

# **Constitutionality processes and social-ecological dynamics in the Pílon Lajas Indigenous Territory and Biosphere Reserve**

Inauguraldissertation  
der Philosophisch-naturwissenschaftlichen Fakultät  
der Universität Bern

vorgelegt von

**Helen Gambon**

von Domleschg GR

Leiter der Arbeit:

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Co-Leiter:

**Prof. Dr. Tobias Haller<sup>3</sup>**

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Von der Philosophisch-naturwissenschaftlichen Fakultät angenommen.

Bern, September 2020

Der Dekan

Prof. Dr. Zoltan Balogh



## Summary

The aim of this doctoral thesis is to analyze the conditions enabling or hindering the cooperation of heterogeneous actors in institution building processes. More specifically, it seeks to understand the processes leading to successful bottom-up initiatives aimed at more sustainable governance of natural resources. The theoretical framework of “constitutionality” (Haller *et al.* 2016) emphasizes community members’ views on participatory processes, local agency and creativity, and power relations between stakeholders in institution building processes.

The empirical case of the Pilón Lajas Indigenous Territory and UNESCO Biosphere Reserve showed that the constitutionality approach was useful to analyze the institutional dynamics related to the national political arena. The constitutionality approach is complemented with two additional approaches to emphasize the conflicts and shortcomings in co-management that are rooted in what Viveiros de Castro (2004) calls “uncontrolled equivocations”: a communicative disjuncture between interlocutors whose ontologies are different and who are not aware that they are enacting different realities. The first additional approach, political ontology, was applied to more systematically analyze the emic society-nature relationship and the implications of the power asymmetries deriving from ontological diversity for the conservation and co-management of protected areas involving indigenous populations. The second approach, cognitive justice, served to integrate the results from the political ontology analysis within the constitutionality framework.

The research was conducted in Pilón Lajas located on the Andean foothills of the Amazon region between the Beni and La Paz departments, Bolivia. Qualitative methods, mainly participant observation, were used for data collection in the Mositene and Tsimane communities along the Quiquibey River; this method was complemented by semi-structured and unstructured interviews with key stakeholders of the area’s co-management, such as the indigenous organization Tsimane Mositene Regional Council (CRTM) and the National Protected Areas Service (SERNAP).

This dissertation comprises five individual peer-reviewed articles, of which three are published and two submitted for publication.

The first research question asks whether a successful constitutionality process has taken place in Pilón Lajas and aims at determining the enabling or hindering factors of the process. The results show that in the first phase, the case of Pilón Lajas can be considered as rather successful from a constitutionality perspective, the positioning of the Bolivian state as a plurinational, indigenous state in 2009 significantly reduced the bargaining power of the local indigenous population vis-à-vis the state and (indigenous) highland peasant settlers in the area. Therefore, although constitutionality processes induced at a local level – the demand of indigenous territories by the lowland indigenous populations resulting in the creation of Native Community Lands (TCOs) – continued at the national level through the creation of Indigenous Native Peasant Territories (TIOCs), these processes are now rejected at the local level of Pilón Lajas. The results of this thesis thus underline the importance of a sense of ownership and bargaining power by all actors in the institution building process, and that constitutionality processes are dynamic.

The second research question takes a deeper look at emic society-nature relationships and the way these influence natural resource governance institutions. The findings demonstrate the existence of a Mositene perspectivist ontology, worldview, and lifeworlds, in which society and thus social institutions embrace the “natural” world as well as the transformations these are

undergoing. We illustrate how those transformations, related to the increased integration of Masetene into the national society (and a corresponding “modern” ontology), influence resource governance and use in Pilón Lajas.

The third research question inquires on the dynamics and power relations at play in sustainable resource governance in general and the co-management of Pilón Lajas in particular as well as on the integration of perspectives, visions and knowledge. Based on a political ontology perspective, the results demonstrate that unaddressed ontological power asymmetries among the Tsimane and Masetene on the one hand and the park administration and conservation NGOs on the other lead to unsustainable outcomes in resource management. Similarly, our analysis of constitutionality in Bolivian agroforestry systems shows that the recognition of local knowledge resulted in improved and diversified livelihoods and higher (agro-) biodiversity. However, we also identified power asymmetries between local and expert knowledge based on different ontologies and epistemologies. Based on the results from this research stream, we propose to add a cognitive justice approach to the constitutionality framework to uncover the power asymmetries stemming from ontological diversity.

The empirical case highlights the importance of the six preconditions for successful bottom-up institution building processes as postulated by the constitutionality framework. There was a perceived need for new institutions by local actors, the new institutional framework was built on pre-existing local institutions, outside catalyzing agents provided a platform for collaboration, and the resulting institutions were recognized at the national level. However, the constitutionality process in Pilón Lajas was hindered by an insufficient participatory process, in which power asymmetries, particularly those based on ontological diversity, between stakeholders and within the local communities were not addressed in institution building. In addition, local knowledge on resources is recognized where it fits scientific assumptions on biodiversity conservation. However, the co-management institutions – unconsciously – disconnect this knowledge from its ontological foundation, leading to negative consequences on the sustainability of resource governance and its institutions.

The insights from this dissertation contribute to the theoretical advancement of the constitutionality framework by concluding that a) constitutionality processes are dynamic over time and have to be re-negotiated by stakeholders according to the changing context and b) a cognitive justice approach has to be added to the constitutionality approach in contexts where stakeholders enact different ontologies. The recognition of ontological diversity in the co-management of protected areas and indigenous territories implies that natural resource governance institutions are less outcome- and more process-oriented, and that they are designed in a flexible way to accommodate fluidity and blurredness. The results of this thesis thus also contribute to the wider scientific debate on the conservation of bio-cultural diversity in co-management schemes of protected areas and on social learning for sustainability.

## Resumen

El objetivo principal de esta tesis doctoral es analizar las condiciones que permiten u obstaculizan la cooperación de actores heterogéneos en los procesos de creación de instituciones. Más específicamente, el estudio trata de comprender los procesos que conducen a iniciativas exitosas desde abajo hacia arriba que apuntan a una gobernanza más sostenible de los recursos naturales. El marco teórico de “constitutionality” (Haller *et al.* 2016) destaca las percepciones de los miembros de la comunidad local sobre los procesos participativos, la agencia y la creatividad local, y las relaciones de poder entre los interesados en los procesos de creación de instituciones.

El caso empírico del Territorio Indígena y Reserva de la Biósfera UNESCO Pilon Lajas demostró que el enfoque de constitutionality es útil para analizar la dinámica institucional relacionada con el ámbito político nacional. El enfoque de constitutionality se complementa en esta tesis con dos enfoques adicionales para enfatizar los conflictos y deficiencias en la coestión que tienen su origen en lo que Viveiros de Castro (2004) denomina “equivocaciones incontroladas”: una disyunción comunicativa entre interlocutores cuyas ontologías son diferentes y que no son conscientes de que están viviendo realidades diferentes. El primer enfoque adicional, la ontología política, se aplicó para analizar de forma más sistemática la relación sociedad–naturaleza y las implicaciones de las asimetrías de poder que se derivan de la diversidad ontológica para la conservación y la coestión de las áreas protegidas que involucran a las poblaciones indígenas. El segundo enfoque, la justicia cognitiva, sirvió para integrar los resultados del análisis de la ontología política en el marco de constitutionality.

La investigación se llevó a cabo en Pilon Lajas, situado en el piedemonte andino–amazónico entre los departamentos del Beni y La Paz, Bolivia. Se aplicaron métodos cualitativos para la recolección de datos, principalmente la observación participante, en las comunidades Mosetene y Tsimane a lo largo del Río Quiquibey, complementada con entrevistas semiestructuradas y no estructuradas en los pueblos y con los principales interesados de la coestión del área, como la organización indígena Concejo Regional Tsimane Mosetene (CRTM) y el Servicio Nacional de Áreas Protegidas (SERNAP).

Esta disertación consiste en cinco artículos científicos individuales, de los cuales tres se han publicado y dos se han presentado para su publicación en revistas científicas arbitradas.

La primera pregunta de investigación se refiere a si hubo un proceso de constitutionality exitoso en Pilon Lajas y apunta a los factores determinantes, ya sean favorables o desfavorables. Los resultados muestran que en la primera fase el caso de Pilon Lajas puede considerarse bastante exitoso desde el punto de vista de constitutionality, el posicionamiento del Estado boliviano como un Estado plurinacional e indígena en 2009 redujo significativamente el poder de negociación de la población indígena local frente al Estado y los colonos (campesinos indígenas provenientes del Altiplano). Como consecuencia, aunque los procesos de constitutionality inducidos a nivel local, como la demanda de territorios indígenas por parte de la población indígena de las tierras bajas que dio lugar a la creación de Tierras Comunitarias de Origen continuaron a nivel nacional mediante la creación de los Territorios Indígena Originario Campesinos, estos procesos ahora son rechazados al nivel local de Pilon Lajas. Los resultados de esta tesis subrayan la importancia del sentido de propiedad (sense of ownership) y el poder de negociación por parte de todos los actores en el proceso de creación de instituciones, y que los procesos de constitutionality son dinámicos.

La segunda pregunta de investigación examina más a fondo las relaciones sociedad–naturaleza y la forma en que éstas influyen en las instituciones de gestión de los recursos naturales. Los hallazgos demuestran la existencia de una ontología perspectivista y cosmovisión de los Mositene, en la cual la sociedad y por lo tanto las instituciones sociales se extienden al mundo “natural”, así como las transformaciones que están experimentando. Ilustramos cómo esas transformaciones, relacionadas con una mayor integración de los Mositene en la sociedad nacional (y la ontología moderna), influyen en la gestión y el uso de los recursos en Pilon Lajas.

La tercera pregunta de investigación se refiere a la dinámica y las relaciones de poder en juego en la gestión sustentable de los recursos en general y en la cogestión de Pilon Lajas en particular, y la integración de perspectivas, visiones y conocimientos. Nuestros resultados, basados en un enfoque de ontología política, indican que las asimetrías de poder no abordadas entre las diferentes ontologías entre los Tsimane y Mositene por un lado y la administración del área protegida y las organizaciones no gubernamentales (ONGs) conservacionistas por el otro lado, conducen hacia un manejo insustentable de recursos. Así mismo, nuestro análisis de constitutionality en los sistemas agroforestales bolivianos demuestra que el reconocimiento de los conocimientos locales se tradujo en medios de vida mejorados y diversificados y en una mayor (agro)biodiversidad. Sin embargo, también identificamos asimetrías de poder entre los conocimientos locales y los expertos basados en diferentes ontologías y epistemologías. Sobre la base de los resultados de esta corriente de investigación, proponemos de añadir un enfoque de justicia cognitiva del marco de constitucionalidad a fin de desvelar las asimetrías de poder derivadas de la diversidad ontológica.

El caso empírico enfatiza la importancia de las seis condiciones para el éxito de los procesos de creación de instituciones desde abajo hacia arriba, tal como se postula en el marco de constitutionality. Los agentes locales percibieron la necesidad de crear nuevas instituciones, el nuevo marco institucional se basó en instituciones locales preexistentes, los agentes catalizadores externos proporcionaron una plataforma para la colaboración, y las instituciones resultantes fueron reconocidas a nivel nacional. Sin embargo, el proceso de constitutionality en Pilon Lajas se vio obstaculizado por un proceso participativo insuficiente, en el que las asimetrías de poder entre los interesados y dentro de las comunidades locales, en particular aquellas basadas en la diversidad ontológica, no se abordaron en la creación de instituciones. Además, el conocimiento local sobre los recursos es reconocido cuando encaja con el conocimiento científico sobre la conservación de la biodiversidad. Sin embargo, las instituciones de cogestión – inconscientemente – desconectan este conocimiento de su fundamento ontológico, lo que conduce a consecuencias negativas para la sustentabilidad de la gobernanza de los recursos y sus instituciones.

Las ideas de esta disertación contribuyen al avance teórico de “constitutionality” al concluir que: a) los procesos de constitutionality son dinámicos a lo largo del tiempo y deben ser renegociados por las partes interesadas en función del contexto cambiante; y b) debe añadirse un enfoque de justicia cognitiva al enfoque de constitutionality en contextos en que los interesados practican diferentes ontologías. El reconocimiento de la diversidad ontológica implica que las instituciones de gobernanza de los recursos naturales estén menos orientadas a los resultados y más a los procesos, y que estén diseñadas de manera flexible para acomodar la fluidez y la borrosidad. Por lo tanto, los resultados de esta tesis contribuyen también a un debate científico sobre la conservación de la diversidad biológica-cultural en áreas protegidas cogestionadas y sobre el aprendizaje social para la sustentabilidad.



## Acknowledgments

This doctoral dissertation was conducted at the Centre for Development and Environment (CDE), Institute of Geography, University of Bern, and was embedded in the International Graduate School North-South (IGS), a graduate school of the Universities of Basel, Bern, Lausanne, and Zurich, Switzerland. The research for this dissertation was funded during four years through the Swiss National Science Foundation (SNSF) Research Module “Transcultural Governance of the Environment in Latin America TransGELA” that formed part of the ProDoc “The Dynamics of Transcultural Governance and Management in Latin America”.

In addition to this institutional support, many people have significantly contributed to this dissertation. My gratitude is particularly directed to the following people, without whom this project would not have been possible:

- Prof Dr. Stephan Rist, for encouraging me to apply for the ProDoc scholarship and your continuous support throughout the years. Your conceptual guidance, your comprehensive knowledge on Bolivia, and your understanding of my personal situation have been decisive for the finalization of this project;
- Prof. Dr. Tobias Haller, for sparking my interest in the constitutionality approach and the numerous discussions that led to a better conceptualization of my papers;
- Prof. Dr. Patrick Bottazzi, for sharing your love for and expertise on Pilón Lajas as well as your insistence on sharpening my arguments;
- Prof. Dr. Marc Hufty, who ensured the smooth financing of the doctoral thesis;
- Prof. Dr. Jill Belsky, who kindly agreed to review one of my papers and this dissertation;
- Prof. em. Dr. Hans-Rudolf Wicker, who encouraged me to conduct a PhD.

I am also thankful to the following:

- Tina Hirschbühl, who improved not only my English but my papers in general with her impeccable editing skills;
- My fellow doctoral students who accompanied me along this trajectory, shared similar struggles and encouraged me to pursue my goals: Sara Frey, Dr. Laura Tejada, Dr. Maurice Tschopp, Dr. Stéphanie Jaquet, Dr. Vincent Roth, Alisher Shabdolov, and many more;
- Dr. Flurina Wartmann for the fieldwork talk over some Mocoichinchis in Rurrenabake;
- Agroecology Research Center (AGRUCO) at the Universidad Mayor de San Simón in Cochabamba for the help in establishing contacts to the potential case study areas and for connecting me to the *yatiri* that encouraged me to follow my heart.

This work would not have been possible without the support of the Tsimane Mosaic Regional Council CRTM, particularly Mauricio Sarabia and Clemente Caimani. The first opened many doors and was always available to find solutions for problems I encountered during fieldwork; the latter shared his profound knowledge on Mosaic history and worldview. SERNAP in Rurrenabake has also supported me in many ways; thank you for the fruitful collaboration and friendship.

A special and heartfelt *ishropai* goes to the people in the communities along the Quiquibey River who raised me as a researcher and a person: you opened my mind and my heart and made me question things I took for granted. This is particularly true for the Chita and Tayo families – Regina and Germán, Leoncio and Liz, Hilaco and Elizabeth, Luis and Luisa in Gredal; Trinity and Rebecca, Noemi and Erwin, Nicanor and Bisaida, Donato and Griselda in San Luis Grande – as well as for

Felipe Huallata, Felipe Lero, Severina Canare, Gregorio Caimani, and so many more. My gratitude also extends to my *comadre* Yulisa Soto and my godson Tomás. You all taught me more than what possibly fits into this thesis.

I am thankful to my parents, who have always fostered my interest in the world and encouraged me to follow my dreams, despite the fears they had to endure – your remote medical advice was very reassuring.

This work is also dedicated to my husband, José Luis. You know and love Pílon Lajas and its inhabitants, and thanks to your support, patience, and love, we have overcome many obstacles on our joint journey. I am looking forward to embarking on a new and exciting adventure with you and welcoming our biggest miracle!

## List of acronyms

CDE	Centre for Development and Environment
CIDOB	<i>Confederación de Pueblos Indígenas del Oriente Boliviano</i> – Confederation of Indigenous Peoples of Bolivia
CRTM	<i>Concejo Regional Tsimane Masetene</i> – Tsimane Masetene Regional Council
GDP	Gross Domestic Product
IGS	International Graduate School North–South
INRA	<i>Instituto Nacional de Reforma Agraria</i> – National Institute for Agrarian Reform
IUCN	International Union for Conservation of Nature
MAB	Man and Biosphere programme
MAS	<i>Movimiento al Socialismo</i> – Movement toward Socialism (political party)
SERNAP	<i>Servicio Nacional de Áreas Protegidas</i> - National Service of Protected Areas
SNAP	<i>Sistema Nacional de Áreas Protegidas</i> – National System of Protected Areas
SNSF	Swiss National Science Foundation
TCO	<i>Tierra Comunitaria de Origen</i> – Native Community Lands
TIOC	<i>Territorio Indígena Originario Campesino</i> – Indigenous Native Peasant Territory
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

## Table of contents

Summary.....	i
Resumen .....	iii
Acknowledgments .....	v
List of acronyms .....	vii
Table of contents .....	viii
<b>PART I.....</b>	<b>1</b>
1. Introduction.....	2
1.1. Study context.....	2
1.2. Indigenous territories in Bolivia .....	3
1.3. Protected areas in Bolivia .....	5
1.4. Study region Pílon Lajas .....	6
2. Conceptual approaches.....	9
2.1. Constitutionality .....	9
2.2. Political ontology .....	11
2.3. Cognitive justice.....	12
3. Research approach and objectives.....	13
3.1. Case study selection .....	14
3.2. Methods.....	15
4. Main results of the dissertation.....	17
4.1. Assessment of the constitutionality process.....	18
4.2. Society–nature relationships and natural resource governance institutions.....	20
4.3. Power relations and integration of knowledge systems within co-management institutions .....	21
5. Synthesis and outlook .....	23
6. References .....	26
<b>PART II .....</b>	<b>37</b>
Paper I: Moving Territories: Strategic Selection of Boundary Concepts by Indigenous People in the Bolivian Amazon – an Element of Constitutionality? .....	39
Paper II: Worldview Matters: Mosaic Ontology and Resource Use in the Pílon Lajas Indigenous Territory and Biosphere Reserve in the Bolivian Amazon .....	55
Paper III: The Political Ontology of Protected Area Co-Management: Worlding and Nature Perceptions among Stakeholders.....	67
Paper IV: Whose Knowledge, Whose Development? Use and Role of Local and External Knowledge in Agroforestry Projects in Bolivia .....	83
Paper V: Empowerment Identities as a Basis of Creativity in Conservation? Constitutional Conditions for Bottom-Up Institution Building for the Management of the Commons.....	97

## Figures

Figure 1: Location of protected areas and TCOs/TIOCs in Bolivia .....	6
Figure 2: Pílon Lajas Indigenous Territory and Biosphere Reserve .....	8
Figure 3: Constitutionality approach .....	10
Figure 4: Integration of a cognitive justice approach within the constitutionality framework .....	25

## Tables

Table 1: Overview on research papers .....	17
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# PART I

**“Para el que mira sin ver, la tierra es tierra no más”**

*For he who looks without seeing, the Earth is nothing more than earth*

Atahualpa Yupanqui

# 1. Introduction

In this doctoral thesis, I investigate the processes and conditions that enable or hinder the cooperation of heterogeneous actors in institution building processes. These bottom-up initiatives aiming at more sustainable governance of natural resources and the related multi-actor and cross-scale interactions are analyzed under the relatively new theoretical perspective on constitutionality introduced by Haller (Haller 2010, Haller *et al.* 2016). The results of this dissertation project contribute to the further development of the constitutionality framework, which at the start of the project in 2012 was based on empirical research in Cameroon, Mali, and Zambia (Chabwela and Haller 2010, Haller 2010, Haller and Chabwela 2009, Haller and Merten 2008). In the meantime, various case studies from Senegal (Faye 2014, Faye *et al.* 2018), Bolivia and Indonesia (Haller *et al.* 2016), Israel (Eid and Haller 2018), Mexico (Ochoa-García and Rist 2018), Switzerland (Gerber 2018), U.S.A. (Belsky and Barton 2018), and Cameroon and Myanmar (Kimengsi *et al.* 2019) have enriched the framework. This doctoral thesis is a new case study from the Bolivian lowlands that advances the constitutionality framework by a) highlighting the dynamic aspect of constitutionality processes over time and b) proposing to include a cognitive justice approach for contexts where different ontologies are enacted.

