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# Analysing Environment-Development Interventions Through the Lens of Indigenous People in Cameroon

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## Abstract

Ideally, both environmental protection and human development policies should improve human well-being through the conservation of ecosystems that provide valuable services. However, in practice, this rarely happens. Settings for environment-development interactions are complex because they consist of diverse ecological systems as well as and human engineered knowledge systems. Using the pathways approach analytical framework to sustainability, this paper analysed how actors' understandings and scale of knowledge in environment-development interventions influence sustainable management. Data for this study used mix methods, including interviews, questionnaires, policy document texts and field observations. The main findings suggested that the diverse views and scales of knowledge mobilised by different actors in conservation-development interventions is a major challenge in producing sustainable outcomes. The inability of conservation practitioners to conveniently reconcile different narratives held by different actors leads to the domination of powerful actors narrations, on which policies are based. The major setback in attaining sustainable forest management does not necessarily lie in the conflicting interests of actors, but also in the social processes that guided the negotiation of these conflicting interests. This study argues that local people and traditional structures have the potential to contribute sustainable forest management processes if offered the space. Given that local people are often not directly engaged in forest management planning, their actions are directly or indirectly influenced by other actors (elites). This makes it more complicated to achieve processes that might lead to sustainable forest management. There is a need to create a convenient space that enables conservation practitioners to see and promotes conservation through the lens of the local people.

**Keywords:** indigenous knowledge, scales of knowledge, environmental conservation, local development, pathway approach, Cameroon

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## 1. Introduction

“The rapid growth of human populations living in areas of endemic poverty and the rapid loss of natural habitats and the species within them have drawn international attention to interventions designed to effect positive socio-economic and environmental change” [1]. This is due to the belief that targeting conservation and poverty alleviation together can improve conservation effectiveness [2]. Poverty and environmental deterioration are argued to be among the gravest challenges faced in the developing world today [3]. The relationship between poverty and the environment is complex and highly influenced by the socio-economic factors of the locality. This warrants the need for multidisciplinary analyses of how interactions among a variety of factors affect outcomes in the socio-ecological system (SES) [4, 5]. This is supported by the argument that negotiating conservation-development actions requires greater emphasis on diverging values and diverging preferences for the scale of operation and action [6]. This study analysed how different actors in the proposed Tofala Hill Wildlife Sanctuary (THWS) understand and narrate wildlife conservation and how these difference narrations influence conservation strategies. Specific questions included (i) What understandings do individuals make of conservation initiatives? (ii) How do these narrations translate to conservation outcomes? (iii) What possible pathways could ensure sustainability in conservation management strategies?

The THWS is an important landscape for the conservation of biodiversity and is under consideration to be named a wildlife sanctuary [7]. It is one of the fragmented forest habitats harbouring the critically Cross River gorilla (*Gorilla gorilla diehli*), which has a population of less than 300, left in the wild [8]. This species is under high conservation priority given its vulnerability to human threat. This adds to the reasons why it is given high conservation preference [9]. On the other hand, the local people living adjacent to the THWS have continuously relied on the forest for livelihoods for several years without conservation interventions until 2004, following the discovery of the cross river gorilla in the forest. This new era of conservation put the local people into doubt, as they feel their forest rights may be taken away as conservation activities intensify in the area [7]. In this line, the local non-profit organisation working in this project area is implementing community-based conservation approaches to reconcile local livelihood needs and conservation. However, the diverse views held by the different actors involved in the project seem to be a main challenge to the success of the project as argued in this study.

The prospect of local people to sustain community-based natural resource management (CBNRM) for livelihood security and conservation needs is centred on how well programmes are embedded in sociocultural relations, politics, resource needs and uses [10]. In this line, establishing sustainable linkages between environmental conservation and local development actions require the consideration of how policies influence and are influenced by actors in CBNRM [11]. It is also argued that most often than not, actors hold diverse interests, motivated by their scale of knowledge, which together with scale politics, lead to conflict in forest resource management [6, 12]. Scale of knowledge as used in this study refers to the temporal and spatial extent and character of knowledge held by individuals and collectives [12]. These diverse framings form the dynamic and complex SES we live in [5, 13].

