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Can Nationally Prescribed Institutional Arrangements Enable Community-Based Conservation? An Analysis of Conservancies and Community Forests in the Zambezi Region of Namibia

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Abstract: Community-based conservation is advocated as an idea that long-term conservation success requires engaging with, providing benefits for, and establishing institutions representing local communities. However, community-based conservation's efficacy and impact in sustainable resource management varies depending on national natural resource policies and implications for local institutional arrangements. This paper analyses the significance of natural resource management policies and institutional design on the management of common pool resources (CPRs), by comparing Namibian conservancies and community forests. To meet this aim, we reviewed key national policies pertinent to natural resource governance and conducted 28 semi-structured interviews between 2012 and 2013. Key informants included conservancy and community forest staff and committee members, village headmen, NGO coordinators, regional foresters, wildlife officials (wardens), and senior government officials in the Ministry of Environment and Tourism and the Ministry of Agriculture, Water and Forestry. We explored the following questions: how do national natural resource management policies affect the operations of local common pool resource institutions? and how do external factors affect local institutions and community participation in CPRs decision-making? Our results show that a diversity of national policies significantly influenced local institutional arrangements. Formation of conservancies and community forests by communities is not only directly linked with state policies designed to increase wildlife numbers and promote forest growth or improve condition, but also formulated primarily for benefits from and control over natural resources. The often-assumed direct relationship between national policies and local institutional arrangements does not always hold in practice, resulting in institutional mismatch. We aim to advance theoretical and applied discourse on common pool resource governance in social-ecological systems, with implications for sustainable land management policies in Namibia and other landscapes across sub-Saharan Africa.

Keywords: common pool resource governance; design principles; forestry policy; institutions; Namibia; wildlife policy

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1. Introduction

The relationship between resource degradation and common property systems has been the subject of intensive research for many years. The underlying debate is based on the assumption that when resources are limited and accessible to multiple users, everyone over-uses resources [1]. To avoid this 'tragedy of the commons', it was initially postulated

that the commons should be privatised or, if kept as public property, exclusive rights to entry and use should be allocated by public authorities [1]. However, this position has been widely critiqued (e.g., [2–4]) because it overlooks the existence of local norms, rules, and governance systems. There is now substantial evidence demonstrating that resource users effectively conserve and sustain their natural resources over the long term through local institutions [2,5–8]. In some countries, this understanding has led to the devolution of natural resource management, but with varying degrees of success [9]. Clearly, understanding the conditions affecting success is important for informing developments in international and national policy.

Common pool resource (CPR) theory has emerged as a strong analytical framework for understanding the local characteristics of successful community-based conservation [1,5,6,10,11]. Here, we refer to community-based conservation as an approach where long-term conservation success requires engaging with and providing benefits for local communities [12]. There is substantial literature that applies the CPR framework to common resources in different ecosystems, including forests, rangelands, and marine or freshwater systems [13]. Central to CPR theories are Ostrom's eight design principles, which outline common characteristics of successful long-enduring, self-governing CPR institutions [2,14,15] (Table 1). Whilst there are many variations on this set of principles which overlap considerably with conditions identified by other scholars [e.g., 10,11], they remain a useful starting point to assess various local institutional arrangements that are present in CPR systems.

Table 1. Design principles for long-enduring and self-governing CPR institutions [2,15].

Design Principle	Explanation
1. Clearly defined boundaries	1A: User boundaries—individuals or households with rights to withdraw resources from the CPR, and 1B: Resource boundaries—the boundaries of the CPR itself.
2. Congruence	2A: Congruence with local conditions—appropriation and provision rules are congruent with local social and environmental conditions. 2B: Appropriation and provision—the distribution of benefits from appropriation rules is roughly proportionate to the costs imposed by provision rules.
3. Collective choice arrangements	Most individuals affected by operational rules can participate in modifying those rules.
4. Monitoring	4A: Monitoring users—monitors who are accountable to the users monitor the appropriation and provision levels of the users. 4B: Monitoring the resource-monitors who are accountable to the users monitor the condition of the resource.
5. Graduated sanctions	Violators of rules are sanctioned depending on the seriousness and context of the offence by other users, by officials accountable to these users or from both.
6. Conflict resolution mechanisms	Users and their officials have rapid access to low-cost, local means to resolve conflict among users or between users and officials.
7. Minimal recognition of rights to organise	The rights of users to devise their own institutions are not challenged by external authorities.
8. Nested enterprises (for CPRs that are part of larger systems)	Appropriation, provision, monitoring, enforcement, conflict resolution and governance activities are organized in multiple layers of nested enterprises.

In this paper, we use Ostrom's principles to explore the relationship between nationally prescribed institutional arrangements and devolved natural resource governance in Namibia. The Namibian devolution process was implemented through the community-based natural resource management (CBNRM) program, drawing on international experience, especially Zimbabwe's Communal Areas Programme for Indigenous Resource Management (CAMPFIRE) [16]. CAMPFIRE demonstrated that in order to influence people's behavior, management authority and benefit rights need to be devolved to the lowest

possible unit [16,17]. However, in this case, the actual level of devolution-associated success was limited [18,19]. Thus, devolving authority to a higher local level is not sufficient to ensure efficient CBNRM by itself. Institutional arrangements are also critical, including how and by whom rules are made and sanctions are applied [3]. The presence of both community conservancies (focusing on wildlife management and tourism) and community forests (focusing on managing natural vegetation, forests, and woody vegetation, excluding wildlife) in Namibia, with contrasting nationally prescribed institutional arrangements, offers a natural experiment to explore the effects of these arrangements on local institutions and participation in decision making.

