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REDD+ organisational arrangements and potential for sectoral integration: Evidence from Cameroon

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Abstract

The organisational arrangements of the *Reducing Emissions from Deforestation and forest Degradation* (REDD+) mechanism have been scrutinised for their capacity to support emissions reduction and promote local stakeholder participation. Yet, whether they facilitate REDD+ integration into land use sectors driving deforestation has received little attention. We assess the potential of the organisational arrangements of the Cameroonian REDD+ scheme to support sectoral integration. We draw on analysis of documentary material and conceptual literature on organisational structures for environmental integration, which distinguishes horizontal and vertical integration mechanisms with distinct features and potentials to foster integration. Our analysis reveals that the Cameroonian REDD+ scheme chaired by the environmental department and featuring a multisectoral steering committee aligns with horizontal integration. Such arrangements would infuse the REDD+ mechanism with the technical expertise of the leading department, but expose REDD+ integration to sectoral resistance and funding challenges because of the limited institutional leverage of the environmental department. The organisational reforms proposed by the national REDD+ strategy featuring the Prime Minister's leadership of the REDD+ process might enhance political support for REDD+ integration, but could expose REDD+ development to the vagaries of political shifts. We propose a hybrid organisational arrangement combining horizontal and vertical integration mechanisms, with the potential to minimise their respective weaknesses, maximise their strengths, and enhance REDD+ integration into land-use sectors. We recommend further feasibility analyses into the applicability of the proposed arrangement to other settings.

Keywords: Environmental integration, organisational arrangements, REDD+, deforestation, land use, Cameroon

1. Introduction

There is a wide recognition of the need to integrate environmental considerations into economic growth strategies to achieve sustainable development and avert environmental crises such as climate change (Lafferty & Hovden, 2003; Nunan et al., 2012). Global warming is the consequence of greenhouse gas (GHG) emissions from diverse sources, with nearly quarter of the emissions originating from forest clearing (IPCC, 2019). Hence, the United Nations Framework Convention on Climate Change (UNFCCC) designed the *Reducing Emissions from Deforestation and Forest Degradation* (REDD+) programme to curb forest-based emissions. The REDD+ scheme seeks to offer financial compensation to forest-rich developing countries to support their efforts to mitigate deforestation driven by agriculture expansion, logging, livestock husbandry, mining and infrastructure development (Gupta et al., 2013).

Addressing the root causes of deforestation outside the forest sector demands the integration of REDD+ into competing land-use sectors (Robiglio et al., 2014; Korhonen-Kurki et al., 2016). Whether this has been effective has attracted a great deal of research, which has highlighted various obstacles to REDD+ integration such as the inadequate understanding of the relatively new and intricate REDD+ mechanism within land use sectors (Mcnally & Nguyen, 2016), and sectoral conflicts perpetuating forest encroachment (Atela et al., 2016; Fujisaki et al., 2016a). The fragmentation of land use responsibilities among different departments administering the same rural space in tropical countries has led to forestland encroachment, compromising REDD+ objectives (Kengoum & Tiani, 2013; Saito-Jensen et al., 2015). In an effort to foster sectoral coordination and improve REDD+ uptake within land use departments, implementing countries have created multisectoral REDD+ platforms led by the environmental or forestry departments which spearhead the REDD+ scheme in most implementing countries (Fobissie et al., 2014; Standing, 2015; Špirić & Ramírez, 2021). National REDD+ platforms bring together representatives from different land use sectors to foster inter-institutional learning and facilitate the integration of REDD+ objective of forest protection into alternative land uses (Korhonen-Kurki et al., 2016; Wurtzebach et al., 2019). Yet, these arrangements have fallen short of alleviating incoherencies in land use legislations passed at much higher hierarchical levels, far beyond the institutional remit of environmental or forestry departments leading national REDD+ schemes (Kengoum & Tiani, 2013). This has prompted calls to institute overall leadership of national REDD+ processes at the Prime Minister's offices or a higher level than these land use departments (Chia et al., 2019); but would such an organisational arrangement be a panacea?

The centrality of REDD+ organisational arrangements for sectoral integration is plain. Indeed, environmental integration is as much a factor of organisational arrangements as it is of coordinated sectoral policies (Persson, 2004). Yet, policy coordination has dominated analyses of environmental integration (Metodi & Storch, 2018; Šumrada et al., 2020; Strauß et al., 2022) and REDD+ integration in particular, while REDD+ organisational arrangements have mostly been examined for their inclusiveness of marginalised forest-dependent communities (Ngendakumana et al., 2014; Korhonen-Kurki et al., 2016). Their ability to facilitate REDD+ integration into land use sectors that drive forest clearing remains understudied. We address this gap by assessing the potential for REDD+ organisational arrangements to facilitate REDD+ integration into various land use sectors. We take Cameroon as a case study, a Congo Basin country that adopted the REDD+ scheme to reduce deforestation, which is driven by land use sectors propping the country's quest for economic recovery. Building on analyses of documentary materials and a conceptual framework for environmental integration that distinguishes horizontal and vertical integration mechanisms with distinct features and effectiveness to drive environmental integration, we address the following research questions: i) What are the features of the Cameroonian REDD+ organizational arrangements? ii) Which integration mechanisms do these features represent? iii) How effective is the integration mechanism at facilitating the assimilation of REDD+ objectives into the different land use sectors?

In what follows, we first review the conceptual literature on organisational structures for environmental integration to interrogate the types of organisational mechanisms used to pursue environmental integration and their effectiveness, including the viability of the invoked high-level leadership of the integration process. The conceptual review informs our subsequent assessment of existing literature on REDD+ organisational arrangements where we establish the gap filled by our research. Our methodological approach is outlined next, followed by the findings that discuss the organisational arrangements of the Cameroonian REDD+ scheme, identify the prevailing integration mechanisms, and establish their potential to support REDD+ integration into competing land use sectors. The implications are then discussed, culminating in the proposal of a new arrangement to enhance REDD+ integration.

2. Organisational structure and environmental integration

This section sets out our conceptual understanding of the notions of organisational structure and environmental integration (EI), then discusses the types of organisational arrangements

used to achieve EI as well as their respective effectiveness. It ends with a brief discussion on how the types of multilevel governance determine their propensity for EI.

2.1. Conceptual clarification

Organisational arrangements denote the formal system of tasks and authority relationships that frame and coordinate actions and resources to achieve the objectives of an organisation (Jones, 2013). They define how responsibilities and activities within an organisation are allocated, coordinated, and supervised to maximise efficiency (Greenberg, 2011). The pursuit of efficiency has led most modern governments to implement organisational arrangements based on workforce specialisation, by separating and clustering tasks and resources into functional or sectoral departments that administer clearly defined policy domains (Hertin & Berkhout 2001; Jacob & Volkery, 2004). If sectoral differentiation has the merit to enhance productivity, it also leads to institutional compartmentalisation that poorly fits the governance of multi-sectoral matters (Jacob & Volkery, 2004; Jones, 2013). These include cross-sectoral environmental problems such as deforestation, the roots of which stretch beyond specific sectors, highlighting the significance of integrated structural arrangements for REDD+ governance.

Framed by the World Commission on Environment and Development (WCED), environmental integration gained political traction after the publication of Agenda 21 on sustainable development and the Brundtland Report urging for the inclusion of environmental considerations into economic sectors (WCED, 1987). Used interchangeably with environmental mainstreaming, it is understood as the incorporation of environmental concerns into decision-making processes of other sectors. Integrated governance systems, Persson (2004) suggests, can be achieved using normative or institutional means such as change in administrative culture or political commitment, procedural approaches through policy coordination, and organisational means. This study focuses on organisational considerations,, complementing Gakou-Kakeu et al. (2022)'s comprehensive assessment of the normative, policy and procedural features of REDD+ integration in Cameroon.

