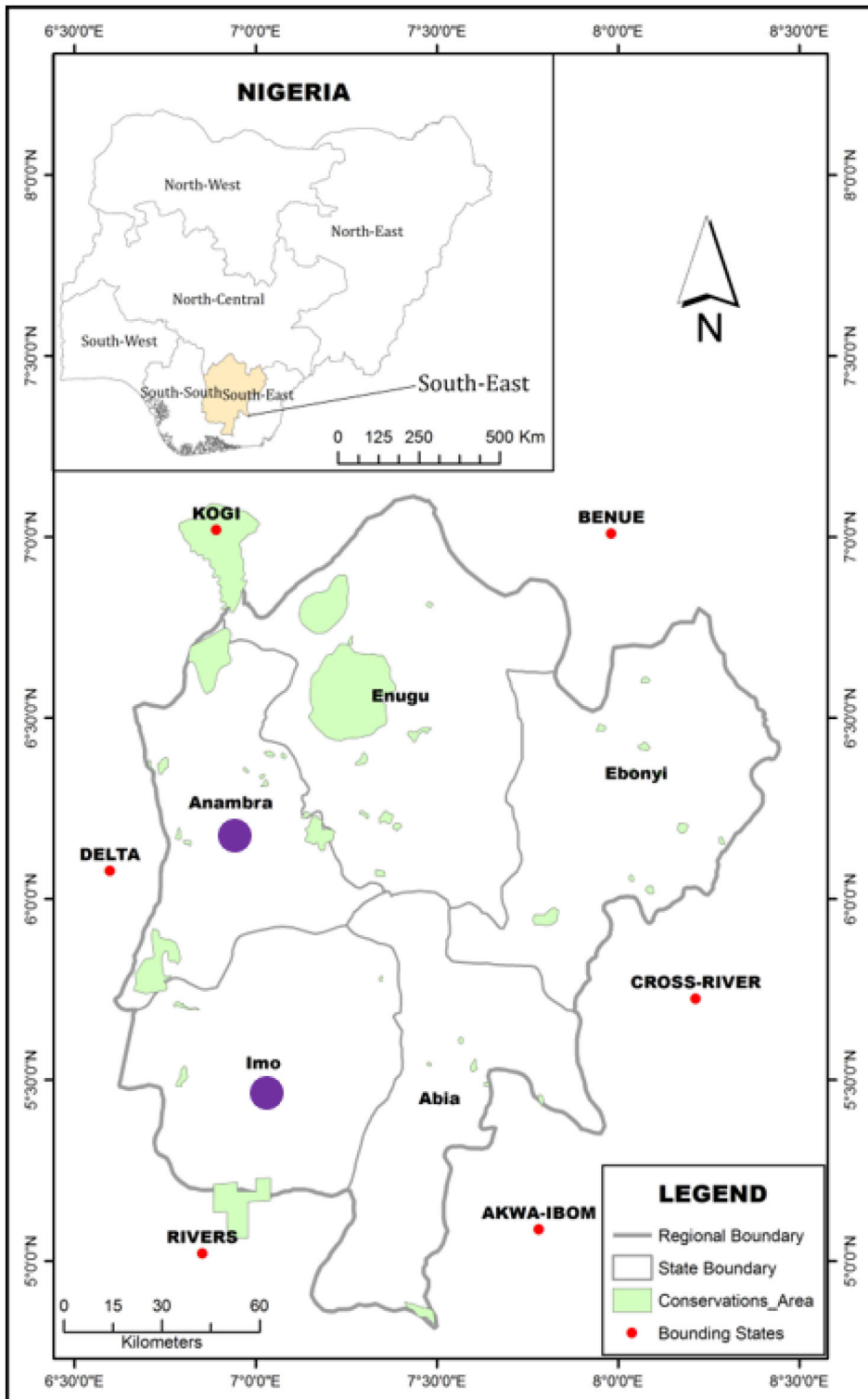


Figure 1. Map of the study area showing study locations.*

Note: Map of Southeast region of Nigeria showing the sampled states – Anambra and Imo (inset: Nigeria showing the Southeast region). The study locations are denoted by purple circles. Colour online.