As environmental conditions are changing rapidly, so too are social systems. Thus, there is a need for a robust conceptualisation of these constant changes if we need to attain sustainability in the SES. The pathway approach to sustainability questions how sustainability can be achieved in a complex and dynamic system and how contestation between alternative approaches and goals played out among actors [13]. This is based on the assumption that development drives social and ecological changes, which affect the SES. Thus, the dynamic SES raises some major policy and development challenges, which requires immediate attention. To cope with some of these challenges, efforts to regulate environment degradation focus on biodiversity (wildlife) conservation [14]. Yet, biodiversity conservation in most developing countries is at crossroad with local livelihoods. This warrant conservation projects to also consider local livelihood issues in their action plant (community-based natural resource management approach—CBNRM) [10]. CBNRMs have the vision to improve the livelihood of the local people by empowering them to manage natural resources in their community for their well-being [15, 16]. However, despite the hopes of the CBNRM approach, implementation is argued to be challenging given that powerful actors still play out CBNRM to marginalise the rights of the underprivileged [13, 17, 18].

## 2. Methods of study

### 2.1. Study area description

The study was conducted in the adjacent communities of the THWS, located in the Lebialem-highlands, Southwest Region of Cameroon (**Figure 1**). The THWS is located specifically between 5037' and 5042' latitude and 9053'–9058' longitude covers approximately 15,000 ha. The area ranges from 230 to 2400 m above sea level. This forest area range is known to contain 84% of African primates, 64% of African passerine birds and 66% of known African butterflies [19]. The THWS forest is home to 26 species of large mammals including some of Africa's most threatened primates species; the critically endangered Cross River gorilla (*G. gorilla diehli*) and the endangered Nigeria-Cameroon chimpanzee (*Pan troglodytes vellerosus*) [20]. The forest equally harbours endemic birds including the Bannerman's turaco, Banded-wattled eye, Bangwa forest warbler and the Bannerman's weaver as well as many endemic plants [21]. The THWS is surrounded by 10 main communities (Fossimondi, M'mock mbin, Bamumbu, Folepi, Bechati, Banti, Igumbo, Besali, Bangang and Nkong). The population of the THWS is estimated to be about 7000 inhabitant [22].

### 2.2. Conceptual framework

The pathways approach is composed of two building blocks: a complex systems perspective and a normative emphasis on reductions in poverty and social injustice as defined by and for particular people and settings—strategies and dynamics [23]—see **Figure 2**. The complex system perspective is concern with 'framing', or the different ways in which different actors understand or represent a system. In this study, we capture this aspect of system framing by eliciting the narratives of wildlife conservation and local livelihood across different