2.2. Organisational structures for environmental integration

The EI literature distinguishes two types of organisational solutions to mainstream environmental considerations in a sectorised government system, namely horizontal and vertical arrangements (Lafferty & Hovden, 2003; Jacob & Volkery, 2004). While they may

have an inter-dependent relationship, they exhibit discrete characteristics, rationales, and abilities to drive EI.

Horizontal organisational arrangements for environmental integration

Horizontal integration mechanisms entail the development of a cross-sectoral approach to handle overarching issues (Lafferty & Hovden, 2003). The ministry responsible for the environment usually leads integration efforts, sometimes together with the ministry responsible for planning (Nunan et al., 2012). Horizontal integration is pursued through the creation of inter-ministerial bodies or committees bringing together sectoral ministries to coordinate policies and plans (Jacob & Volkery, 2004; Nunan et al., 2012).

The oversight by the environmental ministry is both a strength and weakness of horizontal arrangements. The leadership of integration efforts by such a technical department enables to infuse the process with technical expertise, when sufficient resources are available (Nunan et al., 2012). However, the environmental ministries often have lower standing than other departments and lack power to incorporate environmental objectives in the decision-making process of other sectoral ministries, or to hold other ministries of the same rank to account (Nunan et al., 2012). As a result, horizontal arrangements have been impeded by strong resistance from other sectoral departments that often see little economic or political benefits in incorporating environmental requirements into their policies (Jordan & Lenschow, 2000; Weidner et al., 2002). Sectoral resistance can be compounded by limited awareness of the environmental department of the specific circumstances and policies of other sectors (Jacob & Volkery, 2004).

Vertical organisational arrangements for environmental integration

Vertical integration takes place within sectoral departments, with relatively loose cross-ministerial coordination at the centre (Nunan et al., 2012). In vertical arrangements, the lead of integration occupies a higher hierarchical position relative to sectoral ministries, usually within the prime ministry offices, the parliament, or the presidency (Jänicke, 2000; Jacob & Volkery, 2004; Assey et al., 2007). Stronger political leadership affords higher potential to promote EI and to have the finance department support the agenda (Nunan et al., 2012). Senior leadership also assumes an impartial third-party role with the necessary power to settle sectoral conflicts common in cross-sectoral integration (Jones, 2013). However, such political leadership also

exposes EI to the vagaries of politics and electoral cycles, threatening its sustainability (Nunan et al., 2012).

Sector-based environment units are a common feature of vertical integration arrangements, which ensure environmental concerns are integrated into sectoral departments (Nunan et al., 2012). Although environment units within sectoral ministries may also exist in the context of horizontal integration, those are usually outcomes of donor-supported projects rather than intrinsic to a government-wide integration strategy (Nunan et al., 2012). While the purpose of such units is to bolster EI from within a sector while working closely with the environmental department, their effectiveness can be compromised by their allegiance to the sector within which they operate, resulting in the prioritisation of sector concerns over the environment (Nunan et al., 2012). Table 1 summarises the features of both organisational arrangements.

Table 1: Summary of key features of vertical and horizontal integration mechanisms from the literature

Organisational Structure	**Characteristics**		**Effectiveness for EPI**	
	Driver of the integration process	Integration mechanism	Advantages	Trade-offs
Horizontal integration	Ministry responsible for the environment	Formation of cross-sectoral groups such as inter-ministerial committees or task forces	Integration process infused with technical expertise	- Sectors' resistance to weak political leverage -Limited capacity of chairing body to enforce compliance -Limited knowledge by the chairing department of the special circumstances within other sectors -Limited funding
Vertical integration	Senior government officials from the presidency, the prime ministry, or the parliament	Sector-based environmental units	- High-level political support and strong leadership - Higher potential for resource mobilisation - Reduced sectoral conflict	-Vulnerability to political shifts, posing issues of sustainability - High risk of allegiance of environmental units to the sectors within which they operate

In structural integration analyses, vertical or horizontal organisational arrangements hardly exist in pure forms; they are usually either mainly horizontal with vertical elements, or essentially vertical with horizontal features (Nunan et al., 2012). Thus, rather than being

mutually exclusive, vertical and horizontal integration arrangements could have a symbiotic relationship, helping minimise the weaknesses of both wholly vertical and horizontal approaches (Nunan et al., 2012). Such outcomes could be enhanced by sequencing in time of different arrangements as capacity and commitment to integration extends (Jordan & Lenschow, 2000). The long-term unsustainability of vertical EI could be addressed by a progression from vertical integration coordinated from a higher government level to an increasing reliance on horizontal integration via inter-ministerial working groups, committees, or task forces. Such horizontal coordinating bodies would at first require a senior level of facilitation and only gradually become effective means of integration (Nunan et al., 2012).

Types of multilevel governance and environmental integration

Functionally differentiated administrations could also result from prevailing types of multilevel governance (MLG), in that the types of MLG can be indicative of whether the administration of a country's affairs and land uses is fragmented into specific sectors and thus poorly fit to address cross-sectoral environmental problems. While the concept of multilevel governance is often used to refer to cross-scale governance, here the focus is on its attributes in relation to functional differentiation or sectoral fragmentation and related implications for EI.

Multilevel governance (MLG) refers to the dispersion of authority from the central government upward and downward to higher and lower governance levels, and sideways across state and non-state actors (Rodriguez-Ward et al., 2018). Such diffusion of decision-making can take two forms, types I and II (Liesbet & Gary, 2003). Type I MLG features general-purpose jurisdictions bundling together multiple functions, including a range of policy responsibilities (Liesbet & Gary, 2003). Multipurpose jurisdictions such as councils that handle a range of affairs including land uses and environmental matters within a single unit would be more conducive for EI. On the other hand, the type II MLG characterised by independent or sectorised task-specific institutions entails that environmental matters and land uses are administered by separated units, complicating the integration of ecological concerns into land use sectors. In other words, administrative structures featuring type II MLG, which are common in unitary states (Liesbet & Gary, 2003), would have limited predisposition to integration and thus require organisational adjustments to facilitate EI.

To conclude, we introduced the concepts of horizontal and vertical integration mechanisms used to pursue EI in fragmented administrative systems, which is a feature of type II MLG. We have outlined the characteristics and features of both types of integration approaches, and their

effectiveness in fostering EI. Horizontal arrangements are led by environmental departments and feature inter-ministerial platforms bringing together sectoral ministries to coordinate actions. The environmental expertise of the leading department is an advantage for integration, but its weak political leverage means that horizontal arrangements are vulnerable to sectoral resistance and funding mobilisation. Vertical arrangements feature a higher-level leadership of the integration process by a senior government official and have potential to boost political support for EI. Yet, their vulnerability to political shifts poses sustainability concerns. Thus, combining horizontal and vertical integration mechanisms could maximise their mutual benefits and minimise their limitations. Our study draws on this conceptual analysis to identify the types of integration mechanisms within the Cameroonian REDD+ scheme and their effectiveness in supporting REDD+ integration into land use sectors. We next review previous studies on REDD+ organisational arrangements.