To guide the reader to this conclusion, I will in the remainder of Part I first introduce the study context and region (chapter 1). The next section focuses on the conceptual positioning of my work (chapter 2), followed by a chapter on the research approach and methodologies (chapter 3). This is followed by a presentation of the main results of this dissertation (chapter 4) and an overall synthesis and outlook (chapter 5). Part II comprises the complete reproduction of the five scientific articles on which this thesis is based.

## 1.1. Study context

November 10, 2019 marked the end of an era, as President Evo Morales, Vice-president Álvaro García Linera, Senate President Adriana Salvatierra, and Chamber of Deputies President Victor Borda, among other officials of the government party MAS (Movement toward Socialism), resigned under pressure from the military amidst popular unrest related to allegations of electoral fraud during the October 20, 2019 elections (Guerrero and Andone 2019). The nearly 14 years of Morales' presidency were marked not only by unprecedented stability<sup>1</sup> and significant economic growth<sup>2</sup> but also by groundbreaking changes on how the Bolivian state relates to its

<sup>1</sup> For example, between 2001 and 2005 alone, the country has seen four different presidents (Miranda 2019), and Morales was the longest-serving president in the country's history (Quiroga T. 2015).

<sup>2</sup> Between 2006 and 2019, the real (inflation-adjusted) gross domestic product (GDP) per capita had increased by 50% from its 2005 level (twice the rate of growth for the Latin American and Caribbean region), and the country's real per capita GDP grew at an average of 3.2% per year (Arauz *et al.* 2019). In 2010, the World Bank changed Bolivia's classification from "lower-income" to "lower-middle income" country (Vaca 2010).



predominantly indigenous population. By becoming a plurinational state in 2009, Bolivia recognized the diversity of peoples and the ways of social organization and governance of each of the 36 indigenous nations within its territory (Fundación Tierra 2011, Schavelzon 2012). Using a rhetoric that places indigeneity at the center of the legitimacy of Morales' presidency as well as a discourse focusing on indigenous concept such as Living Well or Mother Earth, the Bolivian state positioned itself as an indigenous state (Canessa 2014, Postero 2017, Zimmerer 2013).

This positioning had consequences not only on the relationship of indigenous peoples with the state, by shifting indigeneity from a marginalized position to one of power, but also among different indigenous peoples within Bolivia. Canessa (2014) differentiates between "territorialized" – who link indigeneity with autonomy over land – and "deterritorialized" indigenous groups, i.e. *colonos* and urban dwellers, for whom indigeneity is about a national identity including them at the center. Therefore, the enchantment of the first years among the Bolivian society regarding the Morales administration has declined in recent years, as the government's aim to improve the well-being of the Bolivian society as a whole clashed with some indigenous peoples' life projects (Fontana 2013, Sanchez-Lopez 2015).

The "Unity Pact" – the political alliance between the major indigenous and peasant organizations that paved the way for the election of Evo Morales in 2005 and the convening of a constituent assembly resulting in the New Political Constitution of 2009 (Garcés 2011) – was dissolved in December 2011 over a controversy concerning a planned road through the Indigenous Territory and National Park Isiboro Securé (TIPNIS) (Rojas M. 2011). Conservationists often supported this indigenous critique of the MAS administration, as the national development projects foresaw the exploration of hydrocarbons in protected areas (Imaña 2015), the construction of large hydroelectric plants flooding areas of high biodiversity (including parts of the case study area) (Republic of Bolivia 2007), and the expansion of the agricultural frontier (Soliz Tito 2015), among others.

Nevertheless, the socio-political processes at the national level (Bottazzi and Dao 2013) initiated by indigenous and peasant organizations offer an interesting setting for the analysis of constitutionality processes because they represent a formal recognition of bottom-up initiatives regarding governance within the constitution of the country. The developments around the recognition of indigenous territorial rights are of particular interest in this context. Thus, the focus in this dissertation project was placed on a specific case of a constitutionality process in an indigenous territory in lowland Bolivia.

## **1.2. Indigenous territories in Bolivia**

The recognition of indigenous peoples as indigenous nations and the consolidation of historic land rights in Bolivia's Political Constitution of 2009 reflect the wider political struggle of indigenous peoples against the radical neoliberal process of restructuring the Bolivian society in 1990–96 (Assies 2006, Bottazzi and Rist 2012, Garcés 2011, Zimmerer 2013). This gives the possibility of evaluating the influence of overall political dynamics on constitutionality processes at the local level. The 2009 Constitution gives the diverse indigenous stakeholders in Bolivia – often categorized for historic reasons as (lowland) indigenous, (highland) natives and (valley) peasants

– for the first time the possibility to define the terms of the legal recognition of their governance regimes (Albro 2010, Gustafson 2009, Schilling-Vacaflor 2011). In this context, the evolution of the legal recognition of indigenous territories resulting in what today is called *Territorios Indígena Originario Campesino* (Indigenous Native Peasant Territories, TIOCs) is of particular interest.

Common property regimes were first formally recognized in 1991 in the form of “Indigenous Territories” via Supreme Decree as a response to the historical struggle of lowland indigenous peoples resisting the neoliberal territorial policies considering the Bolivian lowlands as empty areas to be “colonized” and developed (Bottazzi and Rist 2012, Martinez-Rodriguez 2009). Collective tenure of land was later formalized in the Land Law 1715 of 1996. This law, commonly known as the INRA law<sup>3</sup>, represented a hybridization of principles of neoliberalism and social justice, as it combined a liberalization of the land market with the recognition of territorial rights by indigenous peoples (Assies 2006). Native Community Lands (*Tierras Comunitarias de Origen*, TCO), one of the two possible forms of collective land tenure recognized by the INRA law, are defined as the “geographic spaces that constitute the habitat of indigenous and native peoples and communities” where they “maintain and develop their own forms of economic and cultural development” (Republic of Bolivia 1996 Art. 41.I.5). As the name TCO implies, these areas are conceptually based on a notion of “land” limited to the topsoil, with forest and subsoil resources falling under different legislations (Assies 2006), but recognizing the right of indigenous peoples to “participate in the use of renewable resources” (Republic of Bolivia 1996 Art. 3.3).

The 1996 Land Law was accompanied by a land titling process that legally concluded in October 2017, after having clarified land ownership for 78% of Bolivia’s surface<sup>4</sup> (CENDA 2018). The 2009 Constitution and Supreme Decree 727 (Plurinational State of Bolivia 2010) established the automatic conversion of TCOs to TIOCs. By becoming a central category of the new constitution, indigenous territories have gained significant legal, political, and symbolic importance. TIOCs go beyond the mere recognition of land rights, as the constitution grants its inhabitants exclusive rights to renewable natural resources, the right to consultation regarding the extraction of non-renewable resources, and the possibility to achieve autonomy (BO Const. 2009 Art. 403.I and Art. 289-296 ).

The past decade however has shown that these provisions remain conflictive. As mentioned above, the Pact of Unity collapsed in 2011 as a result of tensions regarding the right to self-determination of indigenous peoples versus national development initiatives (Sanchez-Lopez 2015). To date, only one TIOC has achieved autonomy (Raqaypampa in the Cochabamba department), with nine other TIOCs being in different stages of the process (Fuente Directa w.y., OEP w.y.). Paper I (Gambon and Rist 2018) highlights another aspect of why the conversion of TCOs to TIOCs remains controversial in some instances.

<sup>3</sup> *Ley del Instituto Nacional de Reforma Agraria*

<sup>4</sup> INRA, the National Institute of Agrarian Reform, however, continues the titling of the remaining area without a legal mandate (Correo del Sur 2019).

### 1.3. Protected areas in Bolivia

Spanning from 90 m at its lowest (Río Paraguay) to 6542 m (Mount Sajama) at its highest point and uniting 12 major ecoregions such as the Amazon moist forests, the Andean dry puna or the Chiquitano dry forests, Bolivia is a highly biodiverse country (Ortuño *et al.* 2011). The first protected area in Bolivia was created in 1939 (Sajama National Park), the second, Tunari National Park, followed in 1962 (Boillat 2007, Hoffmann 2007). Established in 1992 through the Environment Law, Bolivia's National System of Protected Areas (*Sistema Nacional de Áreas Protegidas*, SNAP) is however one of the youngest in Latin America (Pauquet 2005, Republic of Bolivia 1992a). It is administered by the National Service of Protected Areas (*Servicio Nacional de Áreas Protegidas*, SERNAP) and its fundamental objectives include the conservation of the representative samples of the country's major ecosystems (Pauquet 2005). The general regulations for protected areas establish six categories for protected areas (Republic of Bolivia 1997), of which today three are in use (national parks, integrated management natural area, national wildlife reserves). For the two biosphere reserves (Pilón Lajas and Beni Biological Station), no legal provision exists. For practical and operational purposes, the biosphere reserves are considered by SERNAP as equivalent to the management category integrated management natural area, the only conservation category allowing productive activities (SERNAP w.y.).

Today, the SNAP comprises 22 protected areas of national interest, covering approximately 15% of Bolivia's territory, of which about 89% is located in Bolivia's lowlands. Not only are all of them inhabited but also half of them intersect with TCOs/TIOCs (see figure 1). Five protected areas share a significant percentage of their surface with indigenous territories (Eduardo Avaroa, TIPNIS, Pilon Lajas, Madidi, and San Matías) (Fundación Tierra 2011). The New Political Constitution establishes that where an overlap between a protected area and one or several indigenous territories exists, "shared management will be carried out in accordance with the rules and procedures of the indigenous native peasant nations and peoples, respecting the purpose for which these areas were created" (BO Const 2009 Art. 385.II).

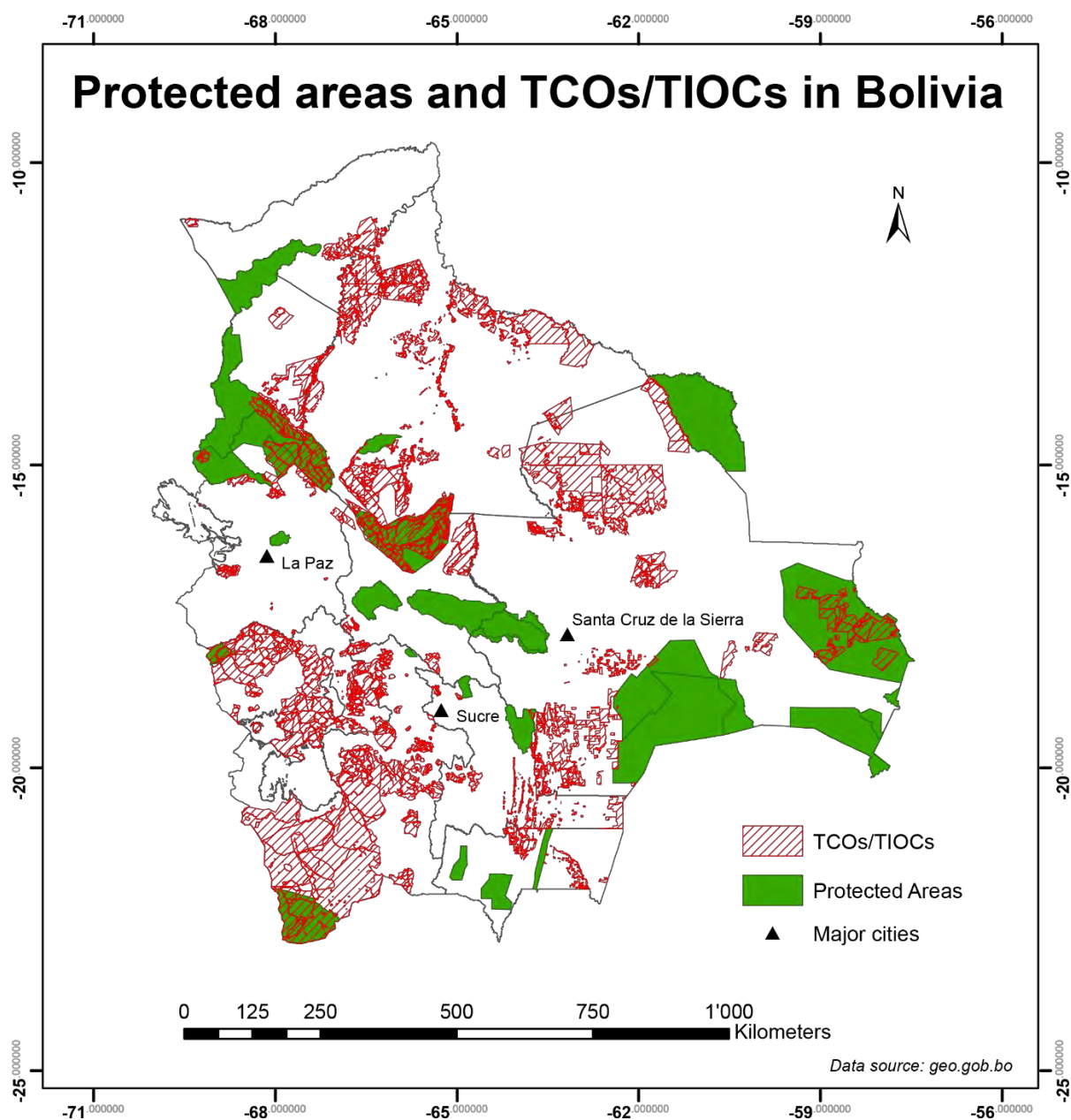


Figure 1: Location of protected areas and TCOs/TIOCs in Bolivia (own elaboration, based on data from 2012 [TCO/TIOC] and 2015 [protected areas]).

#### 1.4. Study region Pilón Lajas

The Pilón Lajas Indigenous Territory and Biosphere Reserve is located on the Andean foothills of the Amazon district of Alto Beni. It lies between the departments of La Paz and Beni, touching three provinces (Sud Yungas, Franz Tamayo, and General José Ballivián) and four municipalities (Palos Blancos, Apolo, Rurrenabaque, and San Borja). The reserve covers an area of 400,000 hectares, while the TCO is slightly smaller, with 346,126 hectares, as a result of the recognition of third party land claims during the land titling process concluded in 2008. Two main settlement areas exist: one along the Quiquibey and Beni rivers and the other on its eastern border along the Rurrenabaque–Yucumo road (SERNAP and CRTM 2009; see figure 2).

In 1974, the zone between Rurrenabaque and Eva-Eva was declared as a colonization area. Until 1987, roughly 850 families from the highlands settled in the area. Around that time, the Rurrenabaque–Yucumo road was constructed, attracting other actors such as logging companies, religious organizations, agricultural development NGOs, and conservationists (Bottazzi 2014).

The area of Pilón Lajas was declared as a biosphere reserve in 1977 by the Man and Biosphere (MAB) Programme of UNESCO (Surkin *et al.* 2010). It was one of the first indigenous territories to be recognized in Bolivia per Supreme Decree on April 9, 1992. The Supreme Decree further recognized the status as a biosphere reserve within the limits of the indigenous territory in favor of the Tsimane and Mosetene to preserve the biodiversity and genetic integrity of the flora and fauna (Republic of Bolivia 1992b).

Pilón Lajas is located at the encounter of two bio-geographical subregions: the montane cloud forest and humid forest. The Andes that rise on the western border of the area form a barrier for warm trade winds, resulting in a humid climate with annual average temperature and precipitation rates ranging between 16°C and 26°C and 1,800 and 3,500 mm per year respectively, according to elevation, ranging from 270 to 2,000 m above sea level. In addition with high geological and soil variety, this leads to extremely high ecosystem diversity (Pauquet 2005). Together with the Madidi and Cotapata National Parks, Pilón Lajas forms part of the largest corridor within the Tropical Andes Biodiversity Hotspot<sup>5</sup> (CEPF 2015).

A more detailed account on the study region and its institutional history can be found in paper I (Gambon and Rist 2018), whereas paper II (Gambon and Rist 2019) provides more details on the livelihoods and worldview of the local population.

<sup>5</sup> An area counts as a biodiversity hotspot if it contains at least 1,500 vascular plants that are endemic and is threatened, i.e., has lost 70% or more of its primary vegetation (Myers *et al.* 2000).