Many approaches have been suggested to deal with the challenges of community management of natural resources. These include CPR frameworks, CBNRM, integrated natural resource management, co-management, and institutional design principles, among others. CPRs are resource systems that are " . . . sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits" from their use [2] (p. 30). Therefore, at the heart of CPR theory is an understanding that there is a tradeoff between the costs and the benefits of excluding potential users, and the outcomes of this tradeoff, both for the community as a whole and for individuals. Although not conceived with this objective, Ostrom's framework also overlaps with the social-ecological systems concept which emphasizes the complex interactions and outcomes of different social, biophysical, policy, and economic systems [18–21], and allows for analyses of systems which are multi-layered at different internal and external levels, geographic scales, or nested systems [21]. It also involves the active integration of local inhabitants' voices, knowledge, and expectations [22]. Although we do not apply the first and second tier concepts of Ostrom's social-ecological framework [23,24], we acknowledge these nested, multiscale interactions in our analysis.

There is mounting evidence to show collaborative, community-based conservation as important in helping national governments meet international policy targets, while resulting in effective biodiversity outcomes [25]. At least 50% of the global land area is under customary ownership and management; the livelihoods of 2–3 billion people are directly dependent on the landscapes; and most of this land is rich in biodiversity [26]. The participation and rights of Indigenous peoples is listed as the first of 13 enabling conditions in the CBD's draft post-2020 Global Biodiversity Framework [27]. Despite considerable research on enabling conditions for effective governance of CPR, there is limited empirical understanding in particular contexts, including Namibia, of under what conditions institutional arrangements perform best [28].

This paper analyses the influence of national institutional prescriptions on local management of CPR institutions of communal conservancies and community forests. To meet this aim, we explore the following questions: how do natural resource management policies affect the operations of local CPR institutions and participation in decision making? and how do external factors affect local institutions and community participation in CPRs decision making? Results can contribute to an emerging research agenda on CPR theory [4] and concepts of enabling conditions.

2. Namibian Context

Namibia is well known for its recent work in community conservation—including community forests and communal conservancies [29]. Prior to 1960, all natural resources belonged to the colonial or South African government, and it was not until 1968 that freehold farmers' rights over wildlife were recognized [30]. This property regime was reinforced in 1975, when rights for white freehold farmers over wildlife were recognized through the Nature Conservation Ordinance (No. 4 of 1975). This legislative reform contributed to major increases in wildlife numbers on commercial farms for controlled hunting, managed through a permitting system [31]. However, local people on communal land had no legal rights to use natural resources or take action against any illegal hunting. During the early 1980s, in response to declining wildlife numbers [32], conservationists

started building trust with traditional leaders on communal lands, through the appointment of renumerated game guards for patrolling and reporting. By the late 1980s, wildlife populations substantially recovered [33]. This era marked the origin of CBNRM in Namibia. However, it had no legal backing. After independence in 1990, to redress past inequalities in land distribution and rights over wildlife, Namibia decentralized natural resource management on communal land, with regional government offices still involved. The creation of a mechanism for communal conservancies in 1996 marked a paradigm shift. Communal conservancies enabled communities to manage the resources where they live, and acknowledged the challenges of centralized government enforcement due to the large distances from central offices and limited resources [34]. Following this, in 2001, a similar mechanism for community forests was created.

By 2019, communal conservancies and community forests had been created on about 58.7% of all communal land, with an estimated 227,802 residents [35]. They covered 21.9% of the national territory, compared to 17.6% in National Parks and state-owned concessions and 6.1% in private conservancies. Thus, conservancies and community forests remain a significant component of the overall national conservation estate. The numbers continue to grow, with financial, technical, and political support from the national government, civil society, and multilateral donor agencies including USAID, UNDP, GEF, and the World Bank. However, there is an 84% overlap between conservancies and forests, which means that the same geographical areas are subject to two different sets of policy prescriptions and accountable to different government Ministries.

3. Materials and Methods

The presence of two contrasting nationally prescribed institutional mechanisms for CBNRM offers a unique opportunity for a comparative analysis of their role in enabling CBNRM on the ground.

The research consisted of two parts: a policy analysis and a set of key informant interviews. The policy analysis involved the identification of key laws and policy instruments through desk searches followed by a comparative content analysis focusing on institutional aspects and using CPR theory as a framework.

Subsequently, 28 in-depth semi-structured interviews were conducted between July 2012 and May 2013 using an interview guide to elicit information about the operations of institutions involved in natural resource management. Interviews assessed the functioning of local CPR institutions and determined the degree to which these institutions met conditions regarded as important for successful CPR institutions: boundaries, decision making, rules, monitoring, sanctions, and conflict resolution [2]. Further information about local and external institutions was collected related to the following: origins and development of the organization in terms of historical context and interests; institutional capacity in terms of skills, personnel, and financial resources; and institutional linkages in terms of levels of collective actions and information exchange.

The respondents were identified through snowball sampling. Individuals were targeted by virtue of their institutional position or experience and were expected to have in-depth knowledge of conservancies and community forests. At the national level, they included senior staff in the Ministry of Environment and Tourism, the Ministry of Agriculture, Water and Forestry, and one relevant NGO Integrated Rural Development and Nature Conservation (IRDNC). Regional and local respondents were selected from the Zambezi region, where there was a cluster of overlapping conservancies and community forests. They included government officials, NGO staff, regional foresters, chief control wardens, and others including conservancy/community forest staff, and committee members and community leaders. Interviews were conducted with three members of the same institution wherever possible but, other than this, the sample size was not set in advance but was reviewed during data collection using the principle of triangulation to determine whether a point of saturation had been reached. Saturation is defined as the point at which additional data collection "produces little important new information or understanding that

is relevant" [36] (p. 75). A full list of informants is presented in Table 2. A more in-depth field study was undertaken in this region and is reported elsewhere [37].