3. REDD+ organisational arrangements: Global evidence

Institutional designs play a key role in the performance of environmental instruments, including REDD+ (Vatn & Vedeld, 2013), and they define, amongst other things, the organisational structure of policy subsystems. As a relatively recent policy subsystem, the growing interest in REDD+ organisational arrangements is thus at one level unsurprising, but the research to date has focused on whether they ensure effectiveness, efficiency, and grassroot participation, paying little attention to whether they facilitate REDD+ integration into alternative land use sectors.

The multi-level drivers of deforestation spanning local livelihoods and national policies have elicited investigations into the extent to which REDD+ organisational arrangements ensure stakeholder representation in governing bodies. While some scholars consider that these arrangements provide formal spaces for non-state actors (Fujisaki et al., 2016b), many find them too narrow to accommodate local stakeholders and indigenous communities (Pham et al., 2014; Kengoum et al., 2022). The debate around stakeholder participation and overall REDD+ performance has led into the characterisation of REDD+ organisational structures based on jurisdictional scales, distinguishing national versus project-based arrangements with varying potentials to boost local participation, effectiveness, efficiency and even sectoral coordination. Based on a study conducted in the Democratic Republic of Congo, Aquino and Guay (2013) suggest that subnational or project-based REDD+ arrangements addressing forest emissions at localised project scales offer greater opportunity to involve local communities, NGOs, private

companies or local governments, and are thus more conducive to grassroot participation. National REDD+ arrangements, on the other hand cover larger territories and feature a high level of central state actor involvement; such nationwide arrangements are believed to maximise effectiveness and efficiency by controlling leakage and minimising transaction costs (Angelsen, 2009; Vatn & Vedeld, 2013). The high leverage of government actors in nationwide arrangements is thought to warrant sectoral involvement, hence national REDD+ arrangements have been deemed suitable for cross-sectoral coordination (Aquino & Guay, 2013). Yet empirical evidence suggests otherwise. In Mexico, the coordination of the country-wide REDD+ scheme by the National Forest Commission has been compromised by a chronic shortage of financial and human resources preventing inter-ministerial group sessions from convening (Špirić & Ramírez, 2021). Similar resource shortages have also emerged in other countries implementing a national REDD+ approach overseen by national forest agencies (Atela et al., 2016; Korhonen-Kurki et al., 2016). This casts doubt that national REDD+ arrangements guarantee sectoral involvement and on the jurisdictional characterisation of REDD+ arrangements to evaluate whether they are conducive to sectoral integration. Resource shortages hampering sectoral collaboration in REDD+ processes overseen by forestry agencies can be explained using the lens of organisational structures for EI. Usually the leadership of the forestry department characterises horizontal arrangements. In such arrangements, the forestry or environmental departments spearheading the process have limited authority over financial institutions and limited ability to mobilise funding for any integration agenda (Nunan et al., 2012). Thus, to gain enhanced understanding of their capacity to support sectoral integration, existing analyses of REDD+ organisational arrangements based on their jurisdictional scales need to be complemented by an assessment of their potential for integration.

Another framing of REDD+ organisational arrangements has been based on their independence; REDD+ scholars have distinguished arrangements relying on existing institutions from new and self-standing REDD+ platforms (Fujisaki et al., 2016b). Countries such as Indonesia and Papua New Guinea set up new and independent agencies to oversee REDD+ (Fujisaki et al., 2016a; Di Gregorio et al., 2017), an arrangement that has the merit of shielding the scheme from rigid state bureaucracy in existing institutions, and perhaps attracting more private funding (Vatn & Vedeld, 2013). The appeal of independent REDD+ institutions is also explained by their potential to circumvent corruption that mires public

administration in many tropical countries and has been reported as a barrier to REDD+ implementation (Vatn & Vedeld, 2013; Williams & Dupuy, 2019).

REDD+ arrangements built on existing institutions have their own advantages. By promoting reduced deforestation and carbon stock enhancement, the REDD+ mechanism is consistent with ongoing government efforts toward sustainable forests management and conservation. Therefore, anchoring REDD+ to existing institutions enables to take full advantage of available capacities, resources, networks and advances (Fujisaki et al., 2016b; Ochieng et al., 2016). Such arrangements may alleviate administrative rivalries that could cripple independent REDD+ entities duplicating the attributions of forestry or environmental departments, as has been the case in Indonesia (Di Gregorio et al., 2017). This may explain the choice by many countries such as Cambodia, Vietnam, Ghana, and Mexico to embed the REDD+ scheme under the departments in charge of forests or the environment (Aquino & Guay, 2013; Fujisaki et al., 2016b; Vongvisouk et al., 2016).

However, building REDD+ on existing forestry and environmental institutions complicates its adoption in other sectors. Attempts at pressing REDD+ on land use sectors to avoid dangerous climate change has instilled suspicions among land use actors that the forestry and environment agencies could be utilising REDD+ and the climate cause to advance their own interests and policy agenda (Fujisaki et al., 2016b). For example, allegations emerged in Tanzania and India that forestry administrations are deploying REDD+ to consolidate their gains in a rapidly changing political and economic context (Kashwan & Holahan, 2014). These accounts can be understood when examined through the lens of organisational structures for EI. REDD+ arrangements embedded in or led by existing institutions in charge of forests or the environment are horizontal arrangements; the leadership of the REDD+ process by these departments, often perceived below the standing of other sectors, justifies sector resistance to a REDD+ agenda at odds with their policy interests, heralding significant challenges to REDD+ integration. Yet, REDD+ arrangements have seldom been examined through the lens of organisational structures for EI.

The EI analytical tool would also better explain accounts that land use sectors have remained largely unaffected by the resolutions of the REDD+ scheme embedded under the forestry administration lacking the power to exert principled priority or influence sectoral goals outside its institutional boundaries or shape the policies of land use sectors driving deforestation (Kellehear, 1993). The weak political leverage of the forestry or environmental agencies is a

pitfall of horizontal integration, hence the suggestion by EI scholars to consider the leadership of either the finance department or the administration responsible for land planning (Nunan et al., 2012), as has been the case in the Democratic Republic of Congo and Vietnam. Yet, competence deficits have undermined such arrangements. In Vietnam, the finance ministry refers many key decisions to the ministry in charge of forests, which is more knowledgeable of the REDD+ mechanism (Fujisaki et al., 2016b). While the departments responsible for planning or finance have the potential to strengthen the weak political leverage inherent to horizontal integration arrangements, their limited knowledge of environmental matters undermines their leadership.

Knowledge deficit is a recurrent barrier to REDD+ implementation and sectoral involvement (Mcnally & Nguyen, 2016). When the forestry and the environmental departments' stronger grasp of the REDD+ mechanism allows them to infuse the integration process with technical knowledge, their limited understanding of the specific circumstances and policy aspects of other sectors undermine their leadership (Jacob & Volkery, 2004). On the other hand, the inadequate knowledge by land use sectors of forest and environmental matters hampers their involvement in REDD+ development (Mcnally & Nguyen, 2016; Gakou-Kakeu et al., 2022) . As is the case, limited awareness by individual departments of circumstances beyond their sectoral remits is usually rooted in functionally differentiated or sectorised government systems impeding the sectoral integration of cross-cutting environmental matters. Fragmented government architectures, a feature of type II or task-specific multilevel governance (Liesbet & Gary, 2003) require the intervention of organisational integration mechanisms to achieve EI, the effectiveness of which is a function of whether they are predominantly horizontal, vertical, or combined.