(Nigeria-LDN-TSP 2018) and were chosen as this study's focus areas (Figure 1). Imo and Anambra states most commonly suffer land degradation through soil erosion, leading to a decline in soil fertility. Oguike and Mbagwu (2009) explain that the soils in Southeast Nigeria are naturally prone to erosion and leaching due to their fragile nature. Igwe and Egbueri (2018) further explain how intense surface runoff, bare vegetation, and anthropogenic activities in these regions can also result in soil erosion. The land degradation challenge for these areas presents a significant threat to the welfare of the majority of people in the region who depend largely on subsistence agriculture for their livelihoods and food security (Okorafor, Akinbile, and Adeyemo 2017). The adoption of SLM practices to avoid soil erosion is an important measure for addressing land degradation and achieving LDN in the region (Nigeria-LDN-TSP 2018). Having identified solutions to the land degradation challenges, there is a need to analyse the enabling environment for SLM implementation and to measure the progress and challenges to date, to draw out lessons about what works and what does not. Such insights will be helpful to inform policy actions to support land users to implement SLM practices and achieve LDN in the region.

3.2. Study methods, sampling, and data collection

3.2.1. Semi-structured interviews with stakeholders

Semi-structured interviews were used to capture the views of key stakeholders on the progress towards, and challenges around, establishing the enabling environment for achieving LDN. Within the field of participatory natural resource management research, semi-structured interviews are acknowledged to provide an effective approach for carrying out stakeholder analysis of a specific phenomenon, and for producing data with significant depth and richness (Reed *et al.* 2009). In terms of sampling, study participants were selected using a strategy based on convenience sampling using both purposive sampling and snowballing (Robinson 2014). Purposive sampling was employed to select key stakeholders who are both knowledgeable about agricultural land management issues in the region and willing to discuss them. Snowballing was used to ensure that the sample reflected a broad range of perspectives and involved asking interviewees to identify other organisations with an interest in achieving LDN (e.g. non-government organisations – NGOs). Table 2 shows the different stakeholder groups involved in the study.

Interviews with farmers and community leaders were done in person, while interviews with stakeholders at the state level were conducted by telephone. The choice of remote interviews was influenced by the ban on international travel resulting from the COVID-19 pandemic at the time of the research. Remote interviews are gaining recognition as a potential alternative mode of data collection when it is practically impossible to conduct in-person interviews (Saarijärvi and Bratt 2021). The telephone interviews were undertaken between September to November 2021, while the in-person interviews were conducted between January and February 2022. Interviews lasted on average for 50 minutes. An interview schedule was designed and adapted for the different stakeholder groups (Appendix C [online supplementary material]). The initial interview schedule was critically evaluated by the research team. This process helped to remove ambiguous and leading questions and also minimised the potential for interviewer bias, which improved the credibility of the study results (Kallio *et al.* 2016). Also, two pilot interviews were conducted with an extension agent and a fellow

Table 2. Number and groups of stakeholders involved in the study.

Category	Stakeholder group	Organisation	Number	Participants number	
State-level	Scientific community	Resource and Environmental Policy Research Centre, (REPRC) Environment for Development ⁵	2	P1–P2	
		Nigerian Environmental ² Study Action Team (NEST)	1	P3	
	State Ministry of Agriculture and Rural Development	State Ministry of Agriculture and Rural Development ^a	1	P4	
		Women in Agriculture (WIA) ^{a and b}	3	P5–P7	
	State Agricultural Development Programme (ADP)	Extension Agents (EAs) ^{a and b}	4	P8–P11	
		ADP staff ^a	2	P12–P13	
		Nigeria Erosion and Watershed Management	2	P14–P15	
		Project (NEWMAP) ^{6 a and b}	1	P16	
	Local/landscape level	Key informants/Residents	Foundation for Livelihood Advancement ^a	1	P17
			Sasakawa-Global 2000-Nigeria ^b	1	P18–P27
Key informant farmers ^{a and b}		10	(5 males and 5 females)		
Total	Community leaders ^{a and b}	2	P28–P29		
			29		

Note: ^aImo state; ^bAnambra state.

researcher, which exposed the interview schedule to further scrutiny, leading to additional improvements (Kallio *et al.* 2016). With the participants' consent, all interviews were audio-recorded and transcribed verbatim for data analysis. Ethical approval was granted by Newcastle University's Ethics Committee – Ref: 16628/2018.

3.3. Data analysis

Data analysis was conducted following the steps recommended for thematic analysis by Braun and Clarke (2006) using NVIVO software (version 12) by QSR International. The analysis combined a deductive approach led by theoretical concepts (that is, the extended LDN enabler framework), with an inductive approach that was sensitive to the participants' views and experiences. The data analysis process included familiarisation with the interviews through transcribing them and reading and re-reading each transcript. Following data familiarisation, the data were coded using a codebook that had been developed for the study. This enabled the systematic application of codes to transcripts; and also improved the rigour of the data analysis (Oliveira 2022). See [Appendix D \(online supplementary material\)](#) for a reflection on the codebook generation.