Table 2. List of informants interviewed.

Informant No.	Operational Level	Sector	Institution	Position
1	National	Government	Ministry of Environment and Tourism (MET)	Deputy director, scientific services
2	National	Government	Ministry of Environment and Tourism	Director, environmental affairs
3	National	Government	Ministry of Environment and Tourism	National director, Regional services and parks management
4	National	Government	Ministry of Agriculture, Water and Forestry/Deutscher Entwicklungsdienst (DED)	Community forestry in Namibia programme officer
5	National	Government	Ministry of Agriculture, Water and Forestry/Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Senior management advisor
6	National	Government	Ministry of Environment and Tourism	Coordinator, Namibia Protected Landscape Conservation Areas Initiative (NAMPLACE) project
7	National	NGO	Integrated Rural Development and Nature Conservation (IRDNC)	Co-Director
8	Regional	NGO	Integrated Rural Development and Nature Conservation (IRDNC)	Regional Assistant director
9	Regional	Government	Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA)	Regional Liaison officer
10	Regional	Government	Ministry of Land and Resettlement	Deputy director, regional programme implementation
11	Regional	Government	Ministry of Environment and Tourism	CBNRM warden, regional services
12	Regional	Government	Ministry of Agriculture, Water and Forestry	Senior forestry technician
13	Regional	Government	Ministry of Agriculture, Water and Forestry	Community forestry technician
14	Regional	Government	Ministry of Environment and Tourism	Landscape specialist, Namibia Protected Landscape Conservation Areas Initiative (NAMPLACE) project
15	Regional	Government	Zambezi regional council	Chief regional officer
16	Local	Communities	Sobbe communal conservancy	Acting conservancy manager
17	Local	Communities	Sobbe communal conservancy	Senior community resource monitor
18	Local	Communities	Kwandu communal conservancy	Conservancy chairperson

Table 2. *Cont.*

Informant No.	Operational Level	Sector	Institution	Position
19	Local	Communities	Kwandu communal conservancy	Manager
20	Local	Communities	Kwandu communal conservancy	Field officer
21	Local	Communities	Kwandu traditional authority	Headmen
22	Local	Communities	Mashi communal conservancy	Chairperson
23	Local	Communities	Mashi communal conservancy	Manager
24	Local	Communities	Sachona community forest	Chairperson
25	Local	Communities	Masida community forest	Chairperson
26	Local	Communities	Masida community forest	Vice chairperson
27	Local	Communities	Kwandu community forest	Honorary forester
28	Local	Communities	Lubuta community forest	Chairperson

All interviews were conducted in person by the first author in either English or in Silozi and lasted 1.5–2 h. Interviews were recorded in detailed handwritten notes, audio recordings or both. All audio data were transcribed. The principles of thematic analysis were used to organize the qualitative data by creating and applying codes to the data [38,39]. The development of the coding protocol (categories) was informed by the conceptual framework of CPR design principles [40] and codes (free nodes) based on the research questions. Six broad 'operational' themes or codes were created, several of which included two or more sub-codes. The six broad themes included the following: (1) community characteristics; (2) rules in use; (3) rule enforcement; (4) support; (5) conflicts; and (6) interactions. Coding was completed using NVIVO v.10, first according to the broad predetermined themes and subsequently using 'free' nodes. Following coding, material was extracted on each theme and synthesized into a summary.

4. Results

4.1. Desk Analysis: Key National Policies Influencing CPR Institutional Arrangements in Namibia

The regulations that affect CBNRM in Namibia are wide-ranging, dispersed across various legal and policy frameworks and ministries, and have changed over time. This makes implementation and coordination of CBNRM challenging. Here, we discuss five key policies.

First, the policy on Wildlife Management, Utilisation and Tourism in Communal Areas was enacted by the Ministry of Environment and Tourism in 1995. In this policy, past discriminatory provisions of the Nature Conservation Ordinance (1975) (the second key policy) were removed for communal farmers to gain the same recognition of rights over wildlife as freehold farmers. This paved the way for the formation of conservancies on communal land.

Following this, legislative reform allowed conservancies to be registered through the Nature Conservation Amendment Act 5 of 1996. The act recognized the right to the consumptive and non-consumptive use (typically for tourism) and sustainable management of wildlife in conservancies [41]. Many saw this as an important step for communities to have greater control and benefit from resources; to provide for wildlife damages offsets; to reduce uncontrolled harvesting; and to prevent harassment from illegal hunters [42]. Under this act, clearly defined boundaries, membership, a committee, a constitution, and a plan for the equitable distribution of benefits to members are all required to be a registered conservancy. Membership is voluntary rather than prescribed; and is based on how members of the conservancy are defined by the adult ($\geq$18 years) communal area representatives. This enables communities to use existing institutions, including traditional institutions, as the basis for their conservancy committee (see next section). An individual or community can sell or lease the rights of management and exclusion or both, as outlined by the right of

alienation. Property can be transferred from the Ministry of Environment and Tourism or the Ministry of Agriculture, Water and Forestry to the communities in two ways. The first is that property rights are awarded de jure, whereby the government explicitly grants such rights to communities living in these areas by formal law. The second is recognition of de facto rights, where land is communally owned and falls under customary law [43].