This study complements the existing REDD+ research on organisational arrangements by applying the conceptual framework of organisational arrangements for EI to assess the potential for the Cameroonian REDD+ scheme to facilitate REDD+ integration into land use sectors. While previous studies of REDD+ organisational arrangements in the Congo basin and elsewhere have examined whether they have followed a project-based or national approach (Aquino & Guay, 2013), in Cameroon they have mirrored the global trend outlined above, focusing on establishing whether REDD+ arrangements rely on existing or new institutions (Somorin et al., 2016) and whether stakeholders including state actors, non-state stakeholders and forest-dependent communities are represented in governing bodies (Freudenthal et al., 2011; Ngendakumana et al., 2014; Somorin et al., 2014; Dkamela, 2010). The investigations

have deplored the poor involvement of logging companies, mining firms, and agro-industries in REDD+ platforms, which could be indicative of poor uptake of REDD+ within relevant sectors. An assessment of the potential for organisational arrangements to facilitate REDD+ integration into land use departments is thus necessary. Our methodological approach is outlined next.

4. Materials and methods

Cameroon's extensive forest cover facing growing pressure from varied land uses and its adoption of the REDD+ mechanism to curb forest-based emissions makes it a suitable case to investigate the potential for REDD+ organisational arrangements to facilitate its integration into land use sectors driving deforestation. We lay out our methodological approach after introducing the Cameroonian forest context.

4.1. Cameroonian forests and competing land uses

Cameroon has about 22 million hectares forest cover overseen by the Ministry of Forestry and Wildlife (MINFOF) (MINFOF, 2013). It has one of the highest deforestation rates in the Congo Basin, reaching 1.1% per annum in the last decade (MINEPDED, 2013). Deforestation and forest degradation have been driven by agricultural expansion, logging, livestock husbandry, infrastructure development and mining (MINEPDED, 2018). These land uses form the backbone of the country's economy and are governed by fragmented sectoral departments competing for rural space to maximise their GDP contribution (Djiegni et al., 2016; Cameroon, 2020). Agriculture is overseen by the Ministry of Agriculture and Rural Development (MINADER) and mining by the Ministry of Mines, Industries and Technological Development (MINMIDT). The Ministry of Public Works (MINTP) oversees infrastructure development, and the Ministry of Livestock, Fisheries and Animal Industries (MINEPIA) is in charge of livestock rearing. Despite their joint 2005 Rural Development Strategy to ensure a coordinated use of the rural space, land use conflicts and forest encroachment persist due to inconsistent land use legislation and the absence of an official land mapping yet to be formalised by the Ministry of the Economy and Territorial Administration (MINEPAT) as the coordinating agency.

REDD+ emerged in this context of economically driven pressure on forests as a market-based mechanism offering financial compensation in exchange for preserving forests. The leading drivers of deforestation lying outside the forest sector make it plain that successful REDD+ outcomes rest on integrating the scheme into competing land use sectors, the effectiveness of

which is to a substantial extent a function of organisational arrangements. We describe our approach to assessing REDD+ arrangements next.

4.2. Data collection and analysis

We adopt a qualitative research approach using unobtrusive method (document review) for data collection, in order to examine the features of the Cameroonian REDD+ arrangements, assess the prevalent integration mechanisms, and establish their effectiveness for integration. Unobtrusive research methods derive meanings from existing sources of data such as written records (Liamputtong, 2013). They assume people can learn about their societies by examining the material items it has produced (Kellehear, 1993; Hesse-Biber, 2012). We draw from existing documents instituting and describing REDD+ arrangements including REDD+ legislation (Prime Ministry Decree No. 103/CAB/PM of 13 June 2012 creating the National REDD+ Steering Committee), the 2013 REDD+ Readiness Preparation Proposal (R-PP), the 2018 national REDD+ strategy, and scientific publications describing the background and evolution of REDD+ organisational arrangements in the country (Dkamela, 2010; Leder, 2011; Dkamela et al., 2014; Ngendakumana et al., 2014; EIA, 2016).

The documents listed above were entered into the QSR NVivo data management program for a comprehensive process of data coding, labelling sections of information deductively. Deductive coding uses pre-defined codes from existing literature or frameworks (Skjott & Korsgaard, 2019). We drew predefined codes from the conceptual literature on organisational structures for EI (table 1), which distinguishes horizontal and vertical organisational arrangements and outlines their characteristics and effectiveness for EI. The characteristics of integration arrangements used as pre-defined codes include the drivers of the integration process, and the prevailing integration mechanism. These served to label the features of the Cameroonian REDD+ organisational arrangements, determine the prevailing integration arrangement and establish their effectiveness for integration. Below we outline our findings.

5. Results

In this section, we describe the features of REDD+ arrangements in Cameroon and their evolution, identify the prevailing types of integration mechanisms, then determine their effectiveness for sectoral REDD+ integration.

5.1. Background and features of the Cameroonian REDD+ scheme

The REDD+ process in Cameroon started in 2008 under the auspices of the Ministry of Environment, Nature Protection and Sustainable Development (MINEPDED), the designated national authority of the UNFCCC, which oversees all initiatives of the climate change convention in the country. REDD+ arrangements took shape in a context where lengthy bureaucracy had stalled earlier UNFCCC initiatives such as the Clean Development Mechanism (CDM) (Lederer, 2011; Dkamela, 2010).

REDD+ readiness preparation included the creation of the National REDD+ Steering Committee (NRSC) by Prime Ministry Decree No. 103/CAB/PM of 13 June 2012. To address the allegations of poor stakeholder outreach in the early stages of the REDD+ process, the NRSC sought to ensure stakeholder involvement and coordination and constitute the main decision body of the REDD+ scheme (Dkamela, 2010). The NRSC is chaired by MINEPDED and co-chaired by MINFOF whose expertise in forest monitoring, management and in enforcing forest legislation and policies are essential for REDD+ implementation (Ngendakumana et al., 2014). The National REDD+ Steering Committee includes representatives from the Presidency, the Prime Minister's Office, the Ministry of the Environment, Nature Protection, and Sustainable Development (MINEPDED) the Ministry of Forestry and Wildlife (MINFOF), the Ministry of Economy, Planning, and Land Management (MINEPAT), the Ministry of Agriculture and Rural Development (MINADER), the Ministry of Finance (MINFI), the Ministry of Livestock, Fisheries, and Animal Industries (MINEPIA), the Ministry of Water and Energy (MINEE), the Ministry of Scientific Research and Innovation (MINRESI), the Ministry of Social Affairs (MINAS) and elected representatives. Non-state actor members include representatives of civil society organisations, indigenous people, and the private sector (MINEPDED, 2013) (figure 1).

The National REDD+ Steering Committee is supported by a Technical Secretariat, the operational body of the REDD+ scheme, overseen by a board composed of the National REDD+ Coordinator, the Climate Convention Focal Point, and a representative from MINFOF. The technical Secretariat monitors REDD+ implementation at the national and sub-national levels (MINEPDED, 2013).