4. Results

This section presents and discusses the interview findings based on the six themes of the extended-LDN enabler framework. Quotes from participants are included to provide a sense of the richness of the narratives produced by participants. Where quotes are provided, interviewees are identified by their participant number e.g. P1 for Participant 1 (see [Table 2](#)).

4.1. Theme 1: the institutional component of the enabling environment

Responses suggested that the consequences of soil degradation and the problems of promoting the implementation of sustainable land management practices (SLMPs) are well recognised at all levels and across the stakeholders' institutions. Moreover, the interviews indicated several important historic and ongoing collaborations between stakeholders across and within levels (see [Appendix E](#) for details [[online supplementary material](#)]). For example, the participants from the ADP indicated that their partnership with the National Root Crops Research Institute was important for the wider dissemination of SLMPs to farmers. Likewise, the partnership between the World Bank supported Nigeria Erosion and Watershed Management Project (NEWMAP) and community groups helps to ensure the sustainability of land intervention projects after the completion of the project.

According to one participant:

We work hand-in-hand with the ADP because they know the farmers, the terrain and land. Also, we work with them so that even if the project stops the farmers can continue. (P16)

Also, the interviews indicated the establishment of several mechanisms, such as policy workshops, seminars, on-farm adaptive research, on-farm demonstrations, and

stakeholder meetings (e.g. Research Extension-Farmer-Input Linkage System (REFILS), to foster collaborative working between stakeholders. For example, REFILS is a platform connecting research scientists and extension staff to farmers. The primary role of this platform is to support an enabling environment for bottom-up and participatory approaches and facilitate dialogue with the end-users of the SLMPs. However, when participants were asked about the efficiencies and capacities of these platforms, they reported that meetings and activities based around them are infrequent and had not been as functional as they could have been, chiefly due to a lack of funds. The failure to have adequate funding to support enabling activities, particularly those of the state extension services, implies inadequate commitment from the government to support land restoration activities at the state level.

Furthermore, some of the participants highlighted that, in many instances, collaborations and discussions about SLMPs do not translate into concrete activities or project implementation. Other participants highlighted the existence of various initiatives to address land degradation and promote SLMPs; however, the lack of strong institutions to take action meant that such initiatives are not always carried out.

According to P3:

There is a multiplicity of projects that touch on SLMPs, but several of them are not implemented. (P3)

P2 added that:

There are policies but there are no institutional guidelines or mechanisms to make sure that those policies are implemented. (P2)

4.2. Theme 2: the financial component of the enabling environment

The study found that institutions (e.g. NEWMAP and the Resource and Environmental Policy Research Centre (REPRC) that receive funds from international agencies, such as the World Bank, were relatively financially well equipped to carry out their operations. For example, a participant from the REPRC stated:

Because we receive some funds from the Swedish international agency and sometimes from the World Bank, we have some funds to organise policy meetings based on our research output under the network. So, the centre doesn't rely on the government for money; we bring the knowledge and the policy issues to them [government], and now they begin to cooperate and work with us. (P1)

Nevertheless, P2 from REPRC complained of the need for extra funds to cover engagement and demonstration of the research findings to local stakeholders, as the funding they receive does not cater for these activities. Other financial challenges identified by participants include attracting external funds or grants, especially in the context of a global recession. Furthermore, participants whose institutions are dependent on state or federal government funding reported a lack of funding to finance activities such as collaborations among stakeholders, research to inform policy, and strengthening the operational capacities of stakeholders. In particular, the ADP officials who are responsible for delivering information on SLMPs to land users, report that the funding they receive is insufficient to cover operating expenses, such as travelling to meetings

and visiting farms, and consequently they are unable to carry out their operations effectively.