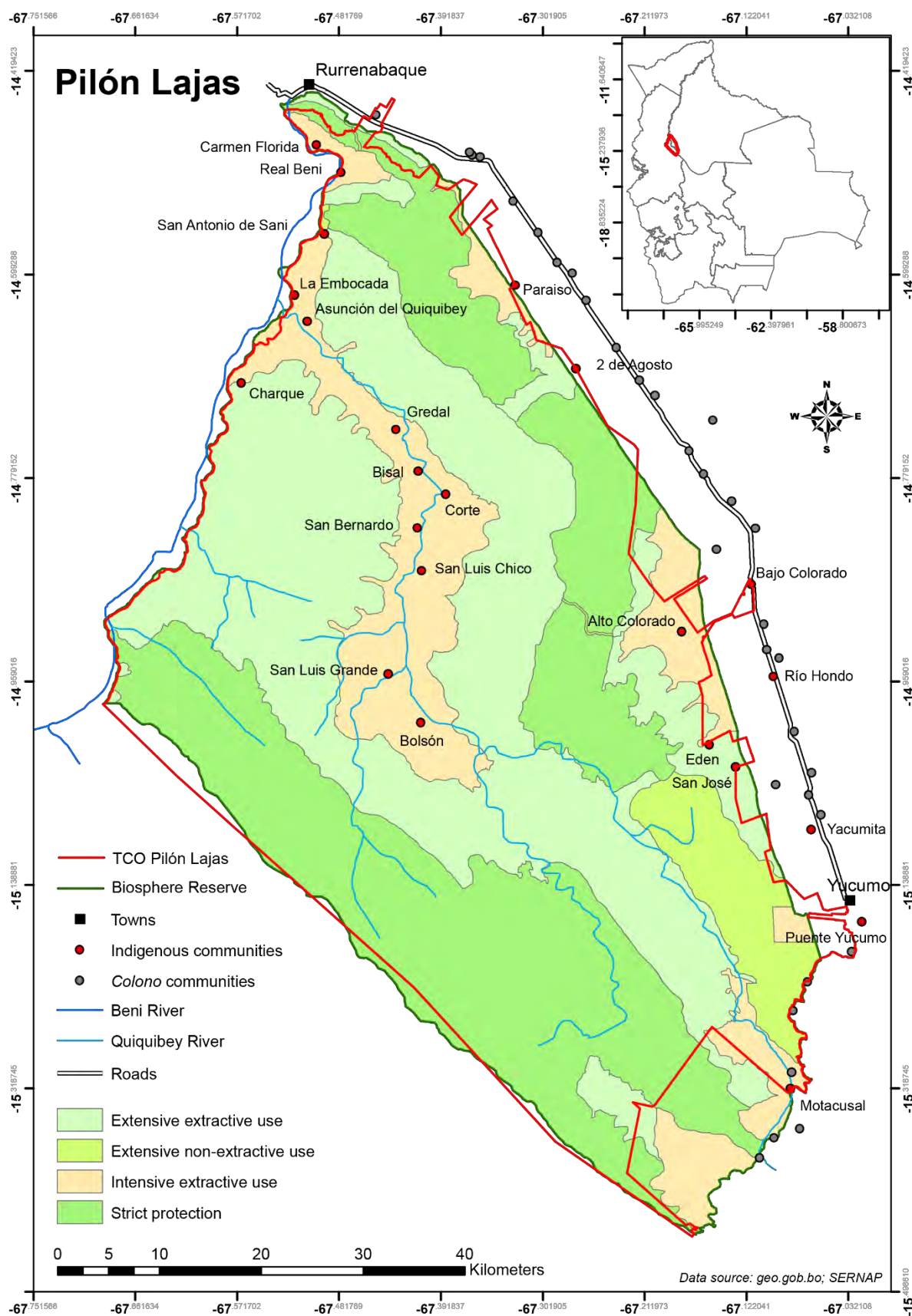


Figure 2: Pilón Lajas Indigenous Territory and Biosphere Reserve (own elaboration, based on data from 2006 [zoning of the biosphere reserve], 2012 [limits TCO] and 2015 [limits biosphere reserve]).

## 2. Conceptual approaches

The following sections give an overview of the conceptual approaches applied in this dissertation. As the title of the dissertation implies, the main conceptual approach is the constitutionality framework. This framework has been complemented with a political ontology and a cognitive justice approach as outlined below.

### 2.1. Constitutionality

Constitutionality refers to bottom-up institution building processes for natural resource governance, emphasizing community members' views on participation processes, the strategies they employ in negotiating such initiatives, and the extent to which they can develop a related sense of ownership in the institution building process (Haller *et al.* 2016). The theoretical approach has its roots in studies that analyzed the destruction of well-working local natural resource management institutions and the top-down-nature of many participatory projects in protected area management (Acciaioli 2008a, 2008b, 2009, Galvin and Haller 2008, Geiser and Rist 2009, Haller 2010, Haller 2013, Rist *et al.* 2007, Rist *et al.* 2006).

The approach is based on the insight that although there is scientific consensus that the participation of local actors needs to be enhanced to achieve a sustainable use of natural resources, the basic concepts as well as the strategic application of instrumental approaches to participation are limited. Therefore, local actors still too often remain excluded from the process of formulating constitutional rules, their role being limited to formulating or implementing operational rules. Constitutionality seeks to explore a corrective to the approaches, concepts, and instruments of participatory development that emphasize the operation of top-down environmentalist discourses and institutions (Haller 2010, Haller *et al.* 2016). Some authors maintain that even if participation is happening and ownership is created, this should be understood as deriving from the power exerted by local to national elites (Agrawal 2005, Agrawal *et al.* 2005, Nadasdy 2005). However, these approaches do not take the agency of local actors sufficiently into account. Constitutionality, in a critique on Foucault's "governmentality" (see Burchell *et al.* 1991) and Agrawal's "environmentality" (Agrawal 2005), on the other hand, focuses upon local agency and creativity in the construction of novel institutions and pays attention to power relations within local communities and across involved stakeholders (Haller *et al.* 2016).

Theoretically, constitutionality builds on new institutionalism (Ensminger 1992, North 1990, Ostrom 1990) and political ecology (Biersack and Greenberg 2006, Blaikie and Brookfield 2015, Robbins 2011), and includes the strategic dimensions of how bottom-up institution building is negotiated and legitimized, addressing also the issues of power relations (Haller *et al.* 2016). It refers to the multi-level processes of cooperative institution building in which all actors' positions are really, though differentially, incorporated, thus leading to a sense of ownership of the process. In the process of negotiation of and agreeing upon such institutions by different actors, these actors are likely to become reflective subjects (see De Schutter and Lenoble 2010) of participatory processes. It is assumed, that under the described circumstances a sustainable institutional setting, expressed in a locally drafted (formal or informal) constitution recognized by third

parties, can be reached. The term constitutionality thus sustains the notion that rules and regulations developed in a bottom-up fashion, based on a body of locally shared or mutually acknowledged fundamental principles (with or without written agreement), have the quality of a legally binding element at the local level.

By analyzing the local perceptions and emic narratives of governance of natural resources, constitutionality seeks to gain a more comprehensive understanding of “local community” and the conditions of successful institution building initiatives.

Haller *et al.* (2016) define six preconditions for successful constitutionality processes:

- 1) Local actors (heterogeneous in terms of power, economic assets, age, gender, etc.) perceive a need for new institutions to position themselves in changing contexts;
- 2) Institution building processes are inclusive and address power asymmetries;
- 3) These processes build upon pre-existing local institutions;
- 4) Outside catalyzing agents provide neutral platforms for negotiations;
- 5) Local knowledge on resources is recognized; and
- 6) The resulting new institutions are recognized at a higher (national) level.

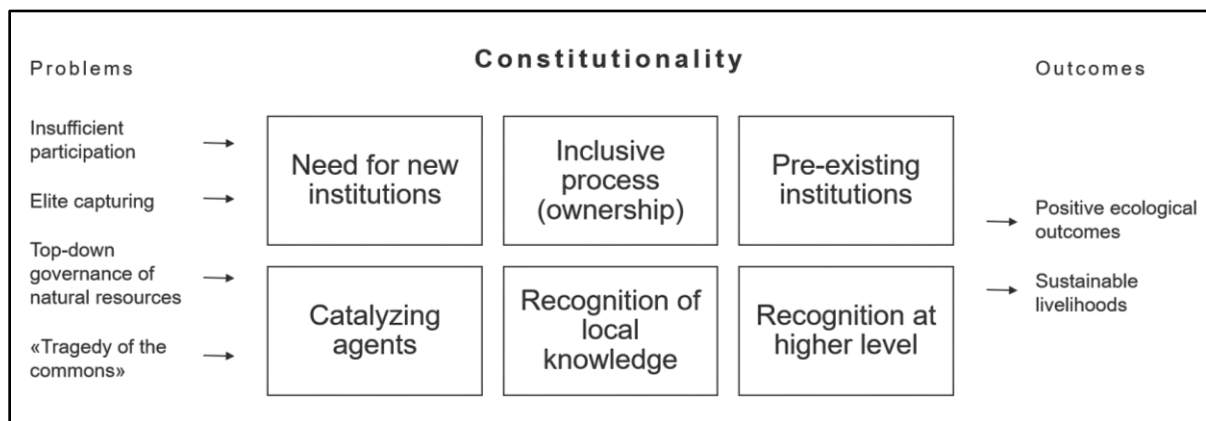


Figure 3: Constitutionality approach according to Haller *et al.* 2016 (own illustration).

The constitutionality framework thus emphasizes the views of local actors on participation processes and the strategies they employ when crafting institutions vis-à-vis comparably more powerful actors. Local actors experience a sense of ownership if economic, political, or social learning benefits are gained in the process. The framework hypothesizes that new institutional arrangements created through such a process are more likely to result in sustainable livelihoods and positive ecological outcomes than those resulting from top-down participatory approaches (Haller 2010, Haller *et al.* 2016). A constitutionality process can thus be considered as successful, if the six preconditions were present in the institution building process and if the resulting institutions recognized by third parties have positive outcomes in terms of ecological and economic sustainability (see figure 3).

Constitutionality further relates to the new institutionalism political ecology (NIPE) approach proposed by Haller (2017, 2019). The approach brings together new institutionalism, which



provides a framework for analyzing the factors leading to institutional change and distributional effects in common property regimes, and political ecology, which provides a framework for analyzing power relations from a neo-Marxist perspective, from a Foucauldian, post-structuralist perspective, and from a post-constructivist perspective. While the constitutionality framework is an empirical approach describing successful bottom-up institution building processes, power asymmetries at play, and the creativity employed by local actors in creating resource governance institutions, the NIPE approach is useful to more generally analyze external factors and the change in relative prices as triggers of institutional change, how institutional change occurs on the basis of institutional pluralism and institution shopping, and the distributional outcomes of natural resource governance institutions (Haller 2019).

While constitutionality as a conceptual approach was considered from the outset of the dissertation project and framed the research objectives (see chapter 3: Research approach), two additional theoretical approaches were included in the analysis of the findings in the course of the project. The first, political ontology, was included to more systematically analyze the emic society-nature relationship, the transformations it is undergoing, and how the local (changing) perspectives relate to power issues within the co-management of the protected area. The second, cognitive justice, was applied to integrate the results from the political ontology analysis within the constitutionality framework (see chapter 5: Synthesis and outlook).

## **2.2. Political ontology**

The politics involved in the co-existence of multiple ontologies can be analyzed through a framework Blaser (2009) calls “political ontology”. Political ontology theorizes the power issues and processes of domination at play in the enactment of ontologies in a (post-) colonial context (Gombay 2014). It considers social perceptions and their consequences on practices (Blaser 2013b) and takes the analytical frameworks proposed by political ecology and political economy that inform the constitutionality approach one step further. These frameworks address power asymmetries (Escobar 1999, 2008) and indigenous (ecological) knowledge (Berkes 2012) and have stressed the interdependence of the recognition of cultural identity and distributive aspects of resource access (Fraser 1995). However, they generally frame this as epistemological problems related to different perspectives on a single reality and do not question that the issue at stake can be nature or “the world out there”.

During the past two decades, an “ontological turn” (Escobar 2007) in social theory has challenged the universality of modern assumptions about nature and culture by drawing increased attention to ontology and the consequences of how we theorize the constitution of the world (Henare *et al.* 2007, Joronen and Häkli 2017, Scott 2013). According to modern ontology, nature is separated from culture and we, moderns, are able to make this distinction, whereas the non-modern cannot differentiate between reality (nature) and its representations (culture) (Latour 2012). Political ontology questions this powerful assumption by recognizing that some indigenous peoples enact different, equally valid, ontologies. It parts from a recognition of a pluriverse; thus, ontology is not just a different term for culture or different representations of a “world out there” (Blaser 2013b). There is growing evidence that many so-called resource or environmental conflicts are in fact ontological conflicts revolving around different assumptions about reality in power-loaded arenas

(Blaser 2013a, 2013b, Coombes *et al.* 2011, Howitt and Suchet-Pearson 2006). Political ontology thus refers to the politics involved in the enactment of a particular ontology and focuses on the conflicts resulting from the interaction and mingling of different ontologies without attributing a given ontology to specific groups of people (Blaser 2009).

The data retrieved from fieldwork in Pilón Lajas showed that the constitutionality approach was useful to analyze the institutional dynamics related to the national political arena. However, some of the conflicts and shortcomings regarding co-management are rooted in what Viveiros de Castro (2004) calls “uncontrolled equivocations”: a communicative disjuncture between interlocutors whose ontologies are different and who are not aware that they are enacting different realities. The conceptual approach of political ontology is thus useful to analyze the implications of the power asymmetries deriving from ontological diversity for the conservation and co-management of protected areas involving indigenous populations, as is the case in Pilón Lajas.

A more detailed account of the conceptual approach of political ontology and how it is applied in this dissertation project is given in paper III (Gambon and Bottazzi forthcoming).

## **2.3. Cognitive justice**

To connect the results from the political ontology analysis with the constitutionality framework, the conceptual approach of cognitive justice is applied. The concept, originating in decolonial thought, has been defined and developed most prominently by Boaventura de Sousa Santos and Shiv Visvanathan. De Sousa Santos (2012, 2007) argues that the privilege and dominance of Eurocentric systems of knowledge in relation to other ways of knowing the world creates injustices that can only be overcome by epistemological dialogues. Similarly, Visvanathan (2005) states that the concept of “participation” involves a notion of expert knowledge versus laypersons’ practices and beliefs, lacking a principle of equivalence. Cognitive justice, on the other hand, recognizes the plurality of realities (and related knowledge systems) and the connections between ontology and lifeworlds<sup>6</sup>. According to Visvanathan, cognitive justice goes beyond participation because it creates a space for dialogue in which different knowledge systems are recognized as legitimate. Burmann (2017: 925) expands the concept of cognitive justice from epistemological dialogues on whose knowledge is considered legitimate to the realm of ontology by asking “whose reality is allowed to be real”.

The concept of cognitive justice is frequently used by authors in science and technology studies and new materialism (Beisel and Jaeger 2007, Schulz 2017, van der Velden 2005, 2009, Visvanathan 2005), but is also represented in research on agroecology, environmental sustainability, and social justice (Coolsaet 2016, Garlick and Austen 2014, Wezel *et al.* 2018). Increasingly, it is combined with the concepts of environmental and climate justice (Allen 2018, Burman 2017, Jafry 2019, Porto 2019, Temper 2019).

<sup>6</sup> See Schütz and Luckmann (2003).

Both environmental and climate justice literatures build on a definition of justice based on three intertwined dimensions: distribution, procedure, and recognition (Schlosberg 2009, 2013). Distribution justice refers to the allocation of benefits and harms among individuals and groups; procedural justice refers to how decision-making processes are shaped and by whom; and recognition justice refers to the recognition of cultural difference and the acknowledgment of values, rights and interests, particularly of marginalized groups (Martin 2017). Cognitive justice involves both the aspects of recognition justice and of procedural justice. On the one hand, it concerns the recognition of ontological difference and related worldviews, being-in-place, and “natural resource” use as postulated by political ontology. On the other hand, decision-making processes may not only involve human actors, but also other-than-human stakeholders endowed with agency in some non-modern ontologies. Cognitive justice thus becomes crucial in the constitutionality processes taking place in contexts where different ontologies are enacted. The two concepts are combined to emphasize the importance of addressing ontological power asymmetries within local communities and across stakeholder groups in institution building processes.

Paper III (Gambon and Bottazzi forthcoming) analyzes the linkages between political ontology and cognitive justice and highlights the potentials for co-management and conservation by adopting a cognitive justice approach. In chapter 5: Synthesis and outlook, I connect the articles forming this dissertation and the three theoretical approaches, and show the implications of a cognitive justice approach on the six preconditions of successful constitutionality processes.

### **3. Research approach and objectives**

The main objective of this dissertation project is to analyze the key concepts of constitutionality underlying the empirical case study and assess their relation and contribution to the emerging body of literature on the theoretical approach of constitutionality. The specific research questions have been elaborated in an iterative, reflexive process (Hammersley and Atkinson 2007). This means that they have been adjusted and cyclically refined based on the research findings and the main research goal. For instance, research question 2 initially was formulated as a sub-question of research question 1. However, the issue gained importance owing to the data collected during the first three fieldwork periods, wherefore it was decided to consider the question in more detail.

The overall objective and the iterative process led to the formulation of the following specific research questions addressed in this thesis:

1. Has a successful constitutionality process taken place in Pilón Lajas? If yes, what enabled the process; if not, what hindered the process?

*What is the institutional history of the area, and what institutions related to land and natural resources' tenure and use exist today? What is the local perspective on the TCO/TIOC demand and the process of regularization? Has a sense of ownership been created?*

2. In which ways do the emic perspectives on society–nature relationship shape institutions related to the use of natural resources?

*What is the emic perspective of the local population on society–nature relationships? Has this perception changed over time and if yes, how and why? What are the interlinkages between the emic perspectives on society–nature relationships and natural resource use?*

3. What are the dynamics in the integration of the perspectives, visions, and knowledge at play in the governance of land and natural resources and, more specifically, in the case of co-management in Pilón Lajas?

*Which interests, values and ideologies are underlying the institutions for the governance of land, natural resources and co-management? Which discourses are employed by key stakeholders? What are the power relations among the involved stakeholders? How do these influence co-management and natural resource management institutions?*

### 3.1. Case study selection

To answer the above research questions, in the first step, a case study area was selected. To this end, a list with 24 variables (e.g. size, ethnical diversity, state of regularization process, closeness or overlapping with protected areas, and autonomy in the elaboration of the management plan) was elaborated for 17 TCOs/TIOCs in the Bolivian lowlands based on a literature review. From this list, three potential case study areas were shortlisted. During the first field visit, two of the three shortlisted TCOs were visited (Pilón Lajas and Macharetí), however, establishing contacts and access for the third area (Chácobo Pacahuara) had not been possible. Based on the literature review and preliminary interviews with key stakeholders in both visited areas, Pilón Lajas was selected as the case study area for this dissertation.

The following criteria led to the selection of Pilón Lajas as the case study area:

- a) **Institutional history:** Pilón Lajas is one of the first indigenous territories created in Bolivia by Supreme Decree in 1992 as a response to the social movements in the 1990s. Collective land tenure of indigenous peoples was formally recognized in 1997 through the legal category of the TCO; hence, the local indigenous organization, the Tsimane Mositene Regional Council (*Concejo Regional Tsimane Mositene*, CRTM), had several years of experience in territorial management.
- b) **Co-management:** With Pilón Lajas being both an indigenous territory and a biosphere reserve, a system of co-management between CRTM and SERNAP had been created based on a social learning experience that later served as a model for co-management of protected areas at the national level.
- c) **Heterogeneity of actors:** The TCO is inhabited by three indigenous peoples (Tsimane, Mositene, and Tacana), who were granted a collective land title by the government. Indigenous Quechua and Aymara communities, who migrated to the area from the highlands and valleys since the 1980s and are locally known as *colonos*, inhabit the transition zone of the biosphere reserve, beside the Rurrenabaque–Yucumo road that

borders Pílon Lajas. SERNAP and conservation NGOs are concerned with the management of the Reserve, and public and private actors at local and national levels have various interests regarding the area's natural resources.