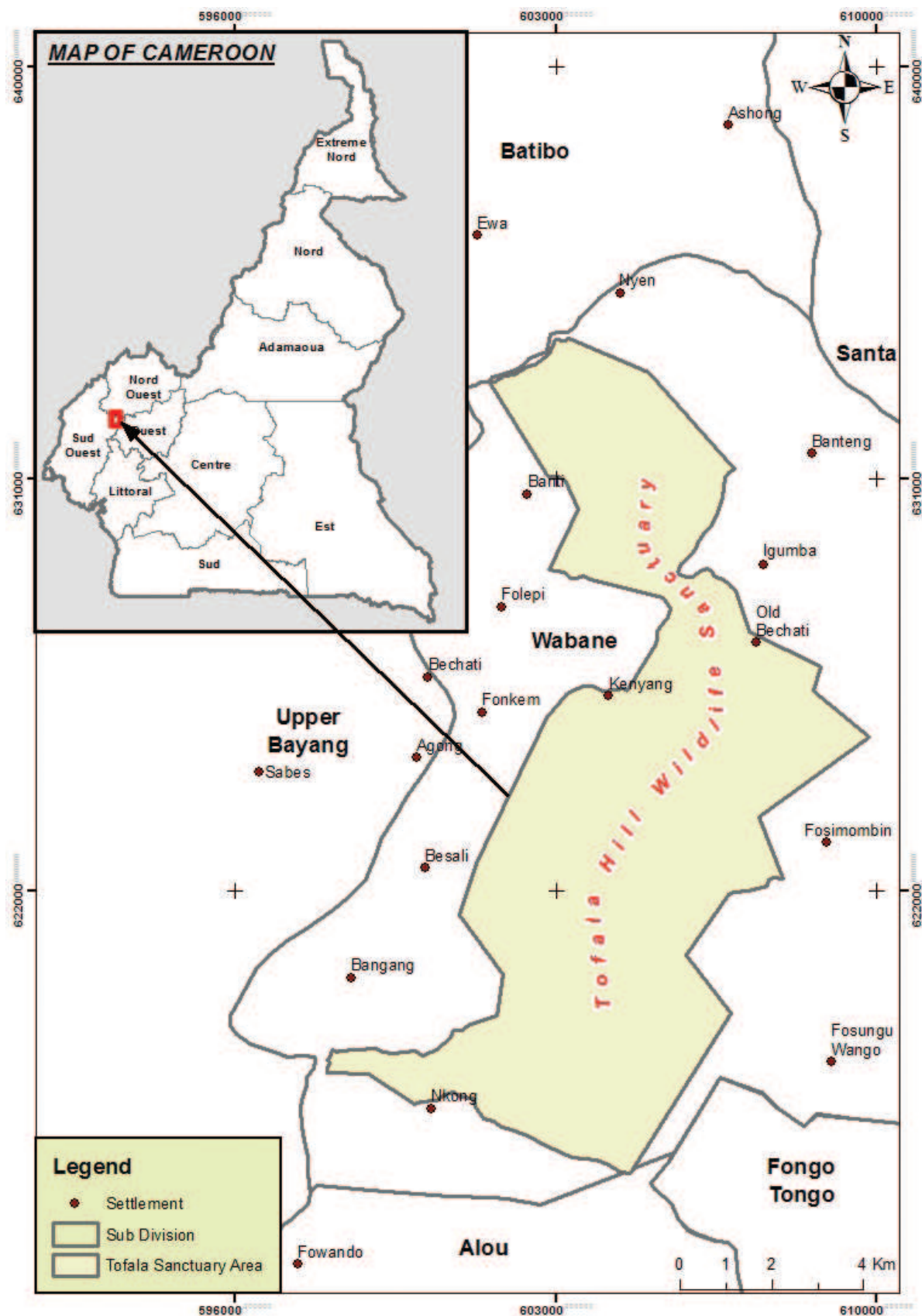


Figure 1. Location of study area within the Lebialem Highlands.