Some of the participants (scientific researchers and NGO staff) linked inadequate funding to the general lack of commitment shown by the government and the difficulty in gaining the interest of the government in research on SLM initiatives that could be used to inform future policy. Meanwhile, one of the participants from the ADP argued that fund mismanagement and dishonest dealings within the ADP have further compromised the financial environment for promoting SLMPs. P10 stated that:

Whenever the department receives donor funding, such support is not used effectively if the sponsoring agencies don't follow up. (P10)

Beyond the funding gap, this study found that operational challenges have also hampered the effectiveness of agricultural financing schemes set up by the federal government, such as the Anchor Borrowers Programme and the Growth Enhancement Support Scheme (GEES), which are important for improving the financial enabling environment for LDN. As a consequence, farmers are often unable to obtain financial support such as credit and subsidised inputs. Some of the participants accused operators of the financing schemes of mismanagement in terms of the poor arrangements that exist for accessing and repaying loans and the delays they have experienced in receiving subsidised inputs.

4.3. Theme 3: the political component of the enabling environment

The interview findings confirmed the existence of several policies to incentivise land users to implement SLMPs; however, this did not create an enabling environment for land users. For example, some of the participants stated that the effective implementation of market-based policy instruments, such as the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending,² which is important for de-risking SLM investments has been hampered by several factors. These include the slow processing of loan applications and approvals, the additional costs incurred in accessing and processing loans, low levels of literacy among farmers meaning that some are unaware of the availability and source of loans, and the poor attitudes of some farmers towards loans, reflecting their fears about being unable to repay them.

Furthermore, concerning incentives in the form of input subsidies to encourage the adoption of some SLMPs, most of the farmers interviewed complained about not receiving grants and subsidies towards input costs, while the few farmers who had received support, reported that the help they received was inconsistent and unreliable. Farmers further reported that so-called "political" farmers³ hijack agricultural inputs and prevent the rightful beneficiaries (active farmers) from accessing them.

One of the female farmers interviewed stated that:

When they used to share it [agricultural inputs] both men and women got it but now some political farmers [not the real farmers] have hijacked it. When the inputs come, the real farmers like me will not be aware of their arrival, let alone get anything. Later on, we would see these inputs at the markets. Some of them [input hijackers] will bring them to the market to sell and the real farmers will have to buy from them. (P26)

Additionally, in terms of non-monetary policy incentives, most of the interview participants raised concerns over the poor quality of extension delivery and the technical assistance provided to farmers to support their efforts in implementing SLMPs, which subsequently resulted in them remaining reliant on their traditional unsustainable land-use systems. One of the female farmers interviewed stated that:

It is a challenge to contact them (extension agents). They do come but not always. Mostly when we need them, we won't see them. We are supposed to have access to them whenever we need them but that is not the case here. (P25)

4.4. Theme 4: the legal component of the enabling environment

The interview participants complained about the high cost of land, coupled with the costly and bureaucratic land registration process, which has not only prevented farmers from becoming landowners but has also led to the prominence of informal land markets. Additionally, responses from the participants suggest that because of the high cost of land in the area, it was common for farmers to operate on rented land, and in most cases, the associated tenancy agreement is on a short-term annual basis. According to participants, this annual lease arrangement acts as a disincentive to implement certain SLMPs that require a long-term investment, especially where farmers are uncertain about their right to use the land in future years. A male farmer stated:

There are some landlords who will rent out their land to you, but they will tell you that it's per annum. We will agree to this because we cannot buy our own land. Next year they will give another person the land. So, there will be no time to fallow the land and that means yields will not be good. (P18)

As another male farmer explained:

It is not possible for a landlord to allow you to plant trees because you cannot plant trees and harvest the next year, so it is not acceptable. (P20)

Furthermore, the interviews suggest that the law is unable to protect the land rights of marginalised groups, such as women farmers. Land administration in the study area is still governed by traditional institutions that apply customary rules and practices that are biased against women.

A community leader stated:

If a woman wants to acquire land for farming, she will go through her husband or any other male relation or friend. She will not go directly to meet the land committee. She can only go with a man to meet the committees that are in charge of the land. That is in accordance with the culture and the custom of the community. (P28)

Most of the participants argued that it is not easy for women farmers to gain access to land directly; rather their access to land is dependent on a male family member such as husbands, brothers, or brothers-in-law. One of the female respondents, who acquired land through her husband, shared her experiences. She stated:

I farm on my husband's farmland; I do not have my own. His family can easily take it from me. But most male farmers farm on their own lands. It's almost impossible for the land to be taken away from them. (P23)

4.5. Theme 5: the science-policy interface component of the enabling environment

Only national-level stakeholders from NEST and REPRC reported that they were aware of the LDN concept; however, they also indicated that they were indirectly involved with LDN activities through participating in events such as workshops, seminars, or meetings organized by ministries at the federal level. On the other hand, participants at the state level were unaware of the concept. This may be due to the study's limited focus on agricultural land stakeholders at the state level. Also, the lead government organisations concerned with LDN are the Federal Ministry of Environment (FME) and the FMARD, which may explain why the LDN concept may be less well-known at lower levels of government. Moreover, even though the southeast region of Nigeria was identified as a hotspot of land degradation by the LDN working group, some participants held the view that LDN activities are mainly undertaken in more arid regions of Nigeria, due to the prominence of LDN-related projects there.