A third important policy is the Forest Act 12 of 2001. Like the conservancy legislation, the act recognizes the rights of communities over forest resources, with the twin goals of CBNRM in mind: conserving biodiversity and improving rural livelihoods. Communities enter into a written forest management agreement with the government based on defining boundaries, developing management and benefit-sharing plans, cost sharing arrangements, and appointing a management authority. To date, however, the establishment of community forests has been somewhat slow compared to conservancies, partly due to lack of funding.

The fourth important policy is the Communal Land Reform Act 5 of 2002, which is implemented under the Ministry of Lands and Resettlement (MLR). This act recognizes customary law and makes provision for traditional authorities to administer, allocate, and be involved in the registration of communal land rights. The act also determines the conditions of grazing rights on communal land, including allocation to non-residents [44]. Customary land rights to areas under 20 hectares can be allocated to individuals for up to 99 years and transferred to descendants of the rights-holder.

Fifth, the Traditional Authority Act 25 of 2000 makes provision for traditional authorities to apply customary law in the allocation of communal land, harvesting forest resources and other matters related to CPR. The Traditional Authority Act is implemented by the Ministry of Regional, Local Government and Housing and Rural Development (MRLGHRD). Section 16 of the Traditional Authority Act requires traditional authorities '*to support policies of government, regional councils and local authority councils and refrain from any act which undermines the authority of those institutions*' (p. 13). Thus, most conservancies and community forests are directly linked to a traditional authority [43,45].

Under this act, the traditional authority court (khuta), is the governing body in each district (Figure 1). Each village has a headman (induna) and a senior headman (induna silalo) who represents several villages. In most cases, the principal advisor (ngambela) does not directly communicate with the chief (litunga), but instead information is conveyed through the deputy advisor (natamoyo). Disputes are first considered at the village level by the village indunas. If a solution is not found, the matter is escalated to the district khuta where village and senior headman discuss the matter, overseen by the induna silalo that presides over the district. If a solution is still not found, the matter is escalated by the induna silalo to the higher traditional authority khuta to the ngambela. If the ngambela is unable to settle the matter, it is referred to the litunga who will hear witness statements privately and publicly with the concerned communities before a verdict. The last resort would be to refer the matter to the magistrate court.

However, three areas prove challenging to the implementation of the Traditional Authority Act: (i) it is open to interpretations when there are power struggles or legal cases between traditional authorities and government [45]; (ii) customary laws (i.e., norms, rules of procedure, traditions, and usage) that are not written down can be difficult for outsiders to ascertain and subject to diverse interpretations; and (iii) enforcement is dependent on the traditional authority's legitimacy.

Table 3 summarizes the key features of the national prescribed institutional frameworks for community conservancies and community forests that are relevant to CPR theory. These relate to access and withdrawal, management decision-making, powers of exclusion, and transfer of rights, including alienability.

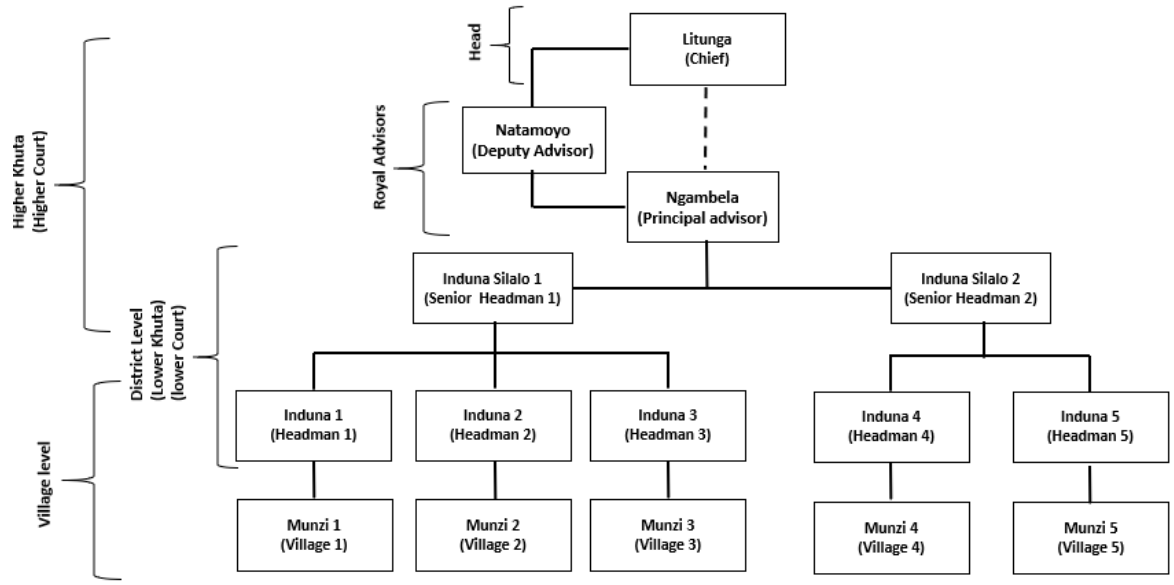

Figure 1. Simplified traditional rural governance structure in the Zambezi Region. Typically, khutas comprise of the chief (litunga), principal advisor (ngambela), deputy advisor (natamoyo), senior headman (induna silalo), headmen (indunas, or councilor) and secretaries. The ngambela is the administrator, while the natamoyo is the personal advisor to the litunga.

Table 3. Comparison of key features of nationally prescribed institutional arrangements for conservancies and community forests.