- d) **Dynamics in the constitutionality process:** From the literature, Pílon Lajas appeared to be a textbook example of constitutionality. During the first field visit, the successful creation of co-management rules between CRTM and SERNAP with positive ecological and livelihood outcomes had been confirmed through interviews with key stakeholders. However, at the same time, CRTM found itself in a deep crisis related to internal struggles regarding the organization's position toward the central government. The relationship of CRTM with SERNAP had deteriorated and was extremely conflict-laden and lacked trust. This seemed like an interesting starting point for examining the development of constitutionality processes over time.

## 3.2. Methods

This dissertation applies a qualitative research approach. It draws on the data obtained from fourteen months of fieldwork between July 2012 and August 2014. Additional six months were spent in Rurrenabaque between November 2014 and November 2017, what allowed to regularly reconnect during the analysis and writing phase with both CRTM and SERNAP as well as with the villagers during their visits to Rurrenabaque.

The base for fieldwork was in Rurrenabaque, a fast-growing town of about 23,000 inhabitants, where the shared offices of CRTM and the local SERNAP are located. There, **semi-structured** and **unstructured interviews** (Bernard 2017) were conducted with the members of CRTM, consultants to the indigenous organization financed by conservation NGOs, the directors of the biosphere reserve, park rangers, and the administrative and planning staff of the protected area. Main topics of the semi-structured interviews included the institutional history of Pílon Lajas, co-management of the area, and the roles of and relationships among actors, while the unstructured interviews provided information on day-to-day operations of the institutions and related dynamics. Further, the first author observed the interactions of these actors in the facilities shared by both institutions to assess co-management structures in practice.

The focus of this study has been laid on an **ethnography** (Hammersley and Atkinson 2007) in the river villages, more precisely on the Mosetene and Tsimane communities on the banks of the Quiquibey River. Regular field trips lasting from five to sixteen days to these communities were undertaken. A significant amount of time was spent in two Mosetene-majority communities (Gredal and San Luis Grande), while shorter visits were made to seven other Mosetene and Tsimane communities along the Quiquibey River (Bolsón, San Luis Chico, San Bernardo, Corte, Bisal, and Asunción del Quiquibey) and the Beni River (Charque). This contributed to a deeper understanding of the ways in which the Mosetene and Tsimane perceive and interact with their environment. One visit to a *colono* settlement (El Palmar) along the Rurrenabaque–Yucumo road complemented the insights gained from the indigenous river communities.

Gredal requires about six hours to reach by motorized canoe from Rurrenabaque, whereas it takes about one and a half days to reach San Luis Grande. Both hamlets consist of one extended family. Owing to the high mobility of the Mositene, during the research period, the number of adults varied between eight and fifteen in Gredal and eight and twelve in San Luis Grande. Temporarily, non-related Tsimane lived in Gredal. None of the adults had lived their entire lives within Pilón Lajas: migration links are particularly strong with the TCO Mositene in Alto Beni, the TCO Tsimane near San Borja, and Rurrenabaque.

The main method applied for data collection in the communities was **participatory observation** (DeWalt and DeWalt 2011, Hammersley and Atkinson 2007). The first visit in all nine indigenous communities was with the family of the *corregidor* (community leader). During each subsequent visit, a different family was the main host. The selection was random, based on the presence of families in the villages and their interest in participating in the research.

The active engagement in the daily activities of various women, men, and children, allowing us to gain insights into how people occupy space and interact within and across the territory, was crucial in many ways. Participatory observation – together with a continuous presence and the appreciation of the local population's way of life – resulted to be crucial to build a relationship of trust. The Mositene and Tsimane are cautious toward researchers in their communities, as in their view previous researchers have not recognized their traditional knowledge, their contribution to generating scientific knowledge, as well as their individual and collective rights as indigenous peoples. Because interlocutors were unwilling to engage in interviews that involved recording or note-taking, interview methods had to be adapted to the context, and the **interviews** were mostly **unstructured** (Bernard 2017) and conversation-like. Toward the last third of the fieldwork period, a relationship of trust had been established with the families, as demonstrated by the fact that the people now openly spoke about other-than-human societies and their worldview, allowed recording of some conversations, and established relationships of ritual kinship with me.

Regular participation in the daily activities of five families in Gredal and four families in San Luis Grande enabled the data obtained through conversations and interviews to be validated against people's actions and integrated into observations of the interlocutors' lifeworlds. Conversations were held in Spanish and included discussions of words or concepts used in Mositene. Information gathered from interviews and participatory observation was noted each evening.

In addition, participatory mapping and transect walks (Chambers 1994) were conducted in both communities to obtain information on the conceptualizations of space and territory as well as on the occupation of space and related knowledge.

Another vital source of data was the minutes of the meetings of the Assembly of *Corregidores*, the major decision body of CRTM, since the first meetings in 2000 to re-establish the organization.

The fieldwork notes, the notes from unstructured interviews as well as the records of semi-structured interviews were transcribed for analysis. Data analysis included a qualitative, thematic content analysis with a grounded theory approach (Corbin and Strauss 2014). The data were coded using ATLAS.ti 6. The coding process was both framework-driven to find patterns related to the constitutionality framework as well as open to detect themes emerging from the data.

## 4. Main results of the dissertation

The dissertation comprises five individual peer-reviewed articles, of which three are published and two submitted for publication. Table 1 offers an overview of the five articles and on how they relate to the three research questions.

	Research question 1: Constitutionality process in Pilón Lajas	Research question 2: Emic society–nature relationships	Research question 3: Integration of perspectives and power relations
Article I: Moving territories (main author)	X		
Article II: Worldview matters (main author)		X	
Article III: Political ontology of co- management (main author)		X	X
Article IV: Whose knowledge, whose development? (co-author)			X
Article V: Empowerment identities (co-author)	X		X

*Table 1: Overview on research papers*

**Article I** (Gambon and Rist 2018) addresses research question 1. It explores the institutional history of Pilón Lajas from a constitutionality perspective and highlights the dynamic character of the constitutionality approach. It describes how institutions crafted through a constitutionality approach can be co-opted by the state to advance own interests, and confirms the insight that emic society–nature relationships have to be included in frameworks for natural resource governance.

**Article II** (Gambon and Rist 2019) addresses research question 2. It provides detailed insights on the Mosekene ontology, worldview, and lifeworlds and describes the transformations of the worldview and the implications of these transformations on resource use. The article shows that (social) institutions in the Mosekene society extend to the “natural” world, as in the perspectivist ontology, animals, plants, or other “natural” phenomena possess agency and form part of social networks with humans.

**Articles III** (Gambon and Bottazzi forthcoming) and **IV** (Jacobi *et al.* 2017) address research question 3 by analyzing the impact different forms of integration of distinct knowledge types have on sustainable resource management. Article III considers the specific case of Pilón Lajas from a political ontology perspective. It shows how unaddressed power asymmetries between ontologies lead to unsustainable outcomes in resource management. Problems of social and environmental (in)justice in conservation and co-management in ontologically plural areas should be addressed by a cognitive justice approach. Article IV considers the integration of scientific and local knowledge forms in agroforestry at a national level. The results show that the integration of knowledge types makes farmers more resilient than when they rely on a single type of knowledge.

**Article V** (Haller *et al.* forthcoming) contributes to the overall research goal by comparing three constitutionality cases (Pilón Lajas, Mount Carmel Biosphere Reserve in Israel, and Sami fishermen in Norway). It describes how in constitutionality processes the identity and notions of indigeneity as well as bargaining power to creatively innovate institutions mutually reinforce each other.

The following sections summarize the findings of this thesis derived from the articles in accordance with each research question.

#### **4.1. Assessment of the constitutionality process**

The question of whether a successful constitutionality process has taken place in Pilón Lajas and of what were the enabling or hindering factors for this was answered mainly in article I (Gambon and Rist 2018).

We describe Pilón Lajas' history of formal institutions in terms of the conservation of biodiversity from the first proposition as a national park by the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) in 1975 until the recognition of Pilón Lajas as a UNESCO biosphere reserve within the National System of Protected Areas in 1992 as well as in terms of indigenous territorial rights, with the recognition as an indigenous territory in 1992 and as a TCO in 1997 with the corresponding certification of the land title in the name of CRTM in 2008. We show how the double legal status of the area led to the development of a co-management system formalized in a joint management plan between CRTM and SERNAP for the period 2007–2017.

This institution building process largely corresponded to the principles of constitutionality, as it brought together a heterogeneous set of local actors calling for new institutions (*precondition 1*) built on traditional common property institutions for resource governance (*precondition 3*). The negotiations on co-management structures, facilitated by the NGO Wildlife Conservation Society (WCS, *precondition 4*) have increased the sense of ownership among lowland indigenous communities (*precondition 2*). As a result, the indigenous territory has been acknowledged at a higher (national) level through the creation of the TCO, increasing the bargaining power of the indigenous population (*precondition 6*). Our research indicates that the double legal status of the area and its co-management has led to improved livelihood outcomes and a more sustainable use of natural resources.



The peasant settler population in the transition zone was however excluded from the institution building process (*precondition 2*). The expulsion of about 150 settlers claiming to belong to the Landless Movement from Pilón Lajas as well as the land titling process that set clear boundaries between the TCO and private or other communal land titles led to tensions between the lowland indigenous population and the Andean settlers. With the introduction of the collective tenure category TIOC in the 2009 Political Constitution, the bargaining power of Pilón Lajas' population was reduced because settlers claimed access to the area based on the name "Indigenous Native Peasant Territory". The Masetene and Tsimane therefore opt for strict protection of territorial boundaries based on ethnicity, as postulated by the TCOs, instead of adopting the TIOC approach that would imply not only the recognition of territorial rights instead of land rights but also an increased recognition of informal institutions regulating the access and use of natural resources based on kinship, marriage, and inter-ethnic arrangements.

TIOCs not only strengthened settlers' land claims but also allowed the state to expand its influence in the areas that were under the sovereignty of lowland indigenous peoples. As the context has shifted from "indigenous peoples" versus "the neoliberal state" to a discourse of the collective indigenous native peasant citizen within a plurinational, "indigenous" state and related politics of resource extraction for the well-being of Bolivia's majority on the one hand and the protection of cultural diversity and marginal peoples on the other, the state was able to co-opt the institutional setting in Pilón Lajas since roughly 2010 to advance own interests such as energy production and infrastructure projects. This led to a disruption in co-management in 2012, as SERNAP – being a representative of the state – was no longer considered an ally. Nevertheless, in the following years, a second joint management plan for the period 2018–2028 has been developed. Lowland indigenous peoples of Pilón Lajas are currently re-negotiating their position toward the government, indicating the dynamic character of the institutions created through constitutionality processes.

The failure of conservation actors at the local level (WCS, park authorities) and at the national level (legislators) to understand the principles underlying indigenous resource governance (*precondition 5*) was identified as a second factor hindering a successful constitutionality process. As described in detail in articles II (Gambon and Rist 2019) and III (Gambon and Bottazzi forthcoming), resource use among the Tsimane and Masetene of Pilón Lajas is regulated by informal institutions based on a perspectivist ontology in which social institutions extend to other-than-human societies such as the Wise People (a spirit society), owner spirits of animal and fish, as well as other "natural" manifestations (e.g. trees) endowed with agency. Our research indicates that the insufficient recognition of emic society–nature relationships within the institution building process is reflected in the fact that particularly those Masetene and Tsimane who were not involved in CRTM or SERNAP did not develop a sense of ownership of the co-management structures. Because this mismatch between formal and informal as well as external and internal conceptualizations of resource governance is considered a key factor hindering a successful constitutionality process, we analyzed the emic society–nature relationship and power issues in the integration of different knowledge types and ontologies in more detail (see the following chapters).

The results of this research question are discussed in article IV (Haller *et al.* forthcoming), in which we compare three different constitutionality cases. The comparison shows how local communities strategically and creatively use existing formal and informal institutions in the institution building processes. In all three cases, indigeneity has been a key driver for increased bargaining power. However, as the case of Pilón Lajas shows, this strategy to assert the legitimacy of claims is undermined when the state itself becomes indigenous.

## **4.2. Society–nature relationships and natural resource governance institutions**

The ways in which emic perspectives on society–nature relationships shape institutions related to the use of natural resources were analyzed particularly in article II (Gambon and Rist 2019) and to a lesser degree in article III (Gambon and Bottazzi forthcoming).

Our results indicate that the Mosekene ontology is based on perspectivism and multinaturalism (Viveiros de Castro 1998, 2012). This means that one’s perspective on the world creates subjectivity. Thus, the perspective defines nature (the way the subject manifests itself in a bodily version to other subjects, e.g. as either a tree or a person) and not culture. In this understanding, personhood, agency, and social institutions are not limited to the human world but extend to animals, plants, and other “natural” manifestations as well as to spirit societies. We point to diverse actors from the “natural” world that are shaping the resource governance institutions in Pilón Lajas, such as the Owner spirits and Wise People. The Owner spirits of the animal and the fish and their guardians control the availability of prey. Typically, it is these Owner spirits that enforce sanctions on people that over-exploit resources, not other Mosekene or Tsimane and even less the formal institutions involved in co-management. Accountability is thus directed toward those spirits, which are also referred to with a kinship relation term, grandfather.

In addition to the other-than-human societies constituting the forest, the Mosekene lifeworld is shaped by the Wise People, a spirit society that some refer to as ancestors and others as a related tribe. Wise People live a life how it “ought to be”, meaning that they closely interact with the other-than-human societies animating the forest resulting in resource abundance. They also guide the Mosekene in their interaction with these societies by providing healing or shamanic capabilities to the individuals adhering to specific social norms. However, the relationship of the Mosekene with the Wise People has been disrupted owing to the increased transcultural exchange with the Tacana and Andean settlers as well as the growing integration into the nation state and the market economy. The institution building process described in chapter 5.1 (Assessment of the constitutionality process) led to a shift in intergenerational power relations, with young men representing and mediating relationships with the national society. While several older people report personal encounters with the Wise People, younger people know them only from oral history.

The transformation of the Mosekene worldview related to the encounter of two different ontologies has consequences on resource use and governance. In the perspectivist ontology, the management of natural resources can best be described as the maintenance of social relations with human and other-than-human actors and is thus process-oriented. On the other hand, the

management enacted by SERNAP and CRTM in co-management is based on a modern ontology, in which nature and humans are separated and the former can and has to be managed by the latter. This conceptualization is outcome-oriented, with improved biodiversity conservation as the objective. We show that the Mosekene enact both ontologies at the same time, creating contradictions regarding individual and collective life plans and development visions. Because the perspectivist ontology and thus the emic perspective on society–nature relationship is not recognized in the institution building process of Pilón Lajas, many Mosekene have difficulties to become active subjects of sustainable resource management and develop a sense of ownership for the co-management institutions.

The following chapter focuses on the dynamics and power relations shaping the recognition (or non-recognition) of the emic society–nature relationship in the institution building processes for natural resource governance and the consequences on the outcomes of such processes.

### **4.3. Power relations and integration of knowledge systems within co-management institutions**

The dynamics in the integration of perspectives, visions, and knowledge at play in the governance of land and natural resources, and, more specifically, in the case of co-management in Pilón Lajas were analyzed in articles III (Gambon and Bottazzi forthcoming) and IV (Jacobi *et al.* 2017).

A central precondition for successful institution building processes, as postulated by the constitutionality approach, is that these processes are inclusive and address power asymmetries among stakeholders and within local communities. Based on the results regarding emic society–nature relationships, we applied a political ontology approach to our analysis of the dynamics in the integration of interests and values of involved stakeholders. This analysis revealed key flaws in the process that led to the development of the joint management plans (2007–2017 and 2018–2028). Individuals and entire villages whose inhabitants mainly enact a perspectivist ontology were marginalized both by SERNAP and CRTM in decision-making processes. Knowledge based on a perspectivist ontology linked to the maintenance of social relations with other-than-human forest societies was not considered relevant for the elaboration of the management plans. In addition, decisions regarding biodiversity conservation are taken solely by SERNAP based on scientific assessments. CRTM and the indigenous population are only included in matters related to the economic or social development of the area.

The co-management institutions are thus based on a modern ontology, separating the “natural environment” from the “cultural” realm – that is, beliefs, worldviews, or socio-economic aspects. Stakeholders enacting a modern ontology endorse a rather essentialized and utilitarian notion of culture, in which cultural aspects are considered valuable mainly if they contribute to the sustainable use of natural resources. In addition, “culture” and its preservation are primarily attributed to women, while men are seen as the productive workforce. This view creates a separation between biodiversity, natural resources and economy, on the one hand, and culture, social relationships and worldview, on the other hand – aspects which in the perspectivist ontology are closely interconnected and interdependent. These “uncontrolled equivocations” (Viveiros de Castro 2004) take place not only between park authorities and the indigenous

population: indigenous individuals themselves also enact a modern ontology along with the perspectivist ontology according to the arena in which they are interacting. In particular, current or former members of CRTM as well as indigenous park rangers recreate the power asymmetries between the modern and the perspectivist ontology within their communities.

The unaddressed power asymmetries inherent in the co-management institutions ultimately lead to unsustainable ecological and livelihood outcomes. The management plans focus on the development of economic alternatives for indigenous people and peasant settlers as a key strategy for reducing pressure on natural resources. In addition, to provide services such as healthcare and education, larger, sedentary settlements are promoted. Our findings show that these initiatives based on a standardized conception of development lead to the overuse of resources. The institutional arrangements created or sustained by the management plan thus aim at transforming the Mosetene and Tsimane societies in a way that disconnects them from their ontological foundations of resource use practices. Although a “healthy environment” is the objective of both conservations and indigenous people, the failure to recognize the different motivations and significations behind this goal points to the conclusion that the institution building process in Pilón Lajas has not been sufficiently inclusive and only superficially builds on pre-existing local institutions and local knowledge.

The case of Pilón Lajas shows that for co-management (or participation of local communities in conservation efforts in general) to be successful, ownership must not only extend to the process of (political) participation but also pervade the spheres of worlding, enacting, space, and practice. We thus propose a cognitive justice approach to address political ontology problems. Such an approach to co-management is based on fluidity, blurredness, and adaptability (Beisel and Jaeger 2007, Umans and Arce 2014, van der Velden 2009). This implies that instead of putting the focus on (conservation) outcomes, the process of decision-making – accommodating ontological diversity – gains importance. Our results indicate that the uncovering of ontological power asymmetries and the reconciliation of realities through a cognitive justice approach potentially yields promising outcomes in biodiversity conservation, in the recognition of indigenous rights, and in the reduction of environmental conflicts.

These results are in line with the results of our study on the integration of knowledge systems in Bolivian agroforestry systems (Jacobi *et al.* 2017). Similarly to constitutionality processes, agroforestry is linked to improved livelihood outcomes and conservation of (agro-) biodiversity. Our findings indicate that agroforestry projects integrating external, scientific knowledge and local, often traditional knowledge resulted in improved and diversified livelihoods and higher tree and crop diversity than those that were based only on external knowledge. Nevertheless, scientific knowledge is still prioritized by international development agencies and national civil society organizations. We identified five factors that hindered the recognition of local knowledge: preference for ready-made solutions, skepticism about local knowledge, lack of communication and knowledge exchange, insufficient project follow-up, and lack of validation of local and traditional knowledge in formal education. Again, we identified a clash between the modern worldview, based on the separation of the natural and the social, and the Amerindian worldview, in which the material and social world are interconnected. In this case, a collaborative learning

approach was suggested in complex natural resource governance settings, which, from a political ontology perspective, corresponds to the cognitive justice approach postulated in this thesis.