In terms of communication channels, interviews suggested that existing methods of communicating scientific knowledge to policymakers include policy briefs, engagement in advocacy activities, social media, sensitisation meetings, and policy workshops. The study participants (i.e. the scientific researchers) considered these channels to be generally effective. Moreover, respondents from the scientific community highlighted that perceived or existential problems, as well as gaps in the policy space, influence the direction of the research they undertake. This policy-driven research provides an enabling environment for SLM.

In terms of the influence of scientific research on policymaking, the interviews suggested that research outputs from the scientific community have led to the formulation of policies in Nigeria, such as the National Climate Change Policy. However, this has not been without its challenges, such as attracting government interest in funding research for evidence-based policies, and the relatively limited progress in the acceptance of scientific knowledge in policymaking at the national level. Some of the participants highlighted systemic obstacles to linking scientific knowledge to political processes around land degradation and SLM at the national level. Interview responses highlighted perceived problems around the inaccessibility of politicians, excessive bureaucracy, politicians' unwillingness to integrate subject-matter experts from universities and research institutes into the policy process, inadequate political will, uninformed government functionaries, lack of systemic capacity, limited efforts by scientists to disseminate research findings, and inadequate resources to ensure proper channelling of scientific research results for government decision-making. P3 stated that:

Initially there could be enthusiasm, but along the line, you find signs of being overwhelmed with what has to be done and with such research information and activities. (P3)

Also, P2 argued:

Our challenge is administrative bureaucracy in terms of getting appointments and attending workshops. Also, politicians lack will power, we need to keep pushing before anything can be achieved.

4.6. Theme 6: the gender mainstreaming component of the enabling environment

This theme refers to that part of the enabling environment that is gender inclusive and responsive. Overall, good progress was evident in terms of gender inclusiveness in actions promoting SLMPs. The results show that most of the participants acknowledged the close link between gender and agricultural land management and they recognise gender-based challenges in their activities, as well as the importance of involving women in SLM-related projects.

The research centre generally considers gender. Gender and poverty are cross-cutting issues, all projects to be funded must consider gender and poverty. (P1)

We insist that cooperatives cannot be formed without women, we also stipulate that women must be in key posts, e.g., being secretary of the groups. (P13)

The interviews also showed that the activities of the study participants, such as those from the NEWMAP and ADP, were geared towards financially empowering women by supporting them to participate in alternative livelihood opportunities, with the hope that if they are financially empowered, they can abandon agricultural practices that lead to erosion and embrace more SLMPs. Also, the Women-in-Agriculture wing of the Agricultural Development Program (WIA ADP) work to enhance the opportunities for women to access male-owned resources, as well as other privileges usually enjoyed by men, by ensuring that, where necessary, men are available to act on behalf of women in land procurement transactions.

One of the participants from the WIA ADP stated:

We deal with women but, in our group, you will find one or two men, who are patrons. We have them so that when they [women farmers] need to procure land they will have people to do it for them. (P6).

Also, the interviews indicated how donor agencies can contribute towards gender equality in LDN initiatives. For example, officials of the World Bank-sponsored project NEWMAP pointed out the donors' insistence on gender inclusiveness in all the operations of the project. NEWMAP caters for the differentiated needs of each gender group through the formation of gender-based community interest groups (CIGs). According to P15:

We perform our activities in such a way that women are not excluded from benefiting from our livelihood enhancement activities. For example, we have a female cassava processing CIG, a male processing CIG, and one for young people as well. We do livelihood assessments to determine what the women are more interested in. (P15)

Furthermore, an interview with an NGO employee suggested that there is also recognition of the differing status of women, such as women without husbands. According to P16, it is more difficult for widows to obtain land, so they are financially supported to gain access to land for farming. In general, a key observation made during the interviews with the study participants is that there has been good progress towards gender equality and gender norms in many areas; however, this does not include issues that are rooted in traditions and customary norms, such as traditional inheritance rights to land.