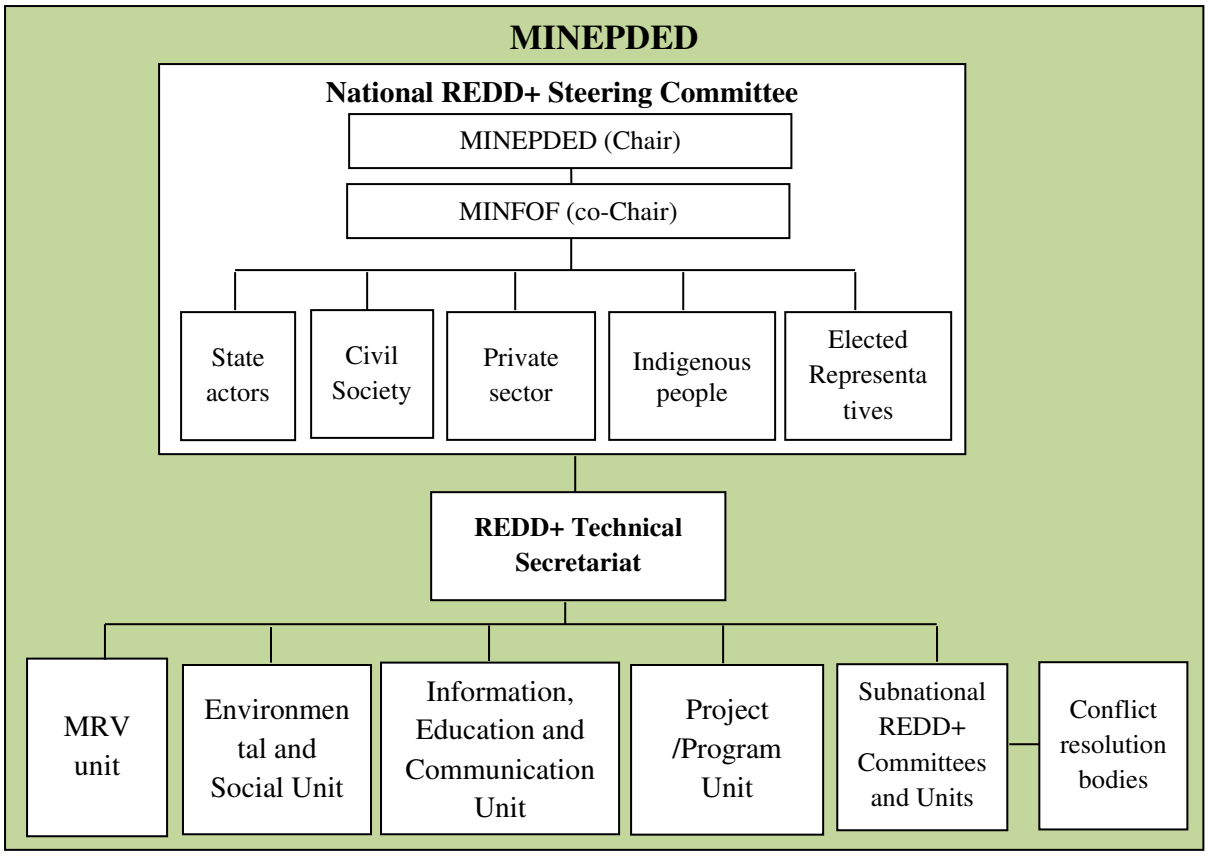

Figure 1: Current organisational chart of the Cameroonian REDD+ scheme (MINEPDED, 2013)

The sub-national REDD+ arrangements align with the Cameroonian decentralisation system of type II multilevel governance (MLG) characterized by task-specific jurisdictions. Cameroon is a unitary state, a common feature of type II MLG (Liesbet & Gary, 2003). The state administrative apparatus is comprised of the Presidency of the Republic, the parliament, and the government. The government includes the Prime Ministry and functionally specific ministerial departments at the national level, represented at the subnational level by task-specific delegations. Subnational REDD+ arrangements include regional REDD+ Committees and local operational units embedded into the regional and local delegations of the environment department. Local REDD+ units are thus separated from other local land use delegations.

The National REDD+ Steering Committee and the Technical Secretariat oversaw the design of the national REDD+ strategy of 2018, which envisions the transfer of the REDD+ leadership from MINEPDED to the Prime Minister's Office (MINEPDED, 2018). The reform probably stems from the weak influence of the environmental ministry to gain the buy-in of other state agencies who are relevant to REDD+ (EIA, 2016). Under this still-to-be formalised arrangement, a representative from the Prime Minister's office will assume the Presidency of

the National REDD+ Steering Committee and will be supported by MINEPDED acting as First Vice-President, and MINFOF as the second Vice-President (figure 2). The National REDD+ Steering Committee will then be expanded to include representatives of the Ministry of Economy, Planning and Regional Development, the Ministry of Mines and Technological Development, traditional rulers and local councils. The Technical Secretariat at MINEPDED would gain a representative from the National Climate Change Observatory (ONACC) within the administration unit.

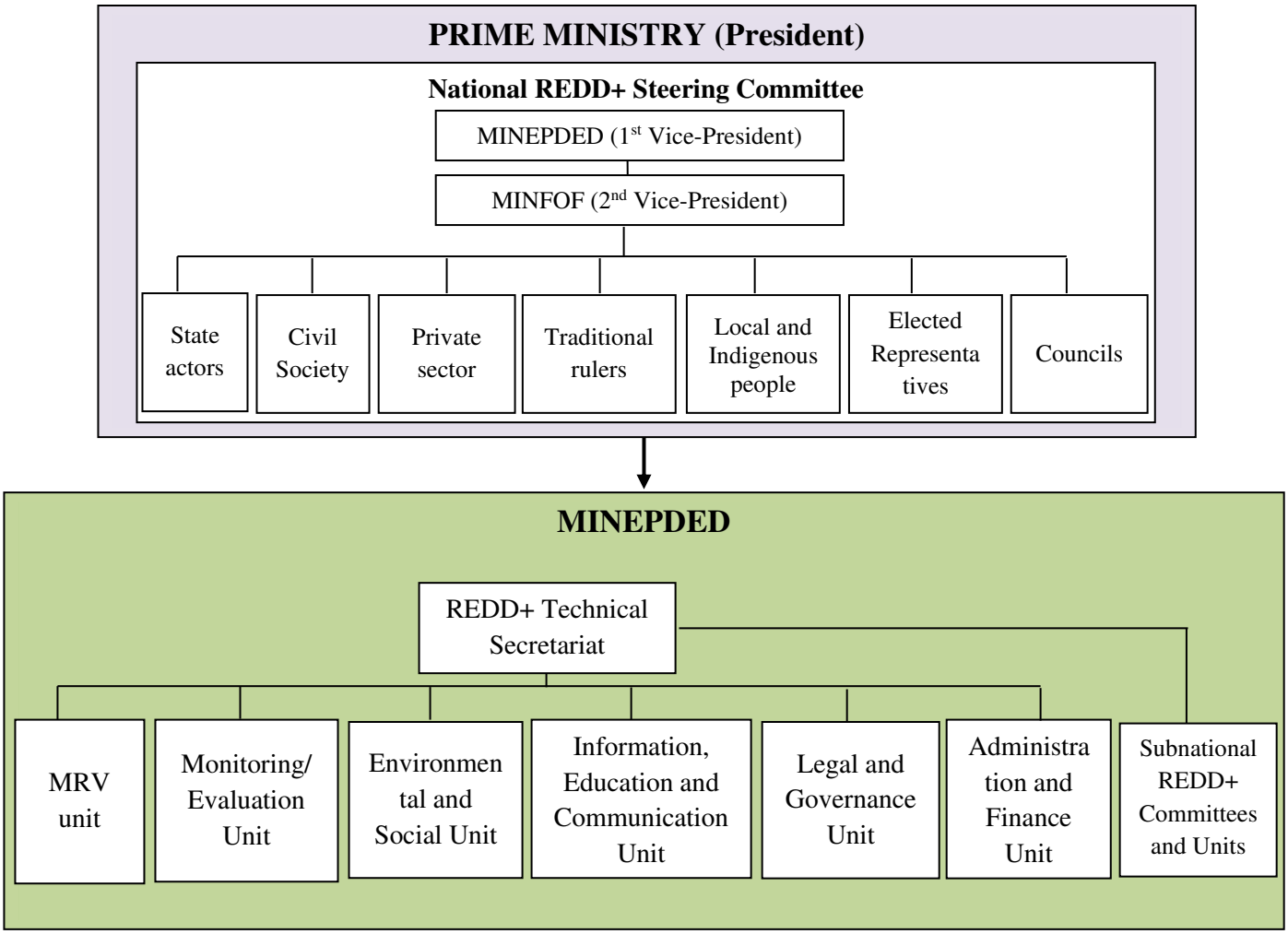

Figure 2: Projected reform of the organisational design of the Cameroonian REDD+ scheme