## 5. Synthesis and outlook

The case study of the Pílon Lajas Indigenous Territory and Biosphere Reserve advances the constitutionality framework with two key insights.

First, the articles constituting this doctoral dissertation highlight the dynamic aspect of constitutionality processes over time. Recognition of natural resource management institutions developed in a bottom-up process at a higher (national) level is one of the preconditions of the constitutionality framework as defined by Haller et al. (2016). However, as Bolivia shifted from a neoliberal to a plurinational, “indigenous” state, the boundary of the “indigenous” identity on which the rights claims at the basis of the institution building process were formulated dissolved. The state, framing the issues at stake now as a question of well-being of the collective indigenous native peasant citizen, thus was able to co-opt the new institutional settings to advance own interests. This had significant consequences on the bargaining power of the local indigenous population vis-à-vis the state and Andean settlers, undermining the sense of ownership in the institutions created through the constitutionality process. Therefore, although the constitutionality processes induced at a local level – the demand of indigenous territories by the lowland indigenous populations resulting in the creation of TCOs – continued at the national level through the creation of TIOCs, these processes are now rejected at the local level of Pílon Lajas. TIOCs are, on the one hand, conceptually based on a unifying category of collective citizenship, the indigenous native peasant, to overcome the social fragmentation consolidated through the TCOs based on neoliberal principles (Fontana 2014). Because “territory” for the interlocutors of this dissertation is defined not through a polygonal, clearly delimited approach based on ethnicity, but rather on kinship and marriage networks, one could assume that the TIOCs with their improved conceptualization of the social reality of indigenous peoples in Bolivia are better in line with the constitutionality processes taking place at the local level compared with TCOs. On the other hand, TIOCs also create a permeability that is favorable for colonization and a productivist paradigm of development by opening up access to land and natural resources in Bolivia’s lowlands for peasants (Bottazzi and Rist 2012, Reyes-García *et al.* 2014).

The results of this thesis thus underline the importance of a sense of ownership and of bargaining power and that these preconditions of constitutionality are subject to change depending on the context. The dissertation shows that constitutionality is a dynamic process, in which institutional settings have to be re-negotiated by stakeholders on an ongoing basis to guarantee the sustainability of resource management institutions. This is in line with a dynamic understanding of sustainability, in which the concept is understood not as an endpoint to be reached, but as an ongoing social learning process (Cornell *et al.* 2013, Rist *et al.* 2007, Rist *et al.* 2006, Woodhill and Röling 1998).

The conceptualization of sustainability as a social learning process involves recognizing the dynamics over temporal and spatial scales and points to the second contribution of this thesis: the

recognition of the role played by complex inter-ontological interactions and feedbacks in institution building processes.

The results of this dissertation project show that a sense of ownership generated in the constitutionality process through political participation is insufficient to create successful bottom-up institutions. Participation remains incomplete if it does not fully address emic nature–society relationships, for example, by seriously considering ontological difference. Ownership of the institution building process in the conservation and co-management of protected areas in ontologically diverse contexts therefore has to pervade the spheres of enactment of ontologies, space, and practice. Various studies have highlighted that land managed under common property regimes by indigenous and local populations has lower deforestation rates than that managed under other property regimes and, in some cases, the deforestation rates are even lower than those of protected areas (Bottazzi and Dao 2013, Ceddia *et al.* 2015, Holland *et al.* 2014, Paneque-Gálvez *et al.* 2013, Porter-Bolland *et al.* 2012). The case presented in this dissertation shows that indigenous peoples are not *per se* “ecologically noble” (Ellingson 2001, Wade 1999), but their being-in-place and resource use practices based on a perspectivist ontology, rather than a modern ontology, have coincided in the past with conservation objectives. The efforts of the co-management institutions and conservationists to further reduce pressure on biodiversity by integrating the indigenous population in the market economy, while at the same time promoting economic and social development, have unintended and negative consequences on socio-ecological outcomes in Pilón Lajas. The complete suppression of ontological pluralism by the dominant national society leads to a transformation of worldviews and lifeworlds that can be considered an intermediary between ontology and both formal and informal institutions regulating natural resource management. The disconnection between the indigenous population’s ontological foundations and the institutional arrangements of the nation state and market economy results in unsustainable resource use practices.

To overcome this conceptual difficulty, this thesis proposes a cognitive justice approach to the constitutionality framework in contexts where different ontologies are enacted. This implies a focus on the recognition of ontological diversity with important implications on decision-making processes in the co-management of protected areas and indigenous territories. This means, for instance, that co-management schemes should be less outcome-oriented, with a focus on biodiversity conservation and economic development, and more process-oriented, with a focus on truly inclusive decision-making processes aiming at reconciling different visions and objectives. Co-management thus has to be designed in a flexible way to accommodate fluidity and blurredness. A cognitive justice approach based on political ontology influences all six preconditions of constitutionality but is particularly significant for inclusive institution building processes and the recognition of local knowledge (see figure 4).

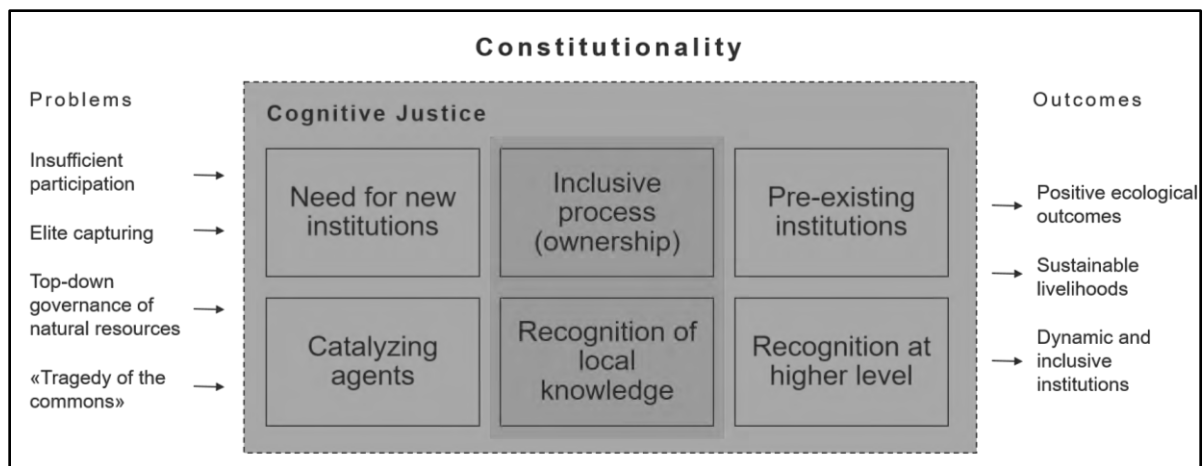


Figure 4: Integration of a cognitive justice approach within the constitutionality framework (own elaboration based on Haller et al. 2016).

Constitutionality processes are often based on “institution shopping” (Haller 2010, Haller *et al.* 2016). This notion entails that stakeholders are knowledgeable about scales and employ a creative process of recombining formal and informal, traditional and new institutions as part of strategic action. However, owing to the effects of ontological domination, institutions related to the perspectivist ontology have not been employed in the constitutionality process in Pilón Lajas. Thus, understanding cognitive justice not only as a question of “whose knowledge is legitimate” but also as a question of “whose reality is allowed to be real” (Burman 2017) takes the conditions of “inclusive process” and “recognition of local knowledge” one step further.

Expanding constitutionality with a cognitive justice approach yields the potential to grasp the concept of institutional pluralism and institution shopping linked to not only formal and informal or traditional and new institutions but also institutions extending to other-than-human societies. It further raises the question of whether and to what extent those other-than-human societies have to be integrated in the institution building process. However, the translation and incorporation of the often invisible, intangible and transforming elements of perspectivism into administrative processes remains challenging.

Further research is necessary to analyze how inter-ontological dialogues could foster more successful constitutionality processes. Transdisciplinary research (Hadorn *et al.* 2008, Rist and Dahdouh-Guebas 2006) based on the results of this doctoral dissertation could provide the space for deliberation on innovative institutional settings that reconcile modern and perspectivist ontology. Research would thus itself become part of a constitutionality process by providing a neutral platform for negotiations between common, but sometimes exposed to internal and external contradictions, objectives of biodiversity conservation, development, indigenous rights, and self-determination.

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# PART II

**“Science consists not in the accumulation of knowledge,  
but in the creation of fresh modes of perception”**

David Bohm



**Paper I: Moving Territories: Strategic Selection of Boundary Concepts by Indigenous People in the Bolivian Amazon – an Element of Constitutionality?**

Gambon, Helen and Stephan Rist 2018

*Human Ecology* 46: 27-40.



# Moving Territories: Strategic Selection of Boundary Concepts by Indigenous People in the Bolivian Amazon - an Element of Constitutionality?

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Published online: 4 December 2017

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## Abstract

In this case study, we analyse to what extent the establishment of the Pilon Lajas Indigenous Territory and Biosphere Reserve in the Bolivian Amazon reflects the six elements of the concept of constitutionality. Our analysis elucidates what happened during the second phase of establishment, in which land rights of lowland indigenous peoples were extended to collective territorial rights including highland indigenous peoples and peasants. The case adds a dynamic perspective on the constitutionality framework by providing a longitudinal analysis of a bottom-up institution building process for natural resource governance.

**Keywords** Bolivian Amazon · Conservation · Protected areas · Indigenous rights · Collective property rights

## Introduction

The decisions to establish the first protected areas in Bolivia in the 1960s were taken by the national government and local elites without any discussion or consultation with the local populations or a legal framework to coordinate conservation efforts at the national level. The resulting conflict, together with weak implementation, meant that conservation strategies were not very effective (Boillat *et al.* 2010). In 1992, recognizing the failures of top-down approaches, the government promulgated the law of the “National System of Protected Areas” (*Sistema Nacional de Áreas Protegidas*, SNAP) (Law No. 1333) that stated that the management of protected areas must be based on the inclusion of local indigenous populations (Alcoba 2004). This reflected the globally shared belief that participation of local people in decision-making processes and engagement in co-management are key for reducing conflicts over resources and increasing efficiency of conservation efforts (McLaughlin 2011; Pimbert and Pretty 1997).

However, critical reviews of this belief raised questions regarding what forms and under what conditions participation is

really effective. Some authors maintain that even if participation is happening and ownership is created, this should be understood as deriving from power exerted through local to national elites (Agrawal 2005; Nadasdy 2005). Others maintain that under certain conditions, bottom-up institution building can create genuine ownership, even where quite diverse actors are involved. Haller *et al.* (2016) offer the concept of constitutionality to examine the conditions under which bottom-up institution building can be successful and define six preconditions for constitutionality processes: 1) local actors (heterogeneous in terms of power, economic assets, age, gender, etc.) perceive a need for new institutions to position themselves in changing contexts; 2) institution-building processes are inclusive and address power asymmetries; 3) these processes build upon pre-existing local institutions; 4) outside catalyzing agents provide neutral platforms for negotiations; 5) local knowledge on resources is recognized; and 6) the resulting new institutions are recognized at a higher (national) level.

The constitutionality framework thus emphasizes the views of local actors on participation and the strategies they employ when crafting institutions vis-à-vis comparably more powerful actors. Local actors experience a sense of ownership if economic, political, or social learning benefits are gained in the process. The framework hypothesizes that new institutional arrangements created through such a process are more likely than those resulting from top-down participatory approaches to result in sustainable livelihoods and positive ecological outcomes (Haller 2010; Haller *et al.* 2016).

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In this case study, we analyse how the recognition – firstly of indigenous land rights, and secondly of indigenous territorial rights – operated at the local level of the Pilón Lajas Indigenous Territory and Biosphere Reserve in the Bolivian Amazon. We start with an analysis of the legal provisions on protected areas and indigenous collective land tenure that resulted from strong opposition of indigenous communities in this lowland area, as well as from indigenous organizations of the highlands and valleys of the Andes to existing national policies. This collective resistance by indigenous movements concluded in the creation of nationwide “Indigenous Territories” (*Tierras Comunitarias de Origen*, TCO), and co-management structures at the local level. We then describe how the creation of “the plurinational state” and the expansion of land rights to territorial rights have challenged locally established institutions, and present an analysis of the implications of the extractive policies of this plurinational state from 2011 onwards, focusing on the state-controlled exploitation of mineral resources, fossil fuels, and hydroelectric energy. We conclude with a discussion of the factors that shape constitutionality processes over longer periods.

## Background

We selected the Pilón Lajas Indigenous Territory and Biosphere Reserve, located in the Andean foothills of the La Paz and Beni departments and including four municipalities (Rurrenabaque, San Borja, Apolo and Palos Blancos), for the following criteria: a) it is one of the first TCOs created in Bolivia by Supreme Decree in 1992 as a response to the social movements in the 1990s. Collective land tenure of indigenous peoples was formally recognized in 1997 as a TCO, so the local indigenous organization, the Tsimane Mosetene Regional Council (*Concejo Regional Tsimane Mosetene*, CRTM), had several years of experience in territorial management; b) a system of co-management between the local indigenous organization and the National Service of Protected Areas (*Servicio Nacional de Áreas Protegidas*, SERNAP) had been created based on a social learning experience that requires ongoing re-negotiation and positioning of indigenous peoples vis-à-vis the state; and c) the TCO is inhabited by three indigenous peoples (Tsimane, Mosetene, and Tacana), who were granted a collective land title by the government. The transition zone of the Biosphere Reserve (BR), beside the Rurrenabaque–Yucumo road that borders Pilón Lajas, is inhabited by indigenous communities of Quechua and Aymara, who migrated to the area from the highlands and valleys since the 1980s and are known locally as “colonos.”

Pilón Lajas and its influence zone are inhabited by about 9600 people, of whom about 15% (1400) are lowland indigenous peoples who live within the Biosphere Reserve (data from 2004 in Bottazzi 2008). In its own census in 2010, the CRTM recorded a population of about 1700 persons living in 22

villages (unpublished data provided by the CRTM). About 67% of the population are Tsimane, 13.4% Tacana, and 9.4% Mosetene. The remaining 10.2% belong to other indigenous groups such as Movima, Esse Ejja, or Lecos, or identify as mestizos. The large majority (96.5%) of inter-ethnic marriages are within the Tacana communities along the Beni River (SERNAP and CRTM 2009). As with all indigenous nations of the Bolivian lowlands, the indigenous peoples of Pilón Lajas are ethnic minorities. In Bolivia, there are 11,173 Tacana, 6464 Tsimane, and 1989 Mosetene (INE 2013) (Fig. 1).

The livelihoods of Tsimane and Mosetene households are largely based on forager-horticulturalist activities with high levels of spatial mobility, while Tacana and *colonos* base their livelihoods mainly on agriculture (SERNAP and CRTM 2009). Foragers are often more marginalized and less organized than other indigenous groups, making meaningful participation in co-management structures more difficult (Minter *et al.* 2014). Our case study focuses on the forager-horticulturalist population of Pilón Lajas (Tsimane, Mosetene, and other lowland indigenous inhabitants embedded in Tsimane and Mosetene societies), who represent roughly 77% of the inhabitants of Pilón Lajas, or 11% of the total population including the transition zone.

Mosetene and Tsimane are distinct but closely related ethnic minorities. Men hunt regularly, usually with shotguns or rifles. Fishing techniques (lines with baited hooks, nets, bow and arrow, plant venom) vary according to the water quality and type of water body. Most households breed chickens, and a few families raise pigs. Rice, plantains, manioc, and corn constitute the basic agricultural crops (the average cultivated area is 0.5 ha/household). These activities are predominantly for the subsistence of the family, while occasional surpluses are sold in Rurrenabaque.

The majority of the Mosetene and Tsimane depend on the barter of woven palm leaves used in roof construction (*Geonoma deversa*) for commodity goods such as cooking oil, sugar, or batteries. Increasingly, men (and a few women) temporarily engage in market-based activities, selling small quantities of timber, or taking occasional paid jobs.

## Methods

The results are based on ethnographic research in Pilón Lajas during 14 months between July 2012 and August 2014. Our base was in Rurrenabaque, a town of about 13,000 inhabitants, where the CRTM and the local office of the SERNAP are located. There, we conducted semi-structured and unstructured interviews (Bernard 2006) with all members of the CRTM,<sup>1</sup> consultants to the indigenous organization financed

<sup>1</sup> The executive committee of the CRTM consists of a President, a Vice-President, and one person responsible for the issues Land and Territory, Health, Education, and Gender.

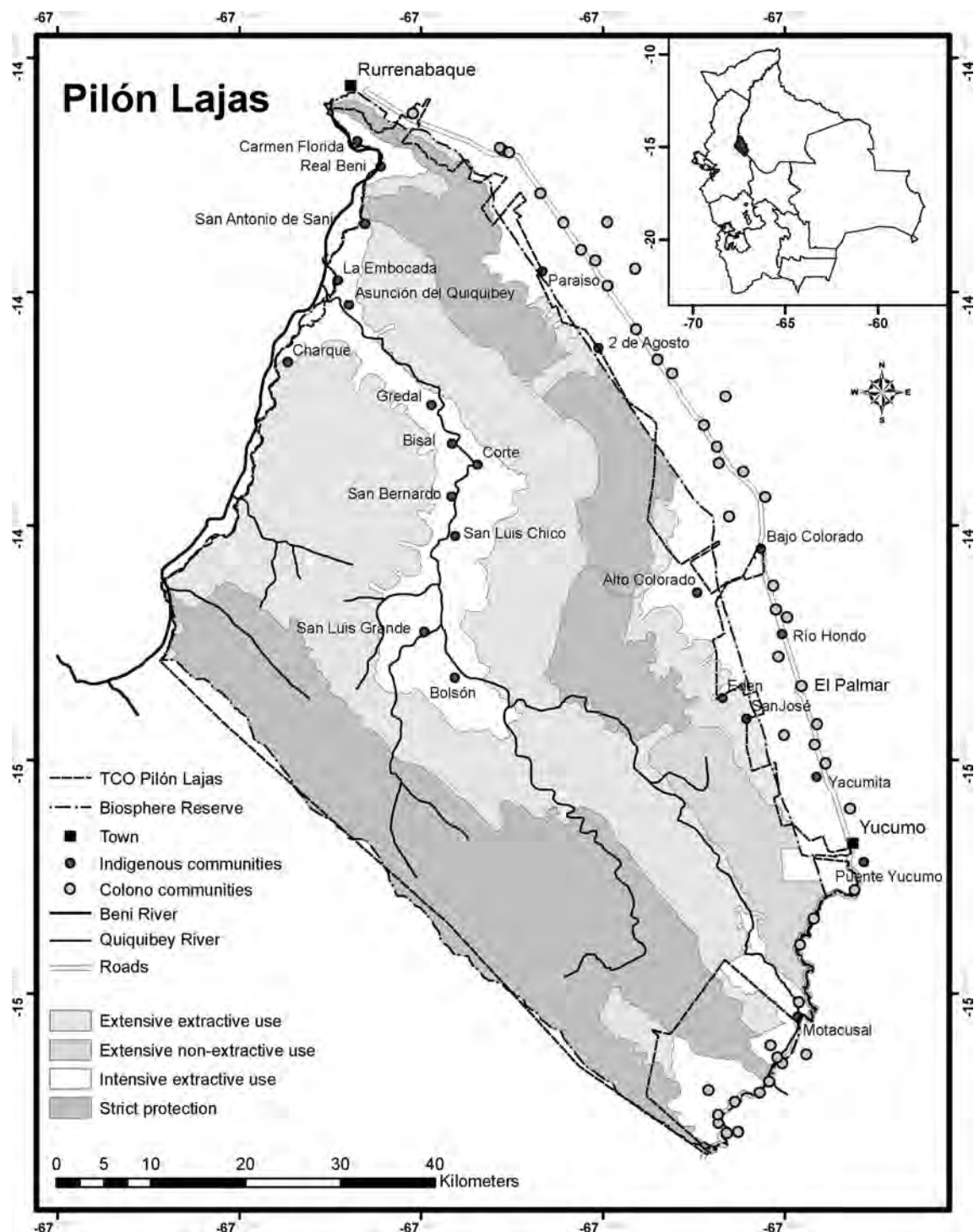


Fig. 1 Pilon Lajas indigenous territory and biosphere reserve

by NGOs, the Directors<sup>2</sup> of the Biosphere Reserve, rangers, and the administrative and planning staff. Main topics of the semi-structured interviews included the institutional history of Pilon Lajas, co-management of the area, and roles of and relationships among actors, while the unstructured interviews

<sup>2</sup> During the research period, the Biosphere Reserve saw three Directors, of which two were rangers, assuming their position *ad interim*.

provided information on day-to-day operations of institutions and related dynamics. Further, the first author observed the interactions of these actors in the facilities both institutions share in order to assess co-management structures in practice.