As one of the respondents from the WIA ADP put it:

When it comes to gender issues, I tell you the truth – the situation has changed, it is no longer what it used to be. In most of the activities they now involve women, apart from the land issues which they have to discuss within their communities, there is no other area of bias. (P7)

P16 stated that:

Land allocations are in the hands of the community leader, who allocates land mostly to men. This is what we have been advocating to change. (P16)

Furthermore, the interviews indicated how actions by NEWMAP to reduce gender inequalities can be hampered by women who, out of respect for traditions and socio-cultural norms, give up their rights to NEWMAP's compensation for project-affected individuals⁴ to their husbands. For example, P14 stated that:

Most of the women will want you to register the name of their husband if their husband is alive. This is because they want to follow the culture of the land. If you do otherwise, they will say – do you want to kill my husband? Do you want to write my name when my husband is alive? (P14)

5. Discussion

The discourse around the planning, monitoring, and assessment of LDN has been communicated strongly on global and national scales; however, there is relatively less information on the enabling environment that will support the achievement of LDN targets locally. Recognising the dearth of studies that apply the LDN concept at the local scale, this study explored the perspectives of key actors regarding the progress towards and challenges around establishing an enabling environment for achieving LDN. During the interviews, participants indicated the establishment of several mechanisms to foster collaborative working between land stakeholders, which according to De Vente *et al.* (2016) is important for supporting land management efforts and building an enabling environment for SLMPs to achieve LDN. However, as indicated by the study participants, this did not create an enabling environment for land users due to the lack of sufficient funding, weak systemic capacities of the available institutions, and the operational challenges for delivering policy incentives. This finding aligns with that of Akhtar-Schuster *et al.* (2011), suggesting that the effectiveness of institutions may be constrained in some developing countries due to their heavy emphasis on plans and structures rather than on execution, which limits the successful mainstreaming of SLM. This study's results show that an important next step would be strengthening the monitoring and enforcement capabilities of relevant institutions so that they can contribute more effectively towards LDN implementation.

Regarding the financial component of the enabling environment for LDN, there was consensus among participants whose institutions rely on government funding, about the difficulty in accessing such funds and the inability of government funding to adequately finance activities to advance LDN. This finding aligns with the literature, suggesting that public funds earmarked for research in Nigeria are inadequate (Baro, Bosah, and Obi 2017). Similarly, Michael, Karniliyus Tashikalma, and Maurice's (2018) study in Nigeria reported that the late release of funds by the government hampered the effectiveness of the Growth Enhancement Support Scheme designed to support local land users. Other studies analysing the progress of the enabling environment

for LDN also report problems with financial support (Allen *et al.* 2020). Given that adequate funding is crucial for the achievement of LDN, and particularly for incentivising local land users to adopt SLMs, problems with accessing funding can result in low morale among stakeholders and further weaken their role in tackling land degradation. To augment public finance for LDN, Dallimer and Stringer (2018) argued that increased donor funding and private financing are necessary to complement underfunded government budgets for land management and restoration activities. Also, the operational challenges in the delivery of financing schemes mean that more dedicated and coordinated efforts are required for their implementation to ensure that beneficiaries get the most out of them.

Furthermore, in terms of political enablers for LDN, the interview findings reveal that shortcomings in the political environment were not due to the absence of policies to support SLM and land restoration projects but, rather, reflected the weak implementation and enforcement of existing policies. Similar problems with government policy interventions in Nigeria have been reported by previous studies (Ejiogu 2021; Abdullahi and Terkende 2022) and this finding suggests that even well-designed policies still need appropriate implementation, monitoring, and enforcement to have an impact. Additionally, none of the interview participants indicated that they were aware of any agri-environmental schemes to encourage land users to make more effective land-management decisions (Hayes *et al.* 2017).