5.2. Integration mechanisms in the organisational structure of REDD+ in Cameroon

From its inception the Cameroonian REDD+ process has been led by MINEPDED and supported by MINFOF. The same arrangement prevails at the subnational level where MINEPDED delegations embed and oversee local REDD+ implementation; such leadership of the environmental department is a distinctive feature of the horizontal integration mechanism

(Nunan et al., 2012). The sectoral administrative system of Cameroon would be less conducive for EI, thus organisational measures would be required to facilitate REDD+ integration into land use sectors. This has been pursued through the creation of the inter-ministerial and multi-actor steering committee bringing together relevant ministerial departments, another characteristic of horizontal integration. Therefore, REDD+ organisational arrangements in Cameroon are currently mostly horizontal (table 2).

Table 2: Characteristics of the REDD+ organisational structure in Cameroon

Current arrangement		**Prospected arrangement**	
Features	**Integration mechanism**	**Features**	**Integration mechanism**
Integration process driven by the Ministry responsible for the environment	Horizontal	Leadership of the Prime Ministry	Vertical
		Environmental department as Vice-president	Horizontal
Formation of a cross-sectoral REDD+ committee	Horizontal	Cross-sectoral REDD+ committee	Horizontal

In the proposed reforms of REDD+ organisational arrangements, the National REDD+ Steering Committee currently embedded in MINEPDED would be transferred to the Prime Minister's office which would assume the leadership of the REDD+ process. The projected leadership of the Prime Minister, a senior-level authority, is a feature of vertical integration. As the first vice-president, the ministry in charge of the environment would continue to play a preponderant role within REDD+ leadership, which still reflects horizontal integration. Further, the integration mechanism remains the cross-sectoral REDD+ steering committee, still a tool of horizontal integration. Thus, if formalised, the reform would implement a move from almost wholly horizontal integration to a hybrid system of predominantly horizontal integration featuring an element of vertical integration. Next, we determine the implications in terms of effectiveness for REDD+ sectoral integration.

5.3. REDD+ arrangements and effectiveness for sectoral integration in Cameroon

At the time of writing, the integration mechanism in the REDD+ organisational arrangements of Cameroon is mostly horizontal, aligning with the environmental integration mechanism in the broader administrative system of Cameroon. Cameroon inherited the colonial French and English administrative models and upon reuniting the French and British administered zones,

adopted a predominantly French system, a Weberian model characterised by the division of labour or sectorisation, to maximise efficiency (muhiya tshombe, 2015; Zabagai, 2023). The acting government is composed of 63 sectoral ministries each comprising a central administration, regional and divisional offices (Mişcoiu & Kakdeu, 2021). The ministry in charge of the environment created in 1992 ahead of the Rio Summit leads the Interministerial Committee for the Environment, a cross-sectoral platform instituted by the Prime Ministry Decree number 2001/718/PM in September 2001 to improve environmental integration by reuniting representatives from various ministerial departments , reflecting the horizontal cross-sectoral platform in REDD+ arrangements.

The conceptual literature on institutional arrangements for EI posits that horizontal integration mechanisms led by environmental departments present the advantage of infusing the integration process with the environmental expertise of the leading department; but its weak political leverage means that horizontal arrangements are vulnerable to sectoral resistance, funding mobilisation, and ministerial conflicts. Thus, in Cameroon the REDD+ process would benefit from the technical expertise of the leading environmental and forestry departments. However, REDD+ integration into land use sectors including the agriculture, husbandry, mining, and infrastructure departments would be exposed to sectoral resistance, funding difficulties, and leadership conflicts due to the weak political leverage of the leading departments, only partly resolved by the envisaged organisational reform. In the next section, we discuss each of these four implications in turn, and then offer a potential solution.

6. **Discussion**

Below we draw on our conceptual framework which assesses the effectiveness of each integration arrangement for EI (table 1), to discuss the effectiveness of REDD+ arrangements described in the results and explain how REDD+ organisational arrangements play a part in the integration challenges evoked in other studies.**REDD+ process infused with technical expertise**

The merit of horizontal integration arrangements overseen by environmental or forestry departments resides in their ability to infuse the integration process with their technical expertise (Nunan et al., 2012). Such technical assistance is more crucial when deploying a novel and complex mechanisms such as REDD+ (Korhonen-Kurki et al., 2016). When forests have been valued for timber provision and where high-level government politicians might still

have a frail grasp of carbon commodification (Brown et al., 2011), technical expertise from the environmental and forestry leadership is of the essence. Thus, the Cameroonian REDD+ process would benefit from the oversight of departments best skilled in climate change and forestry matters.

Horizontal arrangements enable the Cameroonian REDD+ scheme to draw on MINEPDED networks and experiences in leading the country in global climate change forums (MINEPDED, 2013) and to capitalize on MINFOF efforts toward sustainable forests management, regeneration, and conservation (Somorin et al., 2014). However, as discussed next, the main drivers of deforestation, namely agricultural expansion, livestock husbandry, infrastructure development and mining, lie outside the forest and environment domains. As a consequence the ability of both leading departments to influence decision-making in those ministries is restricted (Dkamela et al., 2014).

6.1. Weak institutional power to compel land use sectors' involvement

Environmental integration through horizontal arrangements can be prejudiced by the weak power of the leading environmental department to enforce compliance within sectoral departments with the same hierarchical ranking (Jordan & Lenschow, 2000; Weidner et al., 2002). This has impinged on sectoral REDD+ integration in Cameroon. Studies have documented MINEPDED's struggles to engage land use ministries, which delayed the REDD+ readiness process (Dkamela et al., 2014), fueling concerns about the ability of the environmental department to deliver on the announced ambitious sectoral policy reforms (Chia et al., 2019). This would justify the reported passivity of the agriculture sector, the main deforestation driver in Cameroon and the observed disconnection of other sectors from the REDD+ process (Somorin et al., 2014).

The limited involvement of some sectors could also result from their exclusion from the National REDD+ Steering Committee. While the ministries in charge of agriculture and livestock feature among the twelve state departments represented in the current National REDD+ Steering Committee, the ministry in charge of mining and the department responsible for infrastructure development are missing; and although the mining department has been considered for inclusion in the envisaged organisational reform, the infrastructure department remains sidelined, when road, rail and seaport expansion are directly associated with forest clearing (Shidiki & Unusa, 2020). Their absence from the multi-actor REDD+ platform would explain their limited interaction with foresters and reported inadequate awareness of the impacts of infrastructure development on forests (Gakou-Kakeu et al., 2022).

Nonetheless, the weak institutional leverage of the leading environmental department seldom aids the engagement of land use sectors represented in the National REDD+ Steering Committee, paralleling concerns from Mexico and across Asia that the poor influence of the environment and forestry administrations entertains inertia (Korhonen-Kurki et al., 2016; Špirić & Ramírez, 2021). Hence calls for a senior leadership of the Cameroonian REDD+ scheme (Tegegne et al., 2016; Chia et al., 2019).