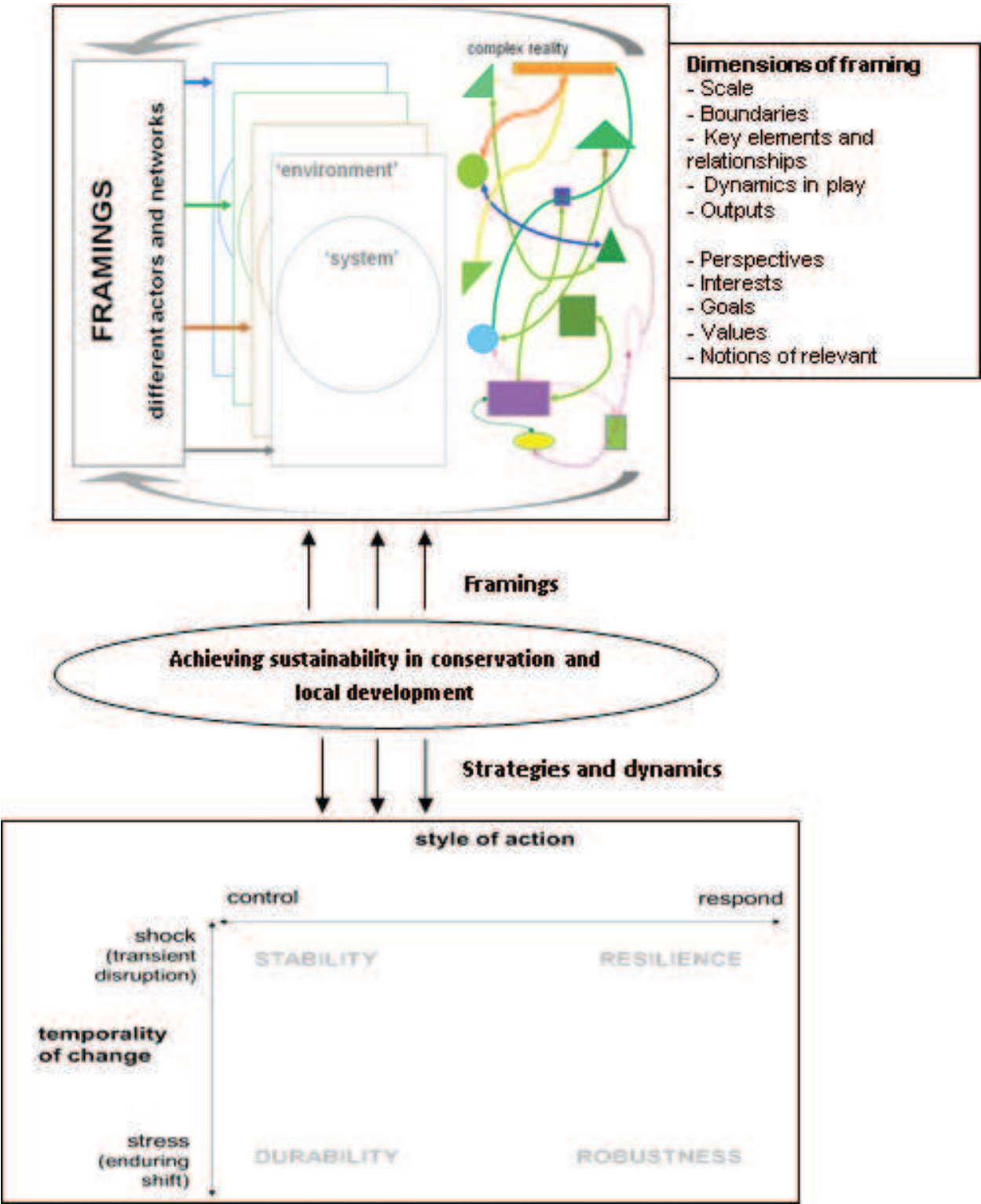


Figure 2. Representation of framing, strategies and dynamics in the pathways approach (adapted from Ref. [23]).

actors. The normative emphasis on reduction in poverty and social injustice as used in this study referred to strategies and dynamics in governing natural resources to meet both local needs and conservation needs. The strategies and dynamic aspect in the pathways approach

questioned if narratives within a given policy are intervention strategies aimed at exercising control in order to resist disturbance or shocks (stability); it also questioned if there exists an acknowledgement that they may be limit too control, and thus, the interventions should resist shocks in a more responsive fashion (resilience); furthermore, it questioned if interventions attempt to control the potential changes in the case where a system is subjected to important stresses (durability), and finally, if the interventions embraces both the limits to control and an openness to endure shift (robustness)? The above dynamic properties guided the analysis in this study to questions how the situation of the THWS can open up opportunities for sustainability. The framework as presented below also acknowledges that framings, strategies and dynamics are interconnected and play out simultaneously to determine the pathways to sustainability.