The first author undertook regular field trips lasting from 5 to 16 days to the communities along the Quiquibey River. A significant amount of time was spent in two Mosekene-majority



communities about 6 h (Gredal) and 1.5 days (San Luis Grande)<sup>3</sup> by motorized canoe from Rurrenabaque. Shorter visits were made to seven other Mosetene and Tsimane communities along the Quiquibey River (Bolsón, San Luis Chico, San Bernardo, Corte, Bisal, Asunción del Quiquibey) and the Beni River (Charque), as well as one visit to a *colono*-settlement (El Palmar) along the Rurrenabaque-Yucumo (Fig. 1).

The main methods we used in the communities were participatory observation (DeWalt and DeWalt 2011; Hammersley and Atkinson 2007) and unstructured interviews (Bernard 2006). The first author engaged actively in the daily activities of various women, men, and children, gaining insights into how people occupy space and interact within and across the territory. Additionally, participatory mapping and transect walks (Chambers 1994) were conducted in both communities, providing information on conceptualizations of space and territory as well as on occupation of space and related knowledge.

## Results

### The Neoliberal State and the Creation of TCOs

National Bolivian society long considered the forests of the Amazon basin “empty,” and indigenous peoples of the Bolivian lowlands were invisible or regarded as marginal (Martínez-Rodríguez 2009). The 1953 Agrarian Reform abolished the feudal hacienda system in the Bolivian valleys and highlands and declared the *selvícolas* (woodland or jungle dwellers) to be in a “savage state and have a primitive organization” and thus to remain “under the protection of the State” (Decree Law 3464 1953). A government-driven “colonization of the Amazon” by Andean indigenous peoples started in 1980s with the expansion of the agricultural frontier along newly built roads. Indigenous people living in the area for centuries were confronted with the rapid expansion of illegal logging by *colonos*, and found that the extensive territories needed for their semi-sedentary subsistence were under threat (Bottazzi and Rist 2012). Members of the Guaraní, Ayoreo, Guayano, and Chiquitano indigenous people started to organize themselves with the support of German anthropologist Jürgen Riester, founding in 1982 the Confederation of Indigenous Peoples of Bolivia (*Confederación de Pueblos Indígenas del Oriente Boliviano*, CIDOB), an umbrella organization that today represents 34 indigenous peoples (Anthias and Radcliffe 2015; Assies 2006; Hirsch 2003). In March 1990, this new indigenous movement organized the “March for Territory and Dignity” to bring their political

agenda to national attention, primarily claiming recognition of their rights and territories. Indigenous organizations from the highlands supported their claims, contributing to the emergence of lowland indigenous peoples as a new social and political force (Assies 2006; Sanchez-Lopez 2015). One year later Bolivia ratified the ILO Convention 169 on Indigenous and Tribal Peoples. This coincided with the political transformation of the country, initiated with a constitutional reform in 1994, recognizing the multi-ethnic and “pluricultural” character of the State and the right of indigenous peoples to their territories, established through the promulgation of Law 1715 (the National Agrarian Reform Institute Law or *Ley INRA*) in 1996, which introduced the legal category of collective property “*Tierras Comunitarias de Origen*” (TCOs) (Assies 2006). TCOs are defined as geographic areas that constitute the habitat of indigenous peoples and communities, to which they traditionally have had access, and where they maintain and develop their own ways of economic, social, and cultural organization. TCOs establish clear boundaries and are “inalienable, indivisible, irreversible, collective, composed of communities or associations, indefeasible and exempt from the statutes of limitations” (Law No. 1715, Art. 41.I.5). The name indicates that these areas are conceptually based on a notion of land limited to the topsoil: indigenous peoples do not have property rights on water, forest cover, or mineral resources, but “have the right to participate in the sustainable use of renewable resources” (Law No. 1715, Art. 3.III). Today, over 200 TCOs and TIOCs (*Territorios Indígena Originario Campesino*, see below) exist, spanning over 24 million hectares (56% is located in the lowlands and 44% in the highlands and valleys) (INRA 2015). While resulting from demand by indigenous communities in the lowlands (supported by indigenous groups of the highlands and valleys), creation of the legal category of TCOs, and thus of the Pilón Lajas Biosphere Reserve, was a top-down process that originated from the national political elite to resolve its conflict of legitimacy and was rooted in a logic of “multicultural neoliberalism” (González 2010; Cott and Lee 2001).

The International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) proposed an area of 280,000 ha as a national park under the Law on Forest Life, National Parks, Hunting, and Fishing (Decree Law No. 12301) of 1975, as it was judged that its ecosystem had not been sufficiently represented in Bolivia’s protected areas network. The local Tsimane were considered an “endangered species” under threat of extinction (Guerra and Francisco 2015). Between 1976 and 1977, the Man and Biosphere (MAB) programme designated 118 biosphere reserves across the world in a “fast track” mode. These were areas that had both representative and unique biomes corresponding to the main objective of the MAB programme to “safeguard the genetic diversity of species” (UNESCO 1974: 11). Pilón Lajas, however, remained a paper park, and

<sup>3</sup> Household and village size vary significantly over time due to the high mobility of residents. During the research period, between 8 and 15 adults lived in Gredal, and between 8 and 12 adults lived in San Luis Grande.

there was no administration or conservation activity in the years following its creation (Bottazzi 2008; Pauquet 2005).

Following the Indigenous March for Territory and Dignity in 1990, the Bolivian president declared nine “Indigenous Territories” by Supreme Decree,<sup>4</sup> including Pilón Lajas (Assies 2006). This included the recognition that the local Tsimane and Mosekene indigenous population had the right to the “rational use of natural resources” as established by the legislation, and that no new concessions for logging, mining, or oil would be granted. The decree further recognized the area’s status as a Biosphere Reserve for the protection of biodiversity and genetic integrity of the flora and fauna (Supreme Decree No. 23110, of 1992). According to our informants, neither the indigenous population nor their leaders were consulted on the demarcation of the limits of the area (instead, the 400,000-ha area defined by the MAB national committee was adopted), nor were they informed or consulted about the creation of the protected area. The state’s interests in the natural resources of the area remained high, and after creation of the protected area and indigenous territory, it granted concessions to several logging companies, as well as to two oil exploration companies (REPSOL and PETROBRAS) (Laats *et al.* 2012).

During the first years after creation of the reserve (1993–1998), the French NGO *Vétérinaires Sans Frontières* (VSF) assumed the management of the area with financial support from the European Union and the Swiss Development and Cooperation Agency. The NGO elaborated a five-year management plan, but as the colonists’ interest in participating in the assessments was low, the plan was completed without their involvement. Tensions between the indigenous population, *colonos*, and the NGO arose as economic development projects carried out by VSF largely benefitted the *colonos*, while the indigenous population was the target of conservation activities. At the same time, VSF found itself in the crossfire of local elites and *colono* organizations, as it supported indigenous peoples in expelling logging companies from the Biosphere Reserve. Following escalation of the conflict with the *colonos*, VSF withdrew in 1996. In 1998, the newly founded National Service for Protected Areas (SERNAP) (Supreme Decree No. 25158 of 1998) took over the management of the area (Bottazzi 2008; Pauquet 2005), implementing the General Rules for Protected Areas (Supreme Decree No. 24781 of 1997).

In 1997, the Indigenous Territory became a TCO recognized by the Land Law No. 1715. This title consolidated collective rights of use and access for the Tsimane and Mosekene population in Pilón Lajas, represented by the CRTM. The Tacana, who were not considered by the Supreme Decree in 1992, were recognized as co-owners of the TCO through their affiliation to the CRTM. Access rights of the 10% of the population that

does not belong to any of these three groups were never formally defined. In practice they are tied to social norms concerning marriage and kinship, as well as to natural resource use as defined by informal inter-ethnic institutional arrangements.

The double status of the area as a TCO and Biosphere Reserve resulted in legislative protection of the land (Law No. 1715 of 1996; Law No. 3545 of 2006) and the environment (Law No. 1333 of 1992). This suited the interests of both conservationists and indigenous communities, and helped to reduce economic pressure on the natural resources of Pilón Lajas. The large logging concessions were reversed in the late 1990s (Pauquet 2005), while both oil exploration blocks were halted in 2002 and 2004, respectively, for being situated in a protected area. In addition, deforestation within Pilón Lajas due to the rapid expansion of the agricultural frontier was slowed down through the delineation of its boundaries (Bottazzi and Dao 2013; SERNAP and CRTM 2009). The Land Law also recognized the property rights of *colonos*, who until 1993 had received either individual small properties of 25 ha, individual medium properties, or collective titles (colonies) as a group (Bottazzi and Rist 2012).

In 2004, a co-management system was negotiated and implemented by the local branch of SERNAP and the CRTM. This collaboration between a government institution and an indigenous organization attracted NGOs and international donors, such as the Department for International Development (DFID), USAID, World Bank, Conservation International (CI), Wildlife Conservation Society (WCS), and others, making Pilón Lajas one of the better protected areas in Bolivia (Bottazzi 2008). The legal status of the TCOs in general, and the creation of Pilón Lajas in particular, thus significantly increased state recognition of the indigenous population.

Around the same time, the relationship between the indigenous inhabitants of Pilón Lajas and the *colonos* living in its transition zone began to deteriorate. In 2005, about 150 people claiming to belong to the Landless Movement (*Movimiento Sin Tierra*) settled around the Laguna Azul, considered a sacred space by the Mosekene and Tsimane, and started dividing agricultural land into parcels and extracting timber. The indigenous population organized, and with the support of SERNAP expelled the illegal settlers (Fundación Tierra 2010; Surkin *et al.* 2010). In the same year, the land titling process began, contributing to the intensification of conflict. The process of land registration (*saneamiento*) was encoded in a law (1715) that combined neoliberal principles (liberalization of the land market) and social justice principles (recognition of indigenous peoples’ territorial rights) (Assies 2006) and prioritized third-party claims over the recognition of TCOs (Reyes-García *et al.* 2014). The land titling process in Pilón Lajas concluded in January 2008 with certification in the name of the CRTM only after 53,874 ha of the TCO had been allocated as individual titles to *colonos* settling in the southern part of the area. The boundaries of the TCO and the Biosphere Reserve therefore do not overlap completely (SERNAP and CRTM 2009).

<sup>4</sup> Tsimane, Multiétnico 1, Sirionó, and Isiboro-Securé in 1990, and Weenhayek, Araona, Pilón Lajas, and Yuqui in 1992 (see Law No. 1715 1996).

The elaboration of the second management plan, the “Management Plan and Life Plan of the BR-TCO” for the period 2007–2017, was funded and led by WCS whose goal was to develop a document reflecting both conservationist and indigenous views as the basis for the co-management of the area. The indigenous population was thus included at an early stage and more thoroughly than in the first plan, although colonists were not considered stakeholders (Bottazzi 2008; Surkin *et al.* 2010). In 2010, the CRTM was awarded the Equator Prize of the United Nations Development Programme (UNDP), in recognition of its efforts to reduce poverty through biodiversity conservation, and a Special Recognition for applied indigenous knowledge (UNDP 2012). A Supreme Decree developed by SERNAP in coordination with indigenous organizations from the lowlands and highlands to formalize co-management of protected areas was not however approved by the Cabinet of Ministers (Espinoza and Carlos 2012). Nevertheless, thus far the process corresponds largely to the principles of constitutionality for successful bottom-up institution-building process: a heterogeneous set of local actors calling for new institutions (indigenous territories, co-management structures – element 1) that build on traditional institutions for resource governance (common vs. private property – element 3), negotiation of co-management of the area has increased the sense of ownership among lowland indigenous communities (element 2), the NGO WCS served, to a degree, as an outside catalyzing agent (element 4), and the Indigenous Territory has been acknowledged at a higher (national) level through the creation of the TCO, increasing the bargaining power of the indigenous population (element 6). However, both the local (WCS, park authorities) and the national level (legislators) failed to understand indigenous resource governance (element 5), and the *colonos* were excluded from the institution building process (element 2). Nevertheless, most interviewees concur that the double status as protected area and indigenous territory allowed for significantly improved livelihood outcomes and the sustainability of natural resources and the ecosystem.

### The “Plurinational” State’s Inter-Ethnic Focus

At the national level, the major indigenous and peasant organizations<sup>5</sup> formed the “Pact of Unity,” a political alliance that paved the way for fundamental political changes, such as the election of Evo Morales as the first indigenous president in 2005, the convening of a Constituent Assembly in which the organizations from the Pact of Unity were strongly represented, and the resulting New Political Constitution of 2009 that

<sup>5</sup> CIDOB; Unique Confederation of Rural Laborers of Bolivia (CSUTCB); Confederation of Peasant Indigenous Native Women “Bartolina Sisa” (CNCIOB-BS); Syndicalist Confederation of Intercultural Communities of Bolivia (CSCIB); and the Council of Ayllus and Markas of Qullasuyu (CONAMAQ).

declared Bolivia a “plurinational” state (Bottazzi and Rist 2012; Fundación Tierra 2010; Schavelzon 2012) and transformed the recognition of the right to land established by the land law in the form of the TCOs into the recognition of the right to a territory by introducing Indigenous Native Peasant Territories (*Territorios Indígena Originario Campesino*, TIOC) (Garcés 2011). This new legal category is based on a reinterpretation of fragmented rural identities through the introduction of a unifying category of collective citizenship, the indigenous native peasant (Fontana 2014). The change in collective land tenure from TCO to TIOC thus poses new questions of access to and exclusion from territories and natural resources (Bottazzi and Rist 2012; Sanchez-Lopez 2015; Tockman and Cameron 2014).

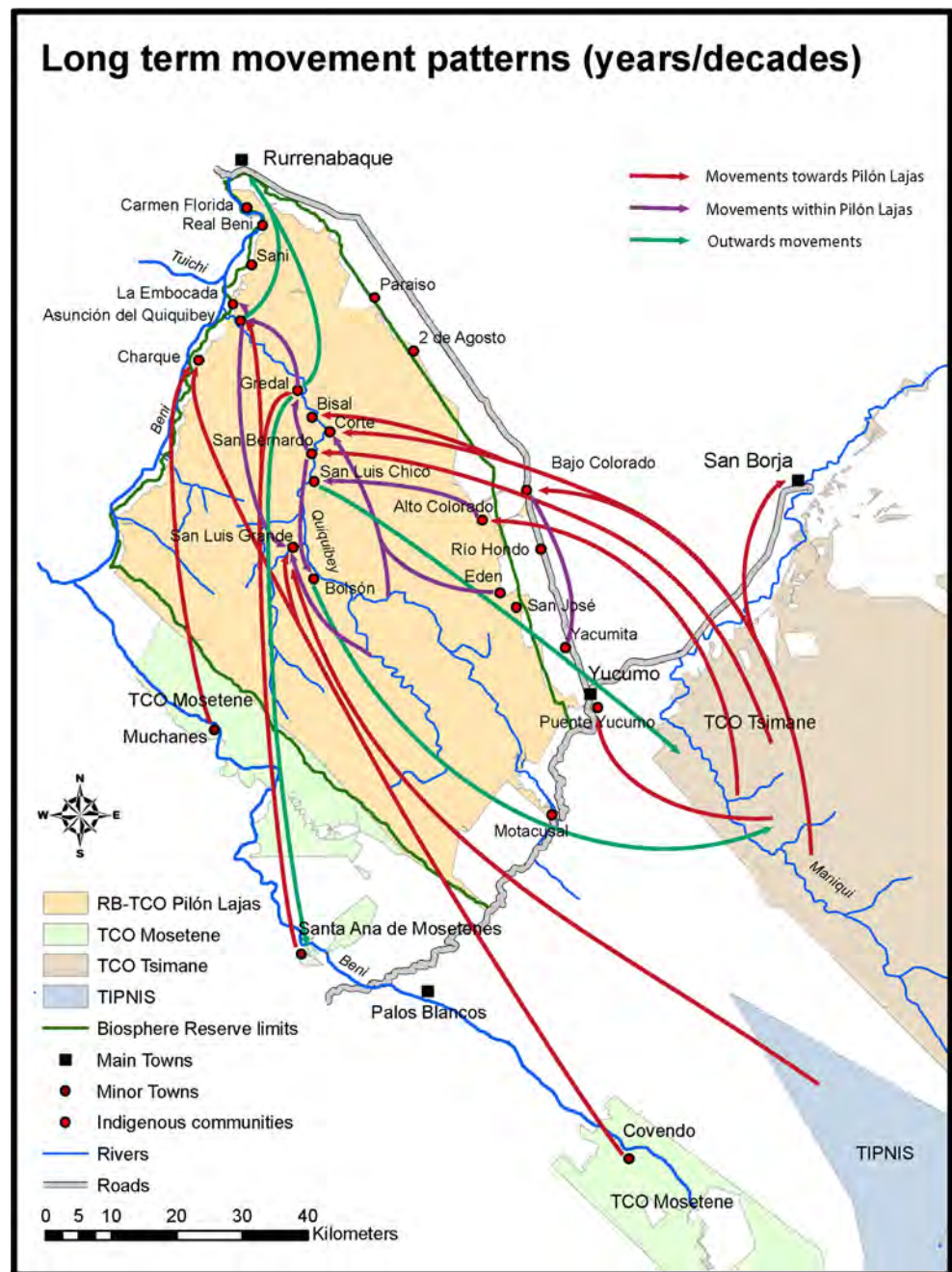
The constitutional anchoring of the collective tenure category as TIOCs enhances the rights of all the country’s indigenous nations to their territories by extending land rights to territorial rights. Wherever TIOCs overlap with protected areas, co-management based on the norms and proceedings of the indigenous peoples should apply (NCPE Art 385.II). The automatic conversion of TCOs to TIOCs was legally established in 2010 (Supreme Decree No. 727 of 2010).