Plans to transfer the National REDD+ Steering Committee to the Prime Ministry offices might evidence growing awareness of the frailty of MINEPDED agency. Yet, MINEPDED would continue to assume a preponderant role in the REDD+ leadership, thus the projected organisational reform includes a feature of vertical integration, but nonetheless maintains a dominant horizontal hue and may still struggle to overcome some of the pitfalls that prompted the reform.

6.2. Limited ability to mobilise funding for REDD+ integration

Horizontal integration arrangements feature cross-sectoral committees reportedly onerous to run (Mcnally & Nguyen, 2016), because of the operating costs associated with convening multi-actor meetings regularly. These have resulted in collapsing inter-ministerial REDD+ platforms (Korhonen-Kurki et al., 2016; Gakou-Kakeu et al., 2022). Yet MINEPDED's limited budget and capacity to influence funding decisions in the finance department in its favour constitutes a drawback of horizontal arrangements for EI (Nunan et al., 2012). These challenges are poised to foil REDD+ integration in Cameroon. Weak governance indicators in most African countries have been found to decrease external investment in REDD+ (Thompson et al., 2017). Further, the Cameroonian government's emphasis on non-carbon benefits, perhaps to manage stakeholder expectations amid uncertainties around international carbon pricing suggests a central role for domestic sources of funding for REDD+ operations. However, its mobilisation has proven challenging under MINEPDED leadership of the REDD+ process (Alemagi et al., 2014).

As a suggestion to the budget constraints and related coordination challenges affecting current REDD+ arrangements, scholars have recommended detaching the National REDD+ Steering Committee from MINEPDED and subsuming it under the National Observatory for Climate Change (ONACC), which they hold could be transformed into a financially autonomous agency (Alemagi et al., 2014). ONACC was set up by Presidential Decree in 2009 to oversee climate change monitoring, mitigation and adaptation, and is embedded in MINEPDED. While the REDD+ scheme may enjoy some financial independence under such arrangements, these

would parallel both the 2010 Papua New Guinea Office of Climate Change and the 2011 Indonesian REDD+ agency set up as independent entities to oversee REDD+ development. As these experiences proved, independent agencies for REDD+ deployment have been thwarted by rivalries with existing department of forest and the environment performing similar forest-related attributions (Di Gregorio et al., 2015; Fujisaki et al., 2016b). Funding mobilisation challenges in horizontal arrangements are compounded by sectoral conflicts.

6.3. REDD+ integration hindered by sectoral and leadership conflicts

Sectoral conflicts are common in horizontal arrangements where the leading environmental department occupying the same hierarchical rank as other sectors lacks the ascendency to mediate conflicting land-use interests (Jones, 2013). Under a predominantly horizontal institutional design, the Cameroonian REDD+ scheme has been mired by sectoral conflicts (Kengoum & Tiani, 2013; Korhonen-Kurki et al., 2016). Forestland encroachment by mining titles is commonly decried and rooted in conflicting land use legislations. While the 1994 forestry law bans extractive activities within the permanent forest domain, the 2016 mining code permits mining operations within most of these areas (Gakou-Kakeu et al., 2022). Since both legal instruments were passed into law by parliament the proposed reform for senior leadership by the offices of the Prime Minister of the REDD+ process would have more power to mediate related conflicts, which might facilitate the uptake of forest considerations in competing land use sectors. However, the new leadership of the process could at the same time expose REDD+ development to the vagaries of political shifts.

Horizontal arrangements are also vulnerable to leadership conflicts. This has been manifest in Cameroon between the environmental department currently leading the REDD+ process and the ministry in charge of forests whose strong command and experience in forest management make them an equally suitable candidate to spearhead REDD+ implementation (Kengoum & Tiani, 2013; Gakou-Kakeu et al., 2022). Similar leadership conflicts are reported in Cambodia between the Forestry Administration and the Ministry of Environment, and in Lao PDR between the Ministry of Natural Resources and Environment and the Ministry of Agriculture and Forestry (Fujisaki et al., 2016b).

Leadership conflicts in horizontal arrangements have mostly concerned the environmental and forestry departments, both of whose attributions and expertise include climate change and forest protection at the core of REDD+. But the Ministry of Economy and Land Planning (MINEPAT) has also been perceived as a potential leader, and its role in land allocation suggests it could mediate land use conflicts hindering horizontal arrangements (Kengoum &

Tiani, 2013). The Ministry of Finance possesses the necessary financial power to stimulate environmental or REDD+ integration into other land use sectors through various means, including subjecting funding applications for land use projects to ecological assessments (Dkamela et al., 2014) or evaluating sectoral performance not just in terms of their GDP contribution, but also for their environmental benefits or soundness. This ties in with the suggestion by EI scholars that the leadership of the Ministry of Finance or the department of land use planning could strengthen the weak institutional leverage of forestry and environmental ministries (Nunan et al., 2012). However, evidence from Vietnam, where the Ministry of Finance referred most key decisions to the forest department that has stronger technical expertise in the REDD+ mechanism, highlights the limitations of MINFI's and MINEPAT's leadership of the Cameroonian REDD+ scheme. However, a broader leadership board could be considered, as we discussed next

6.4. Toward a hybrid arrangement of the national REDD+ scheme

The above discussion indicates that each of the entities of the Office of the Prime Ministry, MINEPDED, MINFOF, MINFI, and MINEPAT has the competence to spearhead the REDD+ process. Yet, the exclusive leadership of none of these would ease REDD+ integration into land use sectors. Perhaps an institutional design that pulls together their political, technical, financial and land arbitration assets could be envisaged. An example of such hybrid of horizontal and vertical arrangements could consist of the Prime Ministry assuming the leadership of the national REDD+ process, supported by a board of vice-chairs including MINFI, MINEPDED, MINFOF, and MINEPAT (figure 3).