This study confirms a finding widely reported in the literature in Nigeria and other SSA countries, that land rights and land governance systems are weak (Babalola and Hull 2019; Wankogere and Alananga 2020), and thus represent a key gap in the legal component of the LDN-enabling environment. Land tenure insecurity issues in the area include the high cost of land (making land unaffordable and inaccessible to poor farmers), short-term tenancy contracts, and the bureaucracy in land registration leading to dominance of the informal land market and insecure land rights. The implication of this is that farmers are exposed to land-related conflicts, unfair land expropriation, and the risk of not getting rewards from their investments in the land (Holden and Ghebru 2016; Kehinde *et al.* 2021; Olumba, Alimba, and Oyinkan 2019), which ultimately disincentivizes them from investing in SLM practices. For example, Ranjan *et al.* (2019) show that yearly lease renewal gives a sense of insecurity and uncertainty to farmers about their tenure and the chances of receiving future benefits from any conservation practices that they implement. As land tenure is a critical enabler of LDN, it thus becomes a priority to catalyse efforts to improve the regulations and rules around land to secure the land rights of local land users thereby supporting them in protecting and sustainably managing the land resources that underpin their livelihoods. There are case studies of other global south countries – Burkina Faso, Malawi, Ethiopia, Zambia, Mali, and Niger – that demonstrate how securing land rights of populations through supportive policies have promoted investments in land improvement as well as delivering positive land-restoration outcomes (Liniger *et al.* 2019).

Furthermore, in line with experiences in other states in Nigeria (Chigbu 2019; Olawuni *et al.* 2022), the analysis presented here indicates that the law is unable to protect the land rights of marginalised groups, such as women farmers. The Land Use Act (LUA) 1978, a key piece of legislation regarding land governance arrangements in Nigeria, states that “land is for the use and benefit of all Nigerians irrespective of gender”; however, this is not the situation in reality, as found in this study. In line with the observations of Olawuni *et al.* (2022), participants indicated that land

administration is still governed by traditional institutions that apply customary rules and practices that are biased against women. Other scholars have reported a higher likelihood for men to gain access to farmland compared to their women counterparts, often due to the biased customary norms that do not favour women's ownership, control, and access to land (Olumba, Olumba, and Okpara 2023; Chigbu 2019). Given the importance of gender equality in the achievement of LDN, the prominence of the practice of customary land rights and tenure systems that are not gender-sensitive in the area represents an important gap in the regulatory environment for LDN progress. This finding echoes the need for the overdue reform of the LUA 1978 to reflect present advancements in land governance and SLM (Speranza, Adenle, and Boillat 2019). Moreover, in appreciation of the disadvantaged position of women regarding land issues, the stipulation of gender-sensitive laws and land policies that explicitly protect women's rights is suggested. A cue can be taken from the joint land certification programme in the land right and titling process in Ethiopia that has proved useful for protecting the land rights of women and for promoting their empowerment (Melesse and Awel 2020).

This study suggests that the LDN concept is not yet popular among the study participants at state and local levels and is more common in the northern parts of the country, as indicated by the participants. This view is also echoed by Speranza, Adenle, and Boillat (2019), who argued that most initiatives to address land degradation in Nigeria are centred on a particular region, such as the Great Green Wall initiative situated in the Sudan Savanna zone in Nigeria. However, as LDN applies not only to Northern Nigeria but also to other regions in the country (Nigeria-LDN-TSP 2018), greater efforts are needed to expand LDN programmes to other affected regions and to raise awareness across lower levels of government. As both ADP and SMARD (at the state level) are under FMARD (at the federal level), a starting point would be to strengthen partnerships between these institutions in addition to improving collaboration with local land users. Also, due to the multi-faceted nature of solutions to land degradation, other land-related sectors, such as forestry and mining, should work with FMARD and the Ministry of the Environment to jointly implement LDN in Nigeria.

A participant from the research community indicated that the research they conduct is policy-driven, which is important for fashioning an enabling environment for SLM. As argued by Akhtar-Schuster *et al.* (2011), policymakers are more likely to employ scientific knowledge in policy design and execution when such knowledge aligns with current political and economic necessities and timescales. The interview indicated several challenges to the incorporation of scientific knowledge into policy at the national level, including the low-level of political buy-in for SLM-related activities and the poor scientific understanding of many policymakers. This finding aligns with other studies that show insufficient knowledge of LDN amongst policymakers as a key problem in achieving LDN (Allen *et al.* 2020; Chasek *et al.* 2019). Based on the importance of science in implementing measures to successfully achieve LDN, strengthening the scientific knowledge and awareness of policymakers to help achieve better policy design and more efficient distribution of resources would be an important step towards the success of LDN. Also, research institutions could work harder to improve the science-policy interface in terms of improved knowledge exchange and more effective dissemination of findings.