Access and Withdrawal	Management Powers	Powers of Exclusion	Transfer of Rights, Including Alienability
Communal conservancy			
Geographical boundaries are legally defined. Conservancy members are legally registered and their rights to use and benefit from certain wildlife resources are legally recognised. Wildlife quotas are set by the Ministry of Environment and Tourism. The traditional authority, not the conservancy, may grant grazing rights to non-residents.	Communal conservancy management and executive committees make management decisions about wildlife. Community game guards monitor wildlife and report violations to the Ministry of Environment and Tourism. Conservancies may apply for permits for live capture and sale of wildlife. They can also ask for permission to reduce numbers of certain wildlife species.	The management committee can cancel an individual's membership. The community decides on which villages may be part of the communal conservancy. However, they have no powers to exclude outsiders.	Rights to sell or lease the resources are very limited. A conservancy can enter into a contract with an investor granting them permission to develop a tourism facility such as a lodge. Customary land rights may be transferred to descendants of the rights-holder. Only the Ministry of Environment and Tourism can dissolve the communal conservancy.
Community forest			
Geographical boundaries are legally defined. Any person with traditional rights to the area has rights to harvest and benefit from forest resources. Annual allowable cut for tree species is determined by the Directorate of Forestry. Grazing rights can be granted by the government in consultation with the traditional authority.	Management powers over a specified area are devolved to the community level. The community shares responsibility with the Directorate of Forestry regarding the control of forest use.	Powers to exclude outsiders from encroaching the forest are limited. The traditional authority may grant grazing rights to non-residents.	Rights to sell or lease the resources are very limited. Customary land rights may be transferred to descendants of the right holder. Only the Ministry of Agriculture, Water and Forestry can dissolve the community forest.

In the rest of this section, we explore and discuss the implications of the above features for enabling implementation on the ground, informed by the results from the semi-structured interviews and using Ostrom's eight design principles as a framework (Table 1).

4.2. Clearly Defined Boundaries

Design principle 1 is concerned with defining the boundaries both of users; the set of individuals or households who have rights to withdraw the natural resources (principle 1A) and of the natural resources included or excluded under the CPR regime (principle 1B). As outlined above, user boundaries are precisely defined under the legal frameworks for conservancies, which should keep a register of all members. All conservancy constitutions defined members by their residence status within the conservancy boundaries and in most cases the register included information on residence status. However, the interviews revealed contradictions between formal registration and customary systems of resource governance. One elderly community member expressed this as follows:

> *I don't have to register to become a member of this conservancy, Everyone knows I was born here, even my parents were born here, this is my area, why should I register?*

In contrast, members of community forests are defined by law as anyone with customary land rights to an area, even if they do not currently reside in the area. This means that user boundaries are not as clearly defined as for conservancies and there is no list of members. On the other hand, there is more flexibility for decisions about which individuals or households are included—made according to local customary governance systems. According to the chairperson of one conservancy committee that also administers an overlapping community forest, the reasoning behind this approach is to ensure that no-one with customary rights is excluded from benefiting directly from the use of forest resources.

In relation to boundaries of the natural resources, the geographical boundaries of both conservancies and community forests are legally defined and well understood by local community members. In community forests, which are concerned only with the management of stationary resources (plants), this is sufficient to fully define the boundaries of the natural resources concerned. However, conservancies are concerned with wildlife, some species of which move between conservancies, across landscapes and even between countries, which greatly complicates efforts to set quotas and to monitor resources and their use. According to a landscape specialist, this has been partially addressed through joint game counts, patrols, and post-translocation monitoring of wildlife over a wider area.

4.3. Congruence between Appropriation and Provision Rules and Local Conditions

Design principle 2A concerns congruence between rules for the appropriation, as well as use and provision of resources with local social and environmental conditions. A crucial aspect of environmental conditions is the state of the natural resources concerned. In both conservancies and community forests, this was considered through the use of ecological monitoring to set quota allowances. Monitoring in conservancies took the form of annual game counts of different species, which was regarded as largely effective despite the limitations related to wildlife mobility outlined in the previous section. Monitoring in community forests took the form of forest inventories which, according to an official from the Directorate of Forestry, were used in setting timber harvesting quotas. However, the accuracy of forest inventories was raised as a potential limiting factor in the effectiveness of the timber quota system.

There was little evidence of flexibility to adapt rules about appropriation and use to local social and cultural conditions. Conservancies can request hunting quotas for their own use for religious and cultural festivals from the Ministry of Environment and Tourism. Subsistence hunting is not permitted unless individuals have paid for a permit, which most members cannot afford runs counter to customary norms and practices.

Design principle 2B is concerned with the distribution of costs and benefits from resource management and use and the balance between them. In both conservancies and community forests, members who were employed or who were in management committees (incurring a cost in terms of time and effort) received monetary benefits in return. Committee members stated that others received non-monetary benefits, such as shared meat in conservancies and the rights to use forest resources including non-timber forest products (NTFPs) in community forests. One option for conservancies was to offer short-term positions so that more people would receive benefits over time. However, according to one NGO official, this created challenges in terms of continuity and abuses of power:

> *"Weak institutional memory is a challenge if you have a new committee that is enacted every two to three years . . . Those* [conservancy] *positions are very vulnerable because people see that* [having a position in the conservancy] *as the* [main] *benefit".*

4.4. Collective Choice Arrangements

Principle 3 states that most members who are affected by the rules within a CPR regime should have a say in formulating the rules. This depends both on the extent to which the rules are nationally prescribed or can be formulated locally, and second on who has a say in decisions at the local level. In relation to the first of these, there are many nationally prescribed rules for both conservancies and community forests over which the resource users have no say. Members of conservancies raised this as problematic, saying that the prescribed rules were too restrictive and that they were powerless to oppose them. One example was the nationally prescribed ban on traditional subsistence hunting without payment. Committee members expressed the view that at the least they should be able to hunt birds (such as guinea fowl) and small animals (such as South African springhare) for subsistence use, and also that they should be allowed to walk with dogs in the forest for protection against wild animal attacks. During 2013 and 2014, the Directorate of Forestry placed a national moratorium on the harvest and trade of timber in Namibia, which affected income generation in community forests. The moratorium was triggered by concerns about unsustainable use of forest resources, particularly in the north-eastern regions of the country. The chairperson of one community forest expressed frustration over the moratorium:

> *"They* [the Directorate of Forestry] *came to stop us from cutting timber because of some other people outside the community forest that were cutting timber without permits, why is that?"*

NGOs have also played a crucial role in defining the rules for conservancies, and while the intention may be to empower communities to formulate the rules, this may not translate in practice. For example, one senior NGO official described the process as:

> *"Guiding conservancies to make sure they have good governance"* but was quick to admit that *" . . . we cannot pretend that we are not influencing them* [conservancies]*".*

In terms of local participation in rule-making, some conservancies promoted the direct participation of all members (e.g., in attending annual general meetings, voting on conservancy matters, speaking at any meeting) whereas others allowed only a small number of representatives to participate. In community forests, the scope for member participation was restricted both by the lack of regular meetings of the whole community and by a lack of information about the occasional meetings that did take place. According to the chairperson of one community forest, in many instances the management committee took decisions in consultation with just the traditional authority.

4.5. Monitoring

According to principle 4, monitoring should be carried out regularly both of user behavior (4A) and of the condition of the natural resources (4B), and monitors should be accountable to the user group. In conservancies, monitoring took the form of regular patrols

by community game guards who were employed by and answerable to the management committees, whereas in community forests the committee members had to carry out monitoring themselves. Conservancy monitoring tended to be carried out on a regular basis, while community forest monitoring activities tended to be less regular due to the lack of paid personnel and incentives. As was said by the chairperson of a community forest:

> *'People are not willing to work for free, that is why some committee members prefer not to be active'.*

Both local and external respondents pointed out the lack of funds in community forests as a major setback to the success of forest management. Interviews with forestry officials indicated that funding to community forests had come mainly from international donors. Most conservancies, on the other hand, secured substantial operational funds from trophy hunting and other wildlife related activities such as joint-venture tourism. An analysis of financial reports from a sample of conservancies in the study area show that conservancy income varied between years and conservancies. Conservancies that had diverse sources of income (e.g., trophy hunting and tourism joint ventures) showed a steady increase in income over three years while those that relied only on trophy hunting showed no clear patterns. However, the results further indicate that most of the funds generated by conservancies went towards operational costs, leaving very little to benefit the wider community.

Monitoring of natural resources is included in the policy prescriptions for both conservancies and community forests. In both cases, responsibility for monitoring rests with the user group, with assistance from other stakeholders (e.g., NGOs, ministries). According to MET officials, conservancies are required to conduct annual game counts in order to be allocated hunting quotas. Monitoring activities are described in Section 4.5 above. Monitoring in conservancies tended to be much more regular and robust than in community forests, because of the existence of financial resources and monetary payments for community monitors. One government official from the Directorate of Forestry also indicated that local forest monitors were prone to bribes from timber dealers and that therefore the Department of Forestry needed to be involved in monitoring forest resources whenever possible.

4.6. Graduated Sanctions

Principle 5 states that violators of the rules are sanctioned according to a graduated system, depending on the seriousness and context of the offence. This principle also states that sanctions are applied by users, officials accountable to these users, or both. Interviewees at all levels indicated that the principle of graduated sanctions was strongly adhered to in both conservancies and community forests. The procedures for handling cases of rule-breaking and types of conflict resolution or sanction depended on the severity of the case. For example, sanctions for illegal hunting in conservancies varied according to species. However, sanctions in community forests were generally mild unless the offence involves harvesting high-value timber. Sanctions were commonly perceived as harsher for first offences in conservancies than in community forests. However, severity of offence was defined differently by different actors. For instance, one ministry official considered illegal hunting involving protected and high-value species as a severe offence, while some conservancy committee members regarded all types of hunting including possession of game meat without permission as severe offences.

The extent of adherence to the second part of this principle, which relates to who has the authority to apply sanctions, is less clear-cut. One conservancy field officer stated that cases of illegal hunting of any wildlife species are reported directly to the Ministry of Environment and Tourism, who then decide whether to fine the rule violator through the court system or directly. In community forests, the users had greater powers of discretion in relation to sanctioning. Community forestry chairpersons indicated that local violators are usually just warned in the first instance and the illegally harvested product is confiscated. However, persistent and serious violations are reported to the Directorate of Forestry.

Collaboration between local CPR institutions and state institutions is particularly important in relation to enforcement and sanctioning where rules are broken by outsiders. In relation to conservancies, it was reported that communities cannot deal with serious cases of illegal hunting by outsiders themselves due to their limited mandate, decision making power, and equipment. The role of the traditional authority has diminished over time, as reported by one conservancy manager:

> *"They* [the traditional authority] *don't deal with natural resource crimes anymore, although in the past the conservancy would report to them"*.

Legally, conservancies can apprehend but not arrest offenders and they must report them to the relevant ministry (e.g., Ministry of Environment and Tourism, Directorate of Forestry) or police. In contrast, illegal harvesting of forest resources was still usually dealt by the community forest management committee and the traditional authority.