### **2.3. Data collection approach**

Data collection for this study was mainly between the periods of January 2013 and July 2015. In order to capture how different actors in the THWS understand and frame conservation and local livelihood issues, we used a collective research approach [24]. The collective research identified the different strategic groups involved. The research questions were guided to elicit information on how each strategic group perceived conservation and livelihood challenges in the study area. Participants were asked to narrate how their perception and understanding of conservation and its ability to meet the need (livelihood) of the local people. They were also asked to narrate how they felt other actors understand conservation and local needs. The identified strategic groups included local government staffs, conservation practitioners (local non-profit organisations—NGO), farmers (men and women), hunters, youths, chiefs, elites, researchers and policy makers (represented by the Ministry of Forestry and Wildlife). The collective research involved the following steps: an individual inquiry on site by the principal investigator to prepare the subsequent teamwork by identifying in summary the main local issues and thus making it possible to predetermine the main strategic groups. This was followed by a preparatory seminar to familiarise the research team with the pre-identified problems and the methods that will be used to elicit information from the strategic groups. The research team included the principal investigator and two graduates from the University of Buea Cameroon, who were also familiarised with the settings of the research environment. Now acquainted with the strategic groups and the main problems, the research team did a tour of the study communities; spending 2 days in each community, meeting with strategic groups. This enabled the researchers to perceive issues through the perspective of the strategic groups and at the same time realising the variety and relativity of the strategic groups. The target of the research team was to talk to many people as possible across the defined strategic groups in each community. At the end of the participatory research phase, we spoke to 378 community members (Fossimondi-36, M'mock mbin-43, Bamumbu-37, Folepi-47, Bechati-54, Banti-27, Igumbo-21, Besali-49, Bangang-35 and Nkong-29), 6 elites, 4 local government representatives, 3 staff from the local non-profit organisation and 4 policy makers in the conservation sector. This gave a total of 395 participants.

## 2.4. Data analysis

The data collected aimed to understand how different actors frame and perceive conservation and local livelihoods and how the strategies used in the implementation of the conservation programme offer opportunities for stability, resilience, durability and robustness as defined in the conceptual framework. Analysis on how different actors framed conservation and local livelihoods was guided by the following dimensions of framing: scale, boundaries, key elements and relationships, dynamics in play, outputs perspectives, interests, goals, values and notions of relevance.

## 3. Results

The problem narrations in this study revealed that conservation strategies in the THWS have not been participatory enough, and this presents the local people with a situation that do not permit them to clear judge if long-term conservation goals protect their interests or not. This has led to poor community support in conservation strategies. The implementing strategies do not also provide local people with sufficient incentives to engage in alternative livelihood options. All these challenges lead to forest degradation and loss of biodiversity as local people continuously and heavily rely on the forest for livelihood.

### 3.1. Defining actors dynamics, relationships and interests in the THWS

Two main conflicting interests were clearly visible in the THWS: the need to conserve the rich biodiversity of the forest area and the need for local community members to meet their livelihood need, which also depends on this forest. The narratives from this study also reveals that though the interest of the actors involved have not change over time, their perceptions and strategies to protect their interests are constantly changing. Most notably, the support of the local community member to the project has greatly depreciated from 2004 when they fully supported the project till present when they now hold different views on the project (**Table 1**). Couple to this, the collaboration of the Ngo with the local administration has also been challenging. The interests of the local government in the THWS are largely define by the administrators in charge and given that the persons in charge are constantly changing, new administrators often come in with their own agenda and personal demands, which often require the NGO to adapt it collaboration strategies to cope with the situations. Narratives from this study also revealed that elites and at time, the local government representatives have sometimes mobilised local community members to stand against conservation or demand rewards from the NGO for using their forest for conservation. These actions was analysed to be motivated by personal interests held by these stakeholders. These dynamic relationships and interest were observed to pose a major challenge to the sustainability of the THWS. On the other hand, this study also revealed that the NGO have been able to muddle through these challenges in one way or the other and continue pursuing its agenda in the THWS despite the shortcomings as we will discuss in Section 3.2.