Most of the study participants interviewed, credited their institutions with being gender-sensitive, by placing gender issues at the core of the planning and execution of

SLM initiatives. Gender-sensitive funding, gender-sensitive participatory approaches, and gender-responsive LDN actions are all seen as necessary for cultivating an enabling environment for LDN that would benefit both men and women (Okpara, Stringer, and Akhtar-Schuster 2019; Collantes *et al.* 2018). However, the participants indicated that one important underlying driver of the gender inequality issues that stand in the way of gender-balanced LDN outcomes is traditional patriarchal beliefs. These findings underline the need to prioritise addressing patriarchal systems and traditions which do not benefit women, as well as the structural factors undermining women's capacities in land-based interventions. Governments and donors should provide tailor-made finance to support LDN with conditions of use that tackle the biased patriarchal norms that marginalise women. While recognising that patriarchy is a deep-rooted feature of the culture of most rural areas in Nigeria that cannot instantly be changed, such actions are necessary preconditions for gender-responsive LDN.

6. Limitations of the study and future research suggestions

Although this study has provided useful contributions to the SLM/LDN literature, there are some potential limitations of the research that merit further study. First, as a qualitative study, results are based on the perceptions of the sample of interviewed stakeholders, meaning that it is not possible to make broad generalisations. Moreover, qualitative studies can suffer from response and selectivity bias, so findings should be interpreted in the context of the research design. Therefore, future researchers may conduct a similar complementary study using quantitative data. The information collected for this research highlights several problems in the six frameworks of an enabling environment for LDN in the area; it might be impossible to solve all of them in one go. Future quantitative studies could use trade-off rating approaches such as best-worst scaling (Louviere, Flynn, and Marley 2015) to evaluate the importance of these challenges, to guide the prioritisation of policy solutions to these challenges. Also, future studies can expand on this study's methodology by considering other identified degradation hotspot areas in other regions in Nigeria, or in other similar developing nation contexts. It will also be of interest to investigate other land-use systems (e.g. mining, forestry, etc.) relevant for LDN.

7. Conclusions

This research analysed the progress towards, and challenges around, establishing an enabling environment for achieving LDN in the southeast region of Nigeria. The study findings indicate the presence of several relevant institutions and policy instruments that support progress towards LDN. However, this did not create an effective enabling environment for land users due to the lack of sufficient funding, weak systemic capacities of the relevant institutions, and the operational challenges for delivering policy incentives. Here we argue that greater efforts are needed to address the institutional and managerial challenges hampering the efficient functioning of these institutions, which undermines efforts for LDN implementation.

Furthermore, the study results show that adequate financing for LDN activities remains an important challenge. The results further indicate that land tenure and administration arrangements remain a significant gap for the achievement of LDN outcomes, that are particularly gender inclusive. Given that land use and ownership rights are considered central to LDN implementation at the local level, addressing these issues should be an important

policy priority. The findings also indicate that entrenched traditional norms are a major challenge in achieving a gender-balanced LDN outcome. Lessons on how to achieve this can be taken from other countries (such as Ethiopia) with traditional patriarchal cultures that have empowered women and safeguarded their land rights. Moreover, it is imperative to spread LDN initiatives beyond the arid regions of Nigeria to other agroecological zones, and to raise awareness of its importance across lower levels of government. The extended LDN enabler framework developed in this study provides a useful guide for future studies that seek to assess LDN at the sub-national and local levels.

Notes

1. The first five dimensions are derived from the SLM/LDN enabler framework by Akhtar-Schuster et al. (2011). The last dimension – gender mainstreaming – emerged inductively from the study data. The creation of this data-driven theme allowed for the capture of participants' views and experiences on gender aspects of SLM/LDN activities.
2. The Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL Plc.) has a mandate to de-risk agriculture as well as to institutionalise incentives for agricultural lending so as to encourage the flow of affordable finance and investments into the agricultural sector. <https://nirsal.com/about> NIRSAL.
3. According to the respondents, 'political' farmers are not real farmers, but pose as farmers and use their influence to collect government-provided inputs, and then sell them to real farmers at exorbitant prices.
4. People whose properties are directly affected by the implementation of the civil works done by NEWMAP.
5. Operates at the national level but conducts research activities across the SE region of Nigeria. Their inclusion in this study is to provide a perspective from the science-policy interface dimension of the LDN enabler framework.
6. The Nigeria Erosion and Watershed Management Project (NEWMAP) is a World Bank funded project that aims to tackle the challenges of erosion and land degradation in some selected land degradation hotspot states in Nigeria, including Imo and Anambra states.

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The authors report there are no competing interests to declare.

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Supplemental data

Supplemental data for this article can be accessed online at <https://doi.org/10.1080/09640568.2024.2312446>.

Data availability statement

The participants of this study did not give consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

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