4.7. Conflict Resolution Mechanisms

Principle 6 states that users and their officials should have rapid access to low-cost, local means to resolve conflict, whether it is among users or between users and officials. This principle is adhered to in community forests than conservancies because, in community forests, local conflict resolution mechanisms are in place and are often considered more responsive and effective than those involving external authorities. Wildlife-related conflicts, which fall under the responsibility of conservancies, are mainly handled externally by government institutions.

Although several key informants agreed that the traditional authority plays an important role in the governance of CPR in both institutions, there were different views about the role of the traditional authorities and their relationship to the nationally prescribed institutional structures. On the one hand, some informants argued that although the traditional authorities played a critical role in the initial formation of conservancies, they interfered with the later operations of the conservancy. On the other hand, respondents perceive that the power of traditional authorities has been weakened by the new conservancy structures, as voiced by one traditional leader:

> *"The conservancy is dominating us. Even now we have papers from the khuta* [traditional authority court] *saying we must deal with issues of natural resource use. We are supposed to charge people and get money out of it, but the conservancy has now taken over and dominates the khuta"*.

4.8. Minimal Recognition of Rights to Organise

Principle 7 states that the rights of users to devise their own institutions should not be challenged by external authorities. In Namibia, all communal land belongs to the state but communities that apply and register their areas as conservancies and community forests have conditional recognition of rights to manage and benefit from CPRs in their areas. However, they have limited flexibility to devise their own institutions because of the detailed prescriptions in national policy. Therefore, the principle is only partially met. One particular issue arising from this study is that some aspects of the prescriptions are incompatible with customary institutions and norms. Moreover, communities still need to seek permission from external government ministries to use natural resources.

4.9. Nested CPR Systems

Design principle 8 states that the different aspects of CPR systems should be organized in multiple, nested layers. This is the crux of the current paper, which focuses on the relationship between the national and local levels. This is an area where CPR theory intersects closely with social-ecological systems theory, based on the principle that higher-level institutional structures and prescriptions should support local communities in order to increase resilience.

In the case of community forests and communal conservancies, the principle of nested systems is adhered to in the superficial sense that there is more than one layer of organization. There are substantial prescriptions for institutional structures and rules at the national level, whereas some details can be defined locally. There are also some aspects that are defined internationally and are reflected in national policy (e.g., in relation to trade in endangered species through the Convention of International Trade in Endangered Species of Fauna and Flora). However, as the preceding sections have demonstrated, the extent to which national components support local governance or give flexibility to adjust to local contexts is very limited. In some instances, national policy is in direct conflict with customary governance systems and has disenfranchised customary authorities. The overall long-term effect may thus be to weaken, rather than strengthen, community coherence and governance. Although legislation allows communities to manage resources, they must do so within the specific prescriptions laid down at the national level and are still substantially dependent on government decision-makers to develop, implement, and enforce national policies.

The existence of the two contrasting institutional frameworks at the national level creates further complexity and confusion, especially where they are applied over the same area of land. This was commented upon not only by community members but also by government officials. One ministry official described the problem as follows:

> *'I don't think it is proper to give people an area to manage animals within it, but they don't have the right to use and manage the trees and plants around them. Would one take the conservancy to court if the elephant kept on destroying the forest? Should a forester say to the conservancy your elephants are destroying my forest? This is why all resources should be inclusive and belong to one target group in a specific area'.*

Interviews with government officials revealed that the ministries responsible for implementing conservancy and community forest policies tended to make decisions independently. This separation was further apparent at the local level through the formation of separate committees for the two types of resources—often weakening pre-existing traditional systems of natural resource governance. Some regional government officials indicated that integrated decision-making system at the local level is difficult to achieve because of the lack of cross-sectoral cooperation at higher levels and an NGO official expressed the same sentiment:

> *"On the ground, yes, there is some sort of collaboration. But at national level, there is no collaboration between the stakeholders within CBNRM. We need to sit together and chat a future together, and do integrated planning, implementation and monitoring".*

The desk review of policies and other government documents revealed clearly that the barriers to integrated natural resource decision making stemmed from segregated national governmental structures and legal frameworks governing different types of natural resources, and particularly inadequate coordination between the separate agencies responsible for management of wildlife and forests.

A simplified summary of the extent to which Ostrom's design principles are met in national prescriptions for conservancies and community forests is presented in Table 4.

Table 4. Strength of alignment between CPR design principles and institutional arrangements for conservancies and community forests.

Design Principle	Conservancies	Community Forests
1a. Clearly defined user boundaries	Strong. A full list of registered users is required in order to register a conservancy.	Medium. Criteria for defining users are set nationally but their application is left to the local level.

Table 4. *Cont.*

Design Principle	Conservancies	Community Forests
1b. Clearly defined resource boundaries	Medium. Geographical boundaries are defined but wildlife are highly mobile.	Strong. Geographical boundaries are defined and the boundaries fully define the resources to be managed (plants).
2a. Congruence with local conditions	Social: Weak. Little evidence of flexibility to adapt to local social conditions. Environmental: Medium. quotas are based on annual game counts, but game move over large areas, limited effectiveness of this approach	Social: strong. Few restrictions on most subsistence forest resource use. Some involvement of traditional authorities. Environmental: medium. Timber harvesting quotas are based on forest inventories, but concerns were raised about their accuracy.
2b. Proportionality of costs and benefits	Strong. Those who take on specific activities such as monitoring are paid.	Weak. Very little financial benefits to those who are involved in specific activities.
3. Collective-choice arrangements	Medium. Many aspects are nationally prescribed, but community members do have a say in locally prescribed aspects.	Low. Many aspects are nationally prescribed and for those that are locally prescribed there is little opportunity for most members to have a say.
4a. Monitoring of users	Medium. Regular patrols by paid community game guards answerable to management committee.	Low. Monitoring irregular due to lack of incentives.
4b. Monitoring of the resource	Strong. Regular game counts.	Weak. Forest inventories of variable quality.
5. Graduated sanctions	Medium. Sanctions varied according to the type of offence and whether it was a first offence, but the powers of conservancy to apply sanctions were limited and the powers of traditional authorities had diminished.	Medium. Sanctions varied according to the type of offence and whether it was a first offence but tended to be mild. Community forest management committees and traditional authorities had greater powers to apply sanctions.
6. Low-cost local conflict resolution mechanisms	Weak. Conflicts related to wildlife were handled mainly by government institutions.	Strong. Local conflict resolution mechanisms in place.
7. Minimal recognition of rights to organise	Medium. Both policy mechanisms (conservancies and community forests) enable communities to gain recognition of rights to resource use in defined areas of land but they must organize themselves according to rigid nationally prescribed institutional requirements.	
8. Nested enterprises	Medium. Both policy mechanisms (conservancies and community forests) involve more than one layer of institutional structures but there are inconsistencies between the different layers and further contradictions where conservancies and community forests overlap.	