Actors	Framing of conservation and local livelihood based on key words
Local government staffs	The NGO have a good agenda of conservation in the THWS as it is important to conserve biodiversity. However, the livelihoods of the local community members also need to be taking into account. We are always available to assist the NGO and the local community to find a common ground for cooperation
The NGO	The THWS is home to some the last species of the great apes among other important wildlife. The gazettement of this forest area will pose a major challenge to the livelihoods of the local community members but we are working with them to see how we can develop alternative livelihood options
Farmers	The forest is the only source of our livelihood. We have been depending on this forest for some many years. Now, our rights and feature livelihood are threatened by conservation. We do not see the possibilities of the NGO providing us with livelihoods alternatives that will equate what we get from the forest
Hunters	There is no way we can stop hunting completely. With income generated from hunting, we send our children to school. We do not yet see any viable alternative that can replaced our interests in the forest
Youths	It is through money from the forest that our parents are also to send us to school. Some of us who are not opportune to study earn our own living from the forest. We are aware that conservation is important but if the conservation goal is to take our forest away without alternatives provided, it will really affect the entire community
Chiefs	We have been working with the NGO to see how this conservation can work. As of now, they are no benefits that can encourage us to give our full supports. We all rely on this forest for livelihoods and cultural reasons. We need assurance beyond words of mouth to guarantee our full support to conservation
Elites	<ul style="list-style-type: none"><li>- The agenda of conservation as pursue by the NGO have less meaning to our people. The NGO received a lot of money for conservation but the local community members are not benefiting from this money</li><li>- Conservation is very important but we do not see how conservation can succeed without adequately considering local livelihoods</li></ul>
Policy makers	We are aware that local people rely on the forest for livelihood and this makes it difficult for conservation objectives to be achieved without providing alternatives livelihood options. We are working to put in place and enforce policy that enable environmental protection and at the same time protect the rights of the local people to benefit from these resources
Researchers	Conservation and livelihood issues in the THWS are complex and need more than just a single answer to reconcile it. The absence of effective collaboration among stakeholders is already an early indication that the strategies in place will not be sustainable and need to be re-addressed

**Table 1.** Actors perceptions and framing of conservation and local livelihood.

**3.2. Dimensions of conservation and livelihood framing in the THWS**

The difference in actors’ views in the framing of conservation and local livelihoods challenges in the THWS indicated they were no effective collaborative actions between stakeholders. The absence of a common ground for action explains why there is little or no overlapping in the way the different actors frame the issues as observed above.