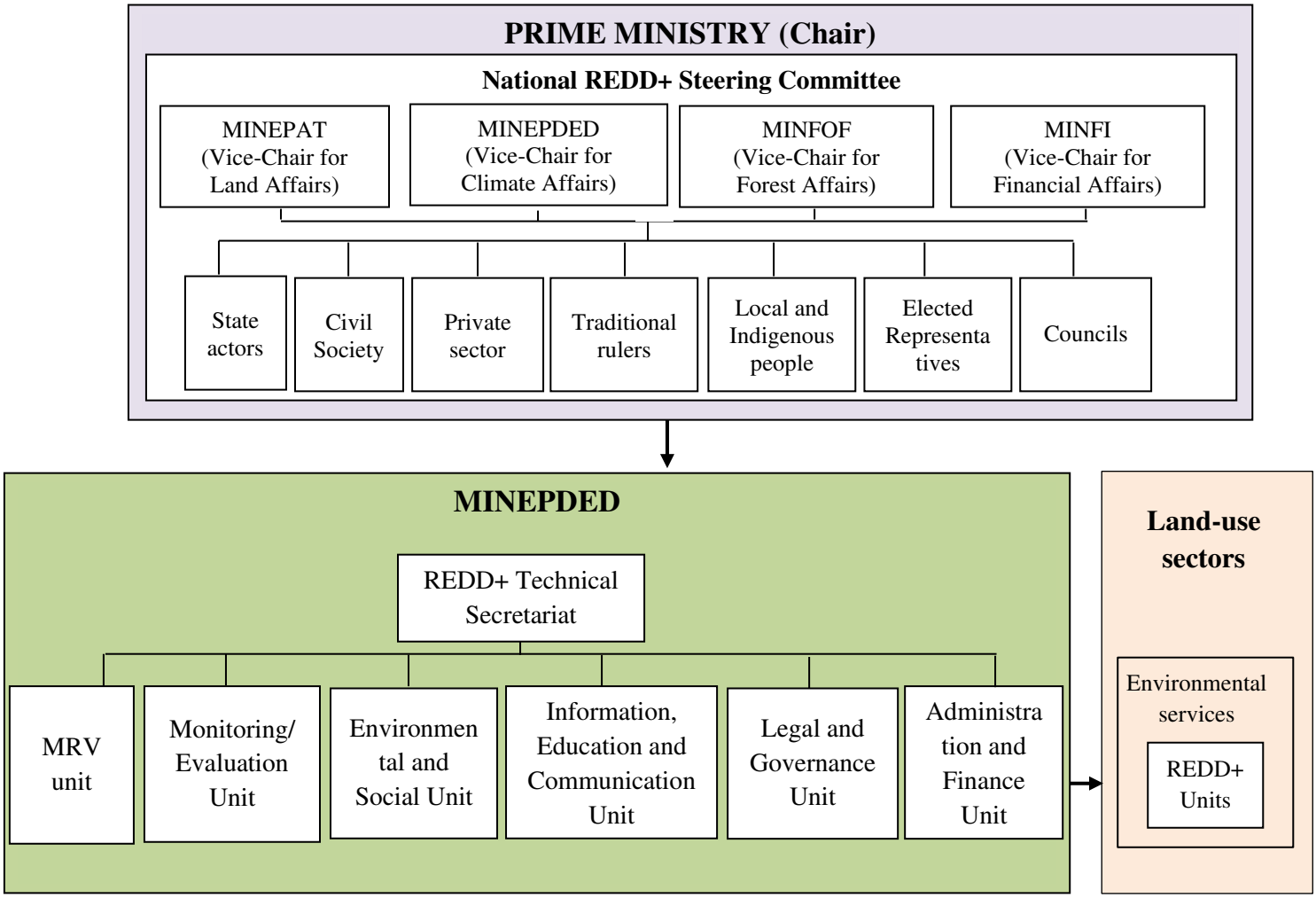

Figure 3: Suggested hybrid institutional arrangements of the REDD+ scheme

Such a hybrid institutional design entails all the features of horizontal and vertical integration mechanisms and maximises their benefits, all the while minimising their weaknesses. The weak leverage of MINEPDED and MINFOF under the current horizontal arrangement that impedes funding mobilisation for sectoral cooperation and undermines their mediation of land use disputes is strengthened by the Prime Ministry leadership supported by MINFI and MINEPAT deputy chairing roles. REDD+ implementation would equally enjoy the technical expertise, experience and advances of MINFOF and MINEPDED all the while shielding REDD+ from potential political instabilities associated with the Prime Ministry leadership in vertical arrangements, buffered here by the board of Vice-Chairs. Each vice-chair shall oversee a specific field (land, climate, forest, or financial affairs) to streamline administrative procedures. The integration process would be further improved by setting up REDD+ units within environmental services instituted in land use departments at national and subnational levels, to aid vertical integration within each sector. Such units would additionally address the problem

of limited knowledge of REDD+ at sectoral level, which has impeded REDD+ horizontal integration (Mcnally & Nguyen, 2016; Gakou-Kakeu et al., 2022). Weaving environmental services into land use sectors would ultimately facilitate the implementation of policy integration instruments such as the environmental impact assessment. This would allow to take account of and incorporate forest protection within land use projects, whose enforcement within land use sectors has been compromised by the loose grasp of environmental matters on the part of land use actors (Gakou-Kakeu et al., 2022). By redeploying the workforce from environmental delegations toward land-use administrations, this hybrid design bridges the sectoral segregation gap inherent in the prevailing fragmented model of multi-level governance.

The contribution of our study is multiform. We evaluate the potential for REDD+ institutional design to facilitate REDD+ integration into land use sectors driving deforestation within a Congo basin country. In so doing, we complement existing academic works on REDD+ organisational arrangements that have largely focused on their ability to help deliver effective emission reductions and support local participation. Academically, the thesis contributes to the theoretical field of organisational arrangements for EI by drawing on the conceptual literature to design a succinct and easy-to-apply framework outlining the features of vertical and horizontal integration mechanisms as well as their effectiveness for EI (table 1). The resulting framework has allowed to enrich the global REDD+ literature with an assessment of REDD+ organisational arrangements probing their potential to ease REDD+ integration into land use sectors. Testing this against previous EI studies enabled us to add nuance to scholars' submission that the ministries in charge of finance and land planning could strengthen the weak political leverage of the environmental department in horizontal arrangements. Drawing on evidence from studies completed in Cameroon and other countries, we have highlighted the caveat that their limited expertise in environmental matters undermines their leadership of EI. Through this study, we have shown REDD+ practitioners and decision makers how REDD+ organisational arrangements play a key part in the leadership and funding challenges, and the sectoral resistance they endure. We found that calls for a high-level leadership of the REDD+ process might not necessarily be a panacea, and that the envisioned organisational reform may fall short of addressing the challenges it seeks to redress and exposes REDD+ development to political uncertainties. This knowledge can equip decision makers with an example of a hybrid REDD+ organisational structure (figure 3) combining vertical and horizontal integration mechanisms, which has the enhanced ability to achieve REDD+ integration into land use

sectors. Its adoption in REDD+ countries, which - like Cameroon - have overwhelmingly followed horizontal organisational arrangements, would aid REDD+ integration into land use sectors across the tropics and boost the overall performance of the global REDD+ mechanism.

7. Conclusion

REDD+ integration into land use sectors driving deforestation is a function of institutional and organisational arrangements. We have assessed the potential for the organisational structure of the Cameroonian REDD+ scheme to facilitate REDD+ integration into competing land use sectors. Our analyses drew on document review and the conceptual literature on environmental integration that distinguishes horizontal and vertical integration mechanisms with varying potentials to foster EI. We have found that the Cameroonian REDD+ scheme currently led by MINEPDED with MINFOF assistance and featuring a cross-sectoral and multi-actor steering committee aligns with horizontal integration. Such arrangements infuse the REDD+ process with the technical expertise of the leading departments. However, they expose REDD+ integration to sectoral resistance and funding challenges due to the weak political leverage of MINEPDED and MINFOF, which lack the authority to influence decision-making within ministries of the same rank. The proposed organisational reforms featuring the leadership by the office of the Prime Minister of the REDD+ mechanism might improve political support for integration, but risks exposing the REDD+ process to political shifts. Further, as the first vice-president of the National REDD+Steering Committee in the envisaged reforms, MINEPDED remains in a leadership role of a cross-sectoral platform. Thus, the suggested reform barely departs from current arrangements and their inherent pitfalls. Instead, we have suggested a hybrid organisational arrangement combining horizontal and vertical features. In our proposal, the Prime Minister's leadership is supported by a board of chairs including the four ministries in charge of finance, the environment, forests, and land planning, which would shield the REDD+ process from political vagaries and shall each oversee a specific field to streamline administrative procedures. Our suggested design has the potential to minimise the limitations of horizontal and vertical arrangements while maximising their respective strengths and enhancing REDD+ integration into land use sectors. Evidently, the composition of state departments and administrative role distribution may vary across countries. Thus, we recommend further feasibility analyses of the applicability of the proposed hybrid organisational arrangements to other settings.

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