5. Discussion and Conclusions

The above analysis provides some preliminary insights into the effects of nationally prescribed institutional arrangements for conservancies and community forests and the broader implications in terms of enabling conditions for community-based conservation.

First, it demonstrates the critical importance of adequate coordination across sectors, scales, types of resources, and between different legal and administrative systems. This is particularly needed considering the large dispersal area of wildlife which move across conservancy boundaries (similar to fisheries, see [46]) and require a nested approach involving both local and external management. In Namibia, sectoral policies and legislation have created competing and overlapping national, regional, and local community institutions for management of different kinds of natural resources (wildlife, under communal conservancies, and timber and NTFPs under community forests). The need for more integrative

whole-of-government approaches across sectors is recognized as an enabling condition for effective conservation in the draft post-2020 Global Biodiversity Framework [27].

Second, it highlights the risk that overly rigid national prescriptions may be disenfranchising traditional authorities and weakening the resilience of local social-ecological systems. This is an issue that has been widely documented in other parts of the world (for example see [47]). Ostrom's design principles refer to nested systems that operate at different levels and imply a balance between the creation of a framework at the higher levels to enable local actions and the need to leave flexibility for the details to be designed locally according to the local social and environmental context.

Third, financial independence is critical to any institution that hopes to produce results and perform administrative functions. Conservancies were able to generate income through tourism, whereas no community forests were reported to have secured long-term funds for their operations, and this was recognized as a major constraint. The identification of sustainable sources of conservation finance is a key issue in the post-2020 Global Biodiversity Framework, including finance for community contributions to conservation [48]. We recommend the introduction of measures to ensure that communities receive direct benefits in return for their efforts, which could motivate them to sustain active participation in forest management and hold positions for a longer period to avoid rent-seeking behavior and loss of institutional memory and effectiveness [49]. Where conservancies and community forests overlap, opportunities for joint monitoring exist. Forest inventories need to be regularly updated to ensure that allocated harvesting quotas are still within sustainable limits. The allocation of wildlife hunting quotas to a cluster of conservancies in the same vicinity could improve congruence with resource conditions.

Fourth, as early as 1998 [34], Jones called for a change in policy to embed secure land tenure in natural resource management systems to ensure that communities hold secure rights over all natural resources on their land. Although progress has been made (e.g., through the Flexible Land Tenure Act 2012 and CBNRM policy which promotes integrated land and natural resource planning and decision making), more than two decades later, the strengthened tenure rights have not materialized for most communities in spite of widespread recognition in academic and global conservation policy fora of the fundamental requirement for secure tenure rights as a precondition for the long-term effectiveness of community-based natural resource management [27,50]. There is a pressing need to revisit the current legislation to strengthened tenure rights and ensure conducive environment for the development of community conservation in Namibia.

The analysis in this paper of conservancies and community forests from Namibia demonstrates the value of Ostrom's design principles in highlighting how national policies may enable or disable community conservation in particular contexts. However, it also indicates the complexity and plurality of the relationships between national policies and local institutional arrangements. An overarching conclusion is that over-prescription at the national level can be counterproductive, weakening customary governance systems and local social-ecological resilience. The extensive body of research on CPRs has demonstrated that it is not just the nature of the rules and other institutional arrangements that is important, but also that the resource users are fully involved in their design and implementation, including defining resource boundaries, enhancing the monitoring, enforcement, conflict resolution and prosecution capacity, and meeting regularly with a wide range of actors to continually evaluate operation rules and norms, overcome ambiguities in handling violations, and enhance compliance [2,51].

Our research aligns with a recent focus on how environmental policies might be designed and transformed to improve the outcomes of community conservation. When the study was conducted, officials working in the different ministries responsible for implementing conservancy and community forest policies and legislation were making decisions independently. In 2020, the Department of Forestry was incorporated into the Ministry of Environment and Tourism; however, it is too early to evaluate the effect of such a change to the governance of wildlife and forest resources. This analysis provides

a basis on which a detailed analysis of the actual performance of CPR institutions can be conducted; to determine under which conditions certain CPR systems would perform best. This study could also be used as a basis for follow up to see if conditions have changed and therefore provides a baseline which could be used to assess further changes in policy frameworks. We hope to have contributed to the global debate on theories about CPRs and environmental policy analysis.

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Informed Consent Statement: Informed consent was sought according to the University of Kent Research Ethics Guidelines and measures were put in place to prevent harm to the participants of the study. A brief description of the study and its purpose was presented to each informant before the start of the interview.

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