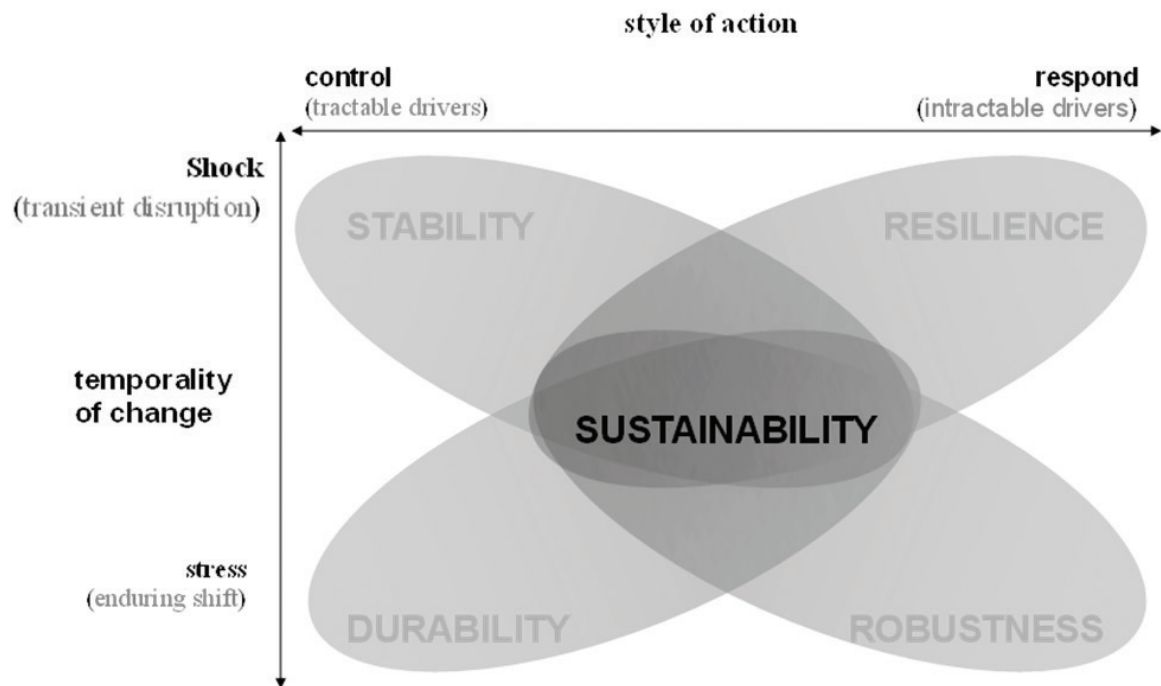
### 3.3. Governance and strategies in the implementation of conservation and livelihood in the THWS

The NGO plays a lead rule in governance and the development of strategies in the implementation of the THWS project. The implementation strategies are supported by the local community members, local government and the Ministry of Forestry and Wildlife, Cameroon. However, we observed that these key stakeholders act more like service provider rather than as key actors as we will expect from an effective community-based conservation project. This can also be deduced from the way the difference stakeholders framed the project in relation to meeting the local people need (**Table 1**). Conservation strategies so far have aimed at reducing community dependence on forest resources by providing alternative livelihoods support to some community members in the form of small loans for off-forest livelihoods activities and offering in-kind donations (piglets) in some cases. Modern infrastructures for milling palm oil have also been installed in two communities to improve the palm oil production process. Despite these actions by the NGO, local members support to the project is till poor. Some local communities (Fossimondi and M'mock mbien) have pulled out the conservation project. Effort to resolve their differences with the conservation project have been unsuccessful. Conservation education has also been used as a strategy to win the support of local people. However, this study reveals that it has added little meaning to the local people understanding of conservation. The question we raise here is what is missing out, giving the above listed effort by the NGO?

## 4. Discussion

Based on the framings, governance and strategies presented in the results above, we questioned if the implementation of the THWS project at this stage is closing down or opening up opportunities for the local community members? With reference to the normative emphasis on reductions in poverty and social injustice as define by and for particular people and settings—strategies and dynamics [23]—see **Figure 2**, we also argue based on the results of this study that the strategies in the THWS are not been pursued in practice as a result of political, institutional and cognitive pressure and also because the strategies do not look beyond the immediate challenges. The complex nature of local institutions, involving elites, chiefs, hunters, farmers and youths who hold completely different agendas and interests in the conservation project, makes it more challenging for a single solution (mainly based on improving livelihood and community awareness) to work. The inability of the NGO to develop robust and resilience strategies for actions beyond the visible challenges enables them to embark on controlling the challenges (stability) rather than to responding to them as they evolve (durability, resilience and robustness). Actions aiming to promote sustainability should involve assumptions about the temporality of change and the style of action (**Figure 3**) [23].