However, despite this constitutional valorization of plurality, autonomy, and territorial rights of the indigenous population within Bolivian society, the Tsimane, Mosekene, and Tacana of Pilón Lajas vehemently oppose the conversion of their TCO into a TIOC, chiefly because it would reduce the power of the three groups indigenous to the area relative to the *colono* organizations of the region. The Aymara and Quechua settlers in the transition zone today outnumber the indigenous population of the whole area by 4 to 1 (Bottazzi 2008, unpublished data provided by CRTM). The *colono* communities find it unacceptable that roughly 1700 people possess nearly 400,000 ha of land, while they have to limit themselves to 25 ha (or less, due to inheritance rules). The settlers are pushing for the expansion of the agricultural frontier, increasing pressure on indigenous communities, mainly along the road. The indigenous population fears that through the conversion of the status of Pilón Lajas to a TIOC, the *colonos* along the road could claim access or even property rights based on this title. The Tsimane and Mosekene therefore firmly protect this border.

The rejection of legal permeability does not however extend to practices of social permeability. Our research reveals complex social networks among the inhabitants of Pilón Lajas, other indigenous territories, and the Andean settlers that are not territorially bounded, but extend over the traditionally occupied areas around San Borja, Maniqui River, Alto Beni, and beyond. This is reflected in the long-term movements related to the foundation of the Tsimane and Mosekene settlements in Pilón Lajas (Fig. 2). Tsimane and Mosekene are both semi-nomadic; permanent settlements within Pilón Lajas are relatively new. The oldest current settlements date back to the 1960s, while temporary camps have existed longer.



**Fig. 2** Long term movement patterns (years/decades) within the Tsimane/Mosetene territorial archipelago

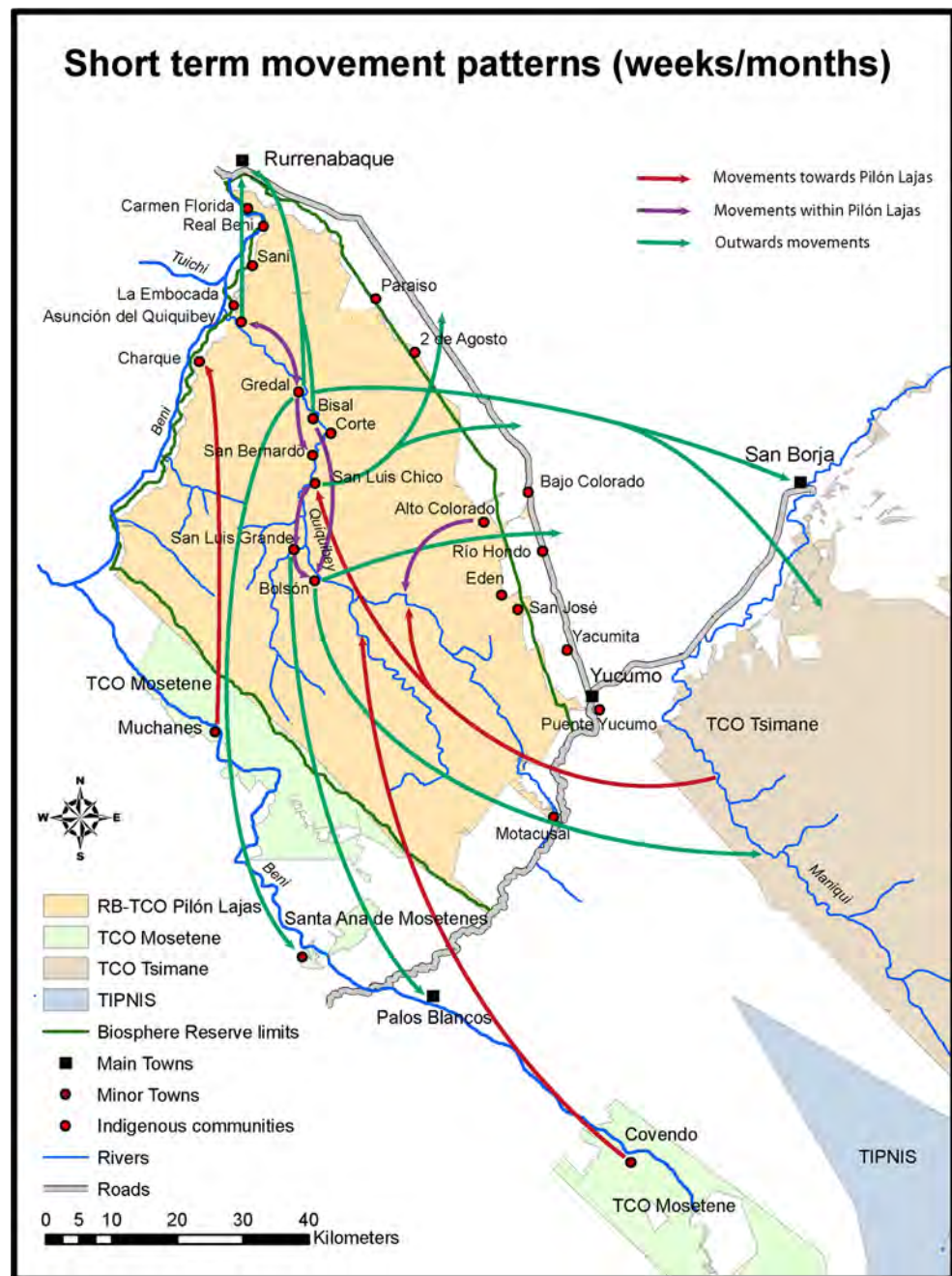


The TCO Mosetene, contiguous to the southwestern border of Pilon Lajas, and the TCO Tsimane, separated by only 10 km, are both more densely populated than Pilon Lajas.<sup>6</sup> Tsimane and Mosetene from Pilon Lajas all have family members in these areas, and the practice of *sóbaqui*, i.e., visiting relatives, which is of significant local cultural and economic importance, is common. These visits last between a few days and several months, and usually made to access natural

resources or to find spouses (Fig. 3). Spatial mobility is thus used as a strategy to create and maintain kinship relations, friendships, and political alliances. Related to this is flexibility in self-identification in terms of ethnicity according to the social environment in which a person sees him/herself embedded. Statements such as “my father was Tsimane, my mother a Yuracaré, but I am Mosetene” are not unusual. The emic notion of territoriality is hence unbounded and dynamic. Access to and use of natural resources is based on a conceptualization of the environment as constituted of human and non-human communities interconnected through diverse forms of social relationships. Hence, to some elderly Tsimane and Mosetene

<sup>6</sup> The TCO's Tsimane and Mosetene both have a population density of about 2 people/km<sup>2</sup> (Ringhofer 2010; von Stosch 2010), while the population density in Pilon Lajas is about 0.5 people/km<sup>2</sup> (Bottazzi 2008).

**Fig. 3** Short term movement patterns of villagers of the Quiquibey River



(particularly women) the notion of a bounded territory remains inconceivable.

However, many families of the TCO Tsimane and TCO Mosekene have shifted their livelihood strategies to logging (Reyes-García *et al.* 2014; von Stosch 2010; Zycherman 2013), an option that is not viable for the inhabitants of the Pílon Lajas Biosphere Reserve, which limits the possibilities for commercial extraction of timber. Hence, the abundance of and dependency on game and fish in these TCOs is lower than in Pílon Lajas. Tsimane and Mosekene from the Maniqui and Alto Beni regions visiting relatives in Pílon Lajas have the right to access natural resources. Locals often complain that

their visiting relatives from outside the TCO hunt and fish excessively, and hence disturb the relationship with the Owner spirits of the animals and the fish. While some residents denounce excessive resource use at the CRTM and SERNAP, generally no sanctions are enforced. Most people expect the Owner spirits to punish infringers of hunting and fishing rules. Although the natural resource base in Pílon Lajas is currently healthy, some interviewees were afraid that these dynamics, combined with the ongoing pressure from settlers, might lead to overexploitation such as they experienced in the past in their areas of origin. We therefore conclude that in the emic notion of Tsimane and Mosekene in

Pilón Lajas governance, rather than being defined by legal categories (as is the case for the state and peasants) is determined by customs and beliefs that regulate interactions among human societies as well as among human and non-human societies, such as Owner spirits.

Another dynamic arises from the expansion of intermarriage between the Tsimane communities along the road and *colonos*, transforming the social institutions that define access to common pool resources for local actors. Inter-ethnic marriages are not only frequent among lowland indigenous peoples but increasingly frequent among lowland and highland indigenous populations. Marriage, like kinship, provides access to the common property resources of Pilon Lajas. Both men and women related to Mosetene or Tsimane through marriage along the Quiquibey River have integrated themselves into the way of life of the local communities, following customary norms on resource use and social relationships. However, male settlers along the road who marry women from Tsimane families but nonetheless maintain close relationships with their relatives of Aymara or Quechua origin often continue using the land according to settler traditions. As their livelihood strategy remains based mainly on agriculture, this means they clear on average more forest for permanent plots – up to 5 ha – than the Tsimane families clear under the shifting cultivation (0.5 to 1 ha). Inter-ethnic marriages also allow Tsimane to gain access to agricultural lands beyond the TCO that are part of the land market. Related to this process, we observed that Tsimane communities along the road, although situated within the TCO, have begun to treat land as private property (Bottazzi 2009). Some communities intend to create communal territories in order to exclude the other members of the TCO from what is supposedly “their” land. In this context, clearly defined boundaries have extended from the TCO to the community to the individual plot, changing land use patterns considerably along the road, and highlighting the profound transformations Tsimane society is undergoing.

The TCO introduced and legally defined borders that from an emic perspective and in social practice are permeable. Thus the TIOCs, designed to overcome social fragmentation based on ethnicity, seem to better match the social reality of indigenous peoples in Bolivia. However, the lowland indigenous communities perceive the TIOCs as undermining their bargaining power vis-à-vis highland *colonos* in determining their way of life and related land use. Consequently, conditions for a constitutionality process have in this case been reduced significantly by the introduction of a tenure category aimed at a better conceptualization of indigenous practices. The former mismatch between legal delineations and social permeability of the TCOs thus disappeared as borders became important for political reasons and clearly defined boundaries became acceptable to maintain the internal function of social permeability. In this sense, despite violating local notions of permeability, the TCO became a political advantage for Tsimane and Mosetene.

## The Shift to a Neo-Extractivist Focus

In December 2011 the indigenous organizations CIDOB and CONAMAQ withdrew from the “Pact of Unity” as a result of the controversy surrounding a planned road through the Indigenous Territory and National Park Isiboro Securé (TIPNIS). The remaining three peasant and *colono* organizations reinforced their alignment with the Morales government over this conflict (Rojas M. 2011). Numerous inhabitants of Pilon Lajas joined the “IX Indigenous March in Defense of the TIPNIS” to La Paz to defend the constitutional rights of lowland indigenous peoples against the neo-extractivist agenda of the government. The TIPNIS case illustrates the plural conceptions of development and well-being in the “new” Bolivia of Morales, which is based on the extraction of non-renewable resources and energy production for export (Agenda Patriótica 2025 2013). The revenues are used primarily to finance three social cash-transfer programs<sup>7</sup> (Fontana 2013b). Pilon Lajas is one of seven protected areas/TCOs that the government opened up for fossil fuel exploration and exploitation (Imaña 2015). In addition, it has reactivated as a national priority (Supreme Decree No. 29191 of 2007) an old proposal for a hydroelectric plant on the Beni River (“El Bala”) that was highly criticized by indigenous peoples and conservationists, as it would entail the flooding of the major part of Pilon Lajas and a significant area of the Madidi National Park (Geodata 2016).<sup>8</sup>

Further, *colono* organizations as well as the agri-business are now allying themselves with the government to expand the agricultural frontier. The 2015 national agricultural summit tripled the agricultural and livestock economy of the country, including the extension of the area permitted for smallholder deforestation from 5 to 20 ha (La Razón “Sobre Normativa Agropecuaria” 2015; Ballivián and Danilo 2015). This increases pressure on protected areas and the TCOs of lowland indigenous communities, which are framed as the “new *latifundios*” by the peasant organizations (Sanchez-Lopez 2015).<sup>9</sup>

In addition, the regional road infrastructure program IIRSA (Initiative for the Integration of the Regional Infrastructure of South America) is expected to increase migration into the buffer area of Pilon Lajas, as the road

<sup>7</sup> Bono Juancito Pinto (incentive for school attendance), Bono Juana Azurduy (support to new mothers), and Renta Dignidad (universal pension fund).

<sup>8</sup> Based on a feasibility study conducted by the Italian company Geodata in 2016, the project was recently adapted to consist of two dams, the Chepité and El Bala. The El Bala artificial lake would, at full capacity, flood an area of 9300 ha, of which roughly 4800 ha would directly affect Pilon Lajas (Geodata 2016).

<sup>9</sup> Indeed, lowland indigenous peoples, representing roughly 5% of the national population, claim 21% of the national area as indigenous territories (Fundación Tierra 2011; INE 2013). However, it should be noted that lowland indigenous peoples’ lifestyles that are based on hunting and shifting cultivation that require larger areas with little human encroachment.



flanking the area is part of the “Northern Corridor” linking Bolivia with Peru and Brazil (Laats *et al.* 2012). In 2011, negotiations began with the Bolivian Road Administration and the Inter-American Development Bank but were put on hold due to CRTM’s participation in the IX Indigenous March. By 2013, negotiations appeared to be successful, and CRTM was promised compensation of USD 300,000. The CRTM and the assembly of *Corregidores* decided to invest this money in 40 km of fences along the territory borders that are particularly contested, as well as in training and equipping “territorial guards” (CRTM 2011–2013, 2013). However, neither the actual construction of the fences nor the recruitment of territorial guards has begun, as there are disagreements between the CRTM and the government on financial management aspects of the project.

Another direct consequence of external pressures related to government-driven development plans was the replacement of the political representatives of the CRTM in 2015. While the “river communities” and the former CRTM representatives chose open opposition towards the government, the “road communities,” a majority, favored a cooperative approach and initiated replacement of all members of the CRTM. It is probable that CRTM representation will oscillate between opposition and pro-government factions, depending on internal and external dynamics.

While in 2005 the relationship of the indigenous population with the state helped the inhabitants of Pilón Lajas to defend their interests, ten years later the situation has changed. From the CRTM’s perspective, the major threats to the integrity of their territory and hence to the livelihoods of Tsimane, Mosekene, and Tacana now come from the state, and SERNAP is no longer considered a reliable partner. The Biosphere Reserve authorities and rangers find themselves unable to support actions against the government’s development plan, despite their concerns about possible impacts of oil exploitation or the hydroelectric dam, for fear of losing their jobs. The Bolivian government has established its political legitimacy and moral authority by “speaking like an indigenous state” (Zimmerer 2015). However, it has not yet overcome the discrepancy between the growth-driven neo-extractivist approach of the Patriotic Agenda, and the indigenous rights and decolonization discourse embodied, for example, in the Law of Mother Earth and Integral Development to Live Well (Law No. 300 of 2012) (Artaraz and Calestani 2015; Fontana 2013a; Zimmerer 2015).

The notion of ownership developed by the indigenous communities at the beginning of the constitutionality process will not automatically remain stable over longer time periods due to various factors including changes in their emic perception of territory in their worldview, changes in the political power relations among different indigenous actors, or changes in the relative importance accorded a protected area in government development agendas.

## Discussion

The strong social movements of the indigenous communities of Bolivia initially successfully challenged the top-down governance of natural resources promoted by the government’s neoliberal policies causing a significant increase in the state recognition of indigenous rights, and hence their bargaining power vis-à-vis the state, culminating in the creation of TCOs. Although the establishment of the TCO in Pilón Lajas was a top-down process, it offered opportunities for its inhabitants to participate in its management. The CRTM, representing the interests of the indigenous Tsimane, Mosekene, and Tacana, allied with the local SERNAP over common goals, notably keeping loggers, oil companies, and *colonos* out of the area. This collaboration eventually led to the creation of a co-management system that increased the sense of ownership of the indigenous populations in the institution-building process, particularly of those involved in the CRTM, the SERNAP (as indigenous rangers), and collective actions. Nevertheless, resource governance in Pilón Lajas is shaped by formal state institutions (TCO, Biosphere Reserve) that represent notions of governance that do not correspond to the lowland indigenous concepts of a permeable and changing territory. The legal categories introduced by the neoliberal state were based on a delineation of borders and rules concerning resource use formulated on scientific assumptions of ecosystem management (Muller 2014; Umans and Arce 2014).

Our case study shows that where top-down institutional arrangements do not fully fit local realities, people develop hybrid forms of formal and informal institutions to dynamically regulate the access to territory and natural resources (Bennett and Sierra 2014; Bollig *et al.* 2014; Cleaver and de Koning 2016; Gombay 2014). People affected by processes such as the creation of the TCO or the top-down introduction of the Biosphere Reserve in Pilón Lajas were not just recipients of new institutional arrangements, but attempted to define them according to their own world view. The spatial delineation approach of the INRA law separated territorial from social contexts, while the Biosphere Reserve separated economic from socio-cultural and local institutional contexts. The TCOs thus resulted in highly fragmented entities (see also Anthias and Radcliffe 2015; Reyes-García *et al.* 2014; Umans and Arce 2014). Reyes-García *et al.* (2014) suggest that the recognition of indigenous land claims has led to archipelagos of territories. Apart from private lands, indigenous communities in Bolivia are now distributed across different TCOs: the Tsimane currently over four, the Mosekene over two, and the Tacana over five, of which only Pilón Lajas is uninterrupted. In practice, access to natural resources is not created through membership of a TCO, but through kinship and marriage. Through the social institution of *sobaqui*, the bounded territory of Pilón Lajas is extended and interconnected with the TCOs of Tsimane and

Mosetene as well as with non-indigenous communities and towns (Figs. 2 and 3).

By maintaining links between the territorial archipelagos created by the tenure formalization process, the inhabitants treated the clearly delineated borders of Pílon Lajas as flexible and dynamics. The indigenous population recognized the value of the protected area to defend their territorial claims against further fragmentation and commercial interests (West *et al.* 2006). Top-down governance can thus in certain cases be important for enhancing bargaining power of the local population when relative values are changing.