The THWS project is observed to be more concern with the temporality of change (providing immediate solutions to the challenges and bring the situation under control). These types of strategies leave out important dynamic properties of sustainability and thus close up

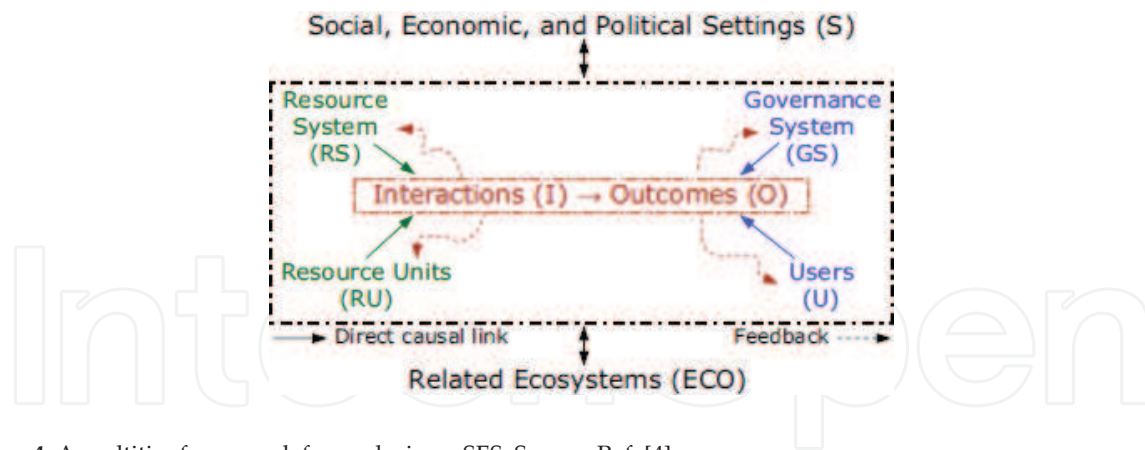


**Figure 3.** Combining dynamic properties of sustainability. Source: Ref. [13].

opportunities for the marginalised group (local community members). Given the complex settings of conservation and local livelihood interactions (SES), a sustainable system would consist not only measures to control the immediate challenges but also open up to respond adaptively to emergent challenges, resist shocks in a more responsive fashion (resilience) and at the same time, identify, track and response to long-term shift that may occur in the system (durability and robustness).

In line with the arguments above, we question a new agenda and strategies needed to ensure sustainability in the THWS conservation project. The goal of sustainability in a SES is the need to develop a common language that cut across disciplines to analyse how interactions among a variety of factors affects outcomes [4, 5] as presented in **Figure 4**.

The analysis of a SES requires a range of expertise and approaches, which may be very expensive for grassroots institutions to afford as in this case study. Thus, the next questions at this point are how can such institutions achieve sustainability under constraint resources? What approach will best maximise resource usage and enable sustainability? And how can “a common language” as defined by Ostrom be developed for actors with diverse interest? The pathways approach [13] attempts to answer some of these questions by emphasising on collaborative actions in policy development and implementation. With the hint that meaningful actors’ collaboration and participation can minimise implementation cost and at the same lead to sustainability, we will advocate this type of approach to the THWS project. However, for this to work, there is the need for the project to revisit the questions posed above on achieving sustainability. One method of paving the way to sustainability in the THWS will be the use of the participatory mapping approaches to define “a common ground” for actions and to allocate and manage resources.



**Figure 4.** A multitier framework for analysing a SES. Source: Ref. [4].

## 5. Conclusion

Though wildlife conservation projects may have a genuine agenda, social, ecological and political settings often play out to make implementation complex and challenging. The expertise required in the integration of the diverse actors involved is most often left out due to poor strategies development or inadequate resources. The pathways approach informed us that sustainability in a SES can only be achieved if the system would consist not only measures to control the immediate challenges but also open up to respond adaptively to emergent challenges and response to long-term shift that may occur in the system. Enabling this idea setting for sustainability is challenging in practice. However, participatory approaches offer a starting point for engaging into sustainability. Notwithstanding, I also acknowledge the challenges of implementing participatory approaches in practice.

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