However, power asymmetries may become irreconcilable if interests in an area and its natural resources and development potential are shifting. In Bolivia, the relationship of the state with indigenous peoples has evolved considerably over the last two decades. The unambiguous recognition of indigenous rights and principles after the election of President Morales, endorsed in the New Political Constitution of 2009, led to an unprecedented alliance between the state and indigenous and peasant organizations that at first positively influenced constitutionality processes in Pílon Lajas: territorial rights were formally recognized through a collective land title, inhabitants started to develop a sense of ownership in relation to particular collective action, and co-management with SERNAP led to an improved natural resource base.

However, other, more powerful, actors such as the *colonos* also built strategic alliances with the state. The comparative advantage of the indigenous partnership with the state started to shift when the government began to prioritize national economic and social development over specific priorities of indigenous communities. The introduction of the TIOCs marked an expanded constitutionality process at the national level, as it incorporated perspectives and needs of the highland and valley indigenous populations, focusing on inter-ethnic rights. The related territorial permeability seems to better fit indigenous notions of spatial governance. However, since the *colonos* and coca-growing peasants are the strongest constituency within the governing Movement Toward Socialism party (MAS), the TIOCs not only strengthen their land claims, but also allow the state to expand its influence in the areas that were under the sovereignty of lowland indigenous peoples (Sanchez-Lopez 2015). The state's interest in Pílon Lajas and its buffer zone for energy production and infrastructure projects changed relative land values of the area to a degree that the bargaining power of the CRTM dropped significantly. Hence, the indigenous populations have lost their once most important ally, the state. The government's shift from a top-down driven development approach to neo-extractivist policies is perceived by the Mosetene and Tsimane as undermining their right to self-determination as established by the Constitution, and lowering their bargaining power to define their own development vis-à-vis the state and the *colonos*. Against this background, the clearly delineated

boundaries of the TCO became a useful tool to protect indigenous priorities. Another strategy, chosen by the majority of the Tsimane road communities, is an attempt to recreate the alliance with the state and *colonos* in order to regain their bargaining power.

## Conclusion

Our case study of the Indigenous Territory and Biosphere Reserve Pílon Lajas shows that the elements of constitutionality defining bottom-up institution-building processes for natural resource governance are dynamic and thus positive outcomes cannot be assumed to persist once successful new institutions are agreed upon, but instead require constant renegotiation among all parties. In this particular case, we analyzed two factors that contributed to potentially unsustainable outcomes over longer periods of time.

We show that it is pivotal for emerging constitutionality processes that governance frameworks take into account emic human–nature relationships (Blaser 2009; Muller 2014). In this case, the wide range of notions regarding territorial occupation, development, and conservation of the impacted actors were not sufficiently incorporated into the institution-building process. As a consequence, not all developed a sense of ownership of the co-management structures that is a necessary condition for development of successful institutions. In settings where the actors are particularly heterogeneous, e.g., different indigenous populations, *colonos*, state actors, and conservationists, a special focus is required on how the involved actors perceive their environment and their position within it in order that these more fundamental perspectives are reflected in territorial dynamics and related forms of territorial occupation and use of natural resources. The mismatch between external and internal conceptualizations of governance – and the missing platform for exchange to bring together different worldviews shaping resource governance – challenges the success of an initially promising constitutionality process in Pílon Lajas (Rathwell *et al.* 2015; Tengö *et al.* 2014).

Our analysis also shows that although recognition of the new institutions by the state is a prerequisite for constitutionality processes to proceed, it may also become a factor contributing to the dissolution of the new institutional settings if these processes are co-opted by the state to advance interests incompatible with the original objectives that informed the institution-building process. Within the neoliberal state, the TCO served to defend indigenous rights against expansion of the agricultural frontier and commercial interests. Since the “plurinational” state under the MAS government itself claims to be ‘indigenous’ (Canessa 2014; Sanchez-Lopez 2015), the boundary of identity, and hence the grounds for articulation of claims to specific rights, dissolves. The struggle is no longer one of “indigenous peoples” versus “the state,”



but rather revolves around discourses of the collective indigenous native peasant citizen and related politics of resource extraction for the well-being of Bolivia's majority on the one hand, and the protection of cultural diversity and marginal peoples on the other (Canessa 2014; Fontana 2013a, 2014).

In this changing context, the inhabitants of Pilón Lajas first employed defensive strategies such as clear opposition towards the state and increased delineation of borders. Recognizing the comparative advantage of participation in institution-building processes, based on their experience of co-management of the area, the lowland indigenous peoples of Pilón Lajas have decided to again seek alliance with the state and *colonos* in order to participate in the next round of negotiations concerning the governance of natural resources in the area they share.

**Acknowledgments** The authors thank Jill Belsky and four anonymous reviewers for their valuable comments on the draft of the article, and Darcy Alexandra and Tina Hirschbuehl for language editing.

**Compliance with Ethical Standards** All actors involved in this research were informed about the aims of the study in a comprehensible manner; their decision to participate or not was respected throughout the research period.

**Conflicts of Interest** The authors declare that there are no conflicts of interest to disclose.

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## **Paper II: Worldview Matters: Mosetene Ontology and resource Use in the Pílon Lajas Indigenous Territory and Biosphere Reserve in the Bolivian Amazon**

Gambon, Helen and Stephan Rist 2019

*Human Organization* 78 (1): 54-63.

# *Worldview Matters: Mosetene Ontology and Resource Use in the Pilón Lajas Indigenous Territory and Biosphere Reserve in the Bolivian Amazon*

Helen Gambon and Stephan Rist

This paper analyses the basic features and transformations of the ontology and related lifeworlds of the Mosetene people in the co-management context of the Pilón Lajas Indigenous Territory and UNESCO Biosphere Reserve. Our results, based on anthropological research, showed the Mosetene to be perspectivist, perceiving themselves to be embedded in the forest as part of a web of social relationships linking human and non-human societies. Mosetene are experiencing rapid changes in sociopolitical organization due to increased interaction with actors representing other, dominant ontological communities. The related transformation of the Mosetene worldview is affecting natural resource use. We argue that co-management must address the asymmetries and contradictions related to this encounter of ontologies, in order to reconcile Mosetene lifeworlds and biodiversity conservation efforts. Strengthening the position of the elders within the indigenous organization and establishing an inter-ontological dialogue platform among all stakeholders could provide the conditions under which the Mosetene can reenact their communication with the forest's non-human societies while becoming active subjects in the governance of the Indigenous Territory and Biosphere Reserve.

**Key words:** co-management, lifeworlds, society-nature relationship, protected areas, non-human societies

## **Conservation and Indigenous Knowledge in Bolivia**

Pilón Lajas covers an area of 4,000 km<sup>2</sup>, touching four municipalities and two departments in northern Bolivia. In 1977, the area was declared a UNESCO Biosphere Reserve (UNESCO 2014). Following a successful “Indigenous March for Territory and Dignity” in 1990, the government additionally declared Pilón Lajas an “Indigenous Territory,” granting its status as a protected area (“Supreme Decree No. 23110” 1992). In 1996, the land law established the area as “Indigenous Communal Lands” (*Tierra Comunitaria de Origen* or TCO), consolidating the collective rights

of use of and access to the natural resources for the Tsimane and Mosetene, formally represented by the Tsimane Mosetene Regional Council (*Concejo Regional Tsimane Mosetene* or CRTM). The third indigenous group living in the area, the Tacana, were not considered by the Supreme Decree in 1992 but are today also owners of the TCO through their TM.

The co-management of the Pilón Lajas Indigenous Territory and Biosphere Reserve was laid out in a management plan jointly produced by the National Service for Protected Areas (*Servicio Nacional de Areas Protegidas* or SERNAP) and the CRTM in 2005 (SERNAP and CRTM 2009). The alliance each party's interests and enabled advantages in terms of environmental conservation and territorial defense. Examples hereof are the issuing of the TCO land title in 2008, the revocation of oil exploration and logging concessions, and the recovery of fauna, including key species such as white-lipped peccaries (*Tayassu pecari*) or jaguars (*Panthera onca*) (SERNAP and CRTM 2009; interviews).

After a successful period (2004–2008) of joint management (Costas Monje 2010; Surkin, Miranda, and Miro 2010), arose involving competition over access to resources; rights of indigenous peoples vs. environmental conservation goals; and legitimacy concerning the representation of the area. These relate to the different worldviews and underlying values embraced by the lifeworlds of the indigenous

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population and the park authorities. The incidents regarding the Laguna Azul are illustrative of this ontological in 2012, the park authorities initiated an ecotourism project at the Laguna Azul in response to local communities' demands for economic development alternatives. In the narrative of both CRTM and SERNAP, the lake is emblematic of the successful co-management, as they jointly expelled roughly 150 Andean settlers who had created plots of agricultural land and extracted timber around the lake in 2005 (Costas Monje 2010; Surkin, Miranda, and Miro 2010). But seven years later, SERNAP was taken by surprise when their efforts to stimulate economic development were rejected by the Mositene and Tsimane. SERNAP was not aware that for the indigenous population, the Laguna Azul was ineligible for economic activities, not only by outsiders—Andean settlers—but also by themselves, as it represents a main place of presence of the “Wise People,” a spirit society. This incident marked a tipping point in the history of co-management: in the following community assembly, the indigenous population decided to put the co-management on hold until SERNAP declared itself willing to recognize the CRTM as a partner on an equal footing and to take indigenous notions of territorial governance into consideration (CRTM n.d.) The is therefore directly related to diverging basic assumptions (ontologies), lifeworlds, and management practices of the indigenous population versus the views and actions of the park authorities (state), conservationist groups, and Andean settlers.

In this paper, we aim to illustrate how the encounter of such different ontologies is related to shortcomings, blockages, and constraints of joint forest management also reported for other cases (Holmes 2014; Keller 2008; Simon 2013). Our focus is on the Mositene people, as literature on them, particularly on their worldview, is scarce. studies on the Mositene have been conducted mostly in the of linguistics (Sakel 2004) or consist of collections of myths (Aguilar Dávalos 1990; Aldazabal 2005; Caspar 1953; Iamele 2001; Nordenskiöld 1916). In addition, almost all these studies were conducted in Alto Beni rather than in the Pilón Lajas area. By contrast, there is an abundance of literature on resource use and governance among the Tsimane (Bottazzi 2009; Chicchón 1992; Daillant 1995, 2003; Ellis 1997; Huanca 1999; Reyes-García 2001; Zycherman 2013), Tacana (Bathurst 2009; Lehm Ardaya 2010; Lopez Pila 2014), and Andean settlers in a lowland setting (Bottazzi 2006, 2009; von Stosch 2010).

We outline the main features of the changing ontological notions underlying the Mositene worldview and related society-nature relationships. Second, we demonstrate how these ontological notions relate to the lifeworld of the Mositene and how they affect the concrete ways in which they organize the use of the natural resources of the park area. We conclude by proposing possible ways of bridging the ontological asymmetries between the local indigenous population and park rangers, to reduce and improve co-management in Pilón Lajas.

## Conceptual Framework

Indigenous worldviews are frequently analyzed and interpreted based on ontological grounds of—supposedly universal—modern sciences and notions of development and progress embraced by Western societies (Blaser 2009; Coombes, Johnson, and Howitt 2011; Howitt and Suchet-Pearson 2006). Although we acknowledge the great diversity and internal contradictions of the values underlying “Western societies,” there are fundamental differences in the ontological assumptions of many Amerindian societies. These are mainly notions that transcend anthropocentric Western positions on the human-nature relationship and on personhood, by extending agency and social institutions to animals, plants, and other “natural” manifestations (Costa and Fausto 2010; Ingold 2000).

Ontologies manifest themselves in social practices mediated through people's lifeworlds. According to Schütz and Luckmann (2003), lifeworlds are the lived-in and largely taken-for-granted contexts of life shared with others, within which sense and decision making takes place. Lifeworlds are intersubjective and constitute a meaningful context of common experiences and understanding, including social norms and values shared by a social group. The conservation-related outcomes of indigenous people's natural resource governance are widely recognized by science and policies concerned with sustainable development and conservation of biodiversity (IUCN 1997; Stevens 2014). However, the ontological rationale of the indigenous practices behind such positive conservation outcomes may differ from the one behind an environmentalist perspective on resource use and conservation (Blaser 2009). One of the key challenges of successful co-management of protected areas is therefore to adequately recognize and reconcile the underlying ontological assumptions of both indigenous and Western knowledge systems (Weiss, Hamann, and Marsh 2012).

The conceptual framework of this case study draws on Eduardo Viveiros de Castro's perspectivism and multinaturalism (Viveiros de Castro 1998, 2012). Perspectivism in this context refers to the conception of many Amerindian societies that the world is inhabited by different subjects, human and non-human, which have distinct viewpoints on reality. Viveiros de Castro (1998, 2004a) therefore proposed the term multinaturalism (one single culture and multiple natures) as opposed to multiculturalism (one single nature and multiple cultures) to describe the Amerindian ontology. Here, we detail how ontology translates and feeds into lifeworlds and related natural resources. We do so by analyzing the transformations Mositene worldview is undergoing in the context of co-management of a protected area.

## Methodology

The presented here are based on fourteen months of anthropological fieldwork in Pilón Lajas, conducted by Gambon between July 2012 and August 2014. The research

base was in Rurrenabaque, the site of CRTM and the local SERNAP. Field trips to two Mositene-majority communities (Gredal and San Luis Grande) along the Quiquibey River were undertaken regularly. Both hamlets consist of one extended family. Due to the high mobility of the Mositene, during the research period the number of adults varied between eight and in Gredal and eight and twelve in San Luis Grande. Temporarily, non-related Tsimane lived in Gredal. None of the adults had lived their entire lives within Pilón Lajas—migration links are particularly strong with the TCO Mositene in Alto Beni, the TCO Tsimane near San Borja, and Rurrenabaque. Shorter visits (one to days) to seven other communities along the Quiquibey and Beni Rivers contributed to a deeper understanding of the ways in which Mositene and Tsimane perceive and interact with their environment.

The main method was participant observation (Hammersley and Atkinson 2007). The visit in all nine communities was with the family of the *corregidor* (community leader). During each subsequent visit, a different family was the main host. The selection was random, based on the presence of families in the villages and their interest in participating in the research. Participatory observation was essential to obtaining consent and building a relationship of trust that set the basis for conversations and semi-structured interviews on myths, values, worldviews, and related resource use practices. Participating in the daily activities of families in Gredal and four families in San Luis Grande enabled data obtained through conversations and interviews to be validated against people's actions and integrated into observations of the interlocutors' lifeworlds. Conversations were held in Spanish and included discussions of words or concepts used in Mositene. To capture the viewpoints and narratives deployed by the actors directly involved in the co-management institutions, semi-structured and informal interviews were conducted with all six members of the CRTM, two NGO consultants working for the indigenous organization, three Directors of the Biosphere Reserve, nine park rangers, and the administrative and planning staff of the BR.

## Origins of Humans and Animals

When villagers in San Luis Grande come together at night for some leisure time, thirty-year-old Fernando often shares the *poroma pheyakdye'* ("ancient words"), the Mositene myths relating how the world came to exist, and how every being found its form and social position in it. He knows more stories than most young people, as he helped his uncle, a Mositene authority on oral history, to collect myths. As Fernando recounts, all listen carefully—the younger to learn, the older to correct him on details. The Mositene (and the slightly different Tsimane) creation myth revolves around the wanderings of *Dojith*, who created the world and its inhabitants:

[Dojith] took the clay, blew, and made man. The same as is written in your bible. Yehova took the clay, blew,

and made humans. [...] We do not say that we were created as monkeys and after that we became people. (M, 66, Rurrenabaque)

The basic understanding of the coming into existence of the world and its inhabitants is that animals, some plant species, certain stones, or the wind all used to be humans once. Fish however are believed to have been created by *Dojith* from worms and larvae, hence they have never been human, which

Stories of willing or involuntary transformation of humans into animals enjoy great popularity. These myths and stories, however, are but a clue in the analysis of how Mositene perceive themselves and their position in the world. The way people perceive and interact with their environment shows that the social positioning of beings as established by the myths guides everyday actions and decisions. People in the research area not only talk metaphorically about an animated forest—they experience it daily. For all Mositene in the communities along the Quiquibey River, "nature" is not perceived as opposed to "society," but it is seen and felt as an extension of social relationships from the human sphere towards other-than-human subjects.

## Nature as a Social Web

This non-dichotomous relationship between nature and society among the Mositene in Pilón Lajas becomes evident in various aspects of daily life. An important part of the Mositene lifeworlds is constituted by the "Owner" spirits (*dueños*). The concept of "Owner" or "Master" is widespread in Amazonian societies and operates at different scales. It refers to an asymmetrical social relationship between humans and non-humans, as well as between persons and things involving a controlling and/or protective position and its reciprocal category, usually "pet" or "child" (see Costa and Fausto 2010:99f; Fausto 2008). The "Owner" spirit of the animals (*Miki'*) owns all game as his "wild pets." The analogies Mositene make with cattle ranching are strong. The nearby mountains are thought to contain corrals, the "home" of the animals. Whenever there is not enough fodder available in the mountain "corral," the "Owner" sends his herders (*vaqueros*, typically in the form of a jaguar) with the animals into the forest to graze. By releasing animals to the forest, *Miki'* makes them visible and hence huntable. Likewise, the "Owner" spirit of the (*Ido'joré*)—together with the guardian spirit *O'pito'* (rainbow)—controls the resources and their availability to humans.

Both *Miki'* and *Ido'joré* are often depicted as generously rewarding faithful hunters and and patient with people who do not follow the rules. However, if hunters or fail to heed the norms related to hunting and techniques and quantities, or if people perform "contaminating" actions—for example, menstruating women entering the forest or taking a bath in the river, not related to cooking or cultivation, smoke, and noise—the "Owner" spirits punish



people collectively by holding back the animals or for all. A few interlocutors said punishment could be focused directly on the infringer, who could be locked inside the mountain and converted into a guardian:

When [somebody] comes and hurts or steals your chicken, you get angry, right? If you wanted my animals, you could have asked. And the “Owner” also does not like his animals getting hurt; it is to cure them. But he is good and patient, so he continues giving his animals. But once he is tired, he will get angry. He will test if you can moderate yourself. If you do not, he will scare you. (M, 63, Gredal)

In addition, a closed, intact forest is a necessary condition for the abundance of animals, as from the perspective of game, the forest is pasture. The “Owner” of the animals cannot send them to cultivated lands, as this would break socially established rules. This notion makes it clear that every individual has to behave according to social standards when engaging with “nature.”

### Anchoring of Ontological Categories in the Mosetene Lifeworld

When three of the families living at the time in Gredal and Gambon looked through a volume of photographs on the Quiquibey River published by Iamele (2001), a frequent comment on pictures of both old and young men was, “He was carried away by the forest.” While a settlement is a place where humans are largely among other humans, the forest and the river are places co-inhabited by many other spiritual entities. The Master spirits announce their warnings in the dreams of those who infringe the rules. Ignoring these warnings can lead to a personal encounter with the “Owners” or guardians in everyday life. The encounter with spirits is described as extremely dangerous for non-shamans and can lead to severe illness or death.

The spirit entities inhabiting the forest are referred to as *wiya*’ (grandfather). The spiritual kinship relation exists with the “Owner” spirits *Miki*’ and *Ido’joré* and their respective guardians; it also exists with the spirit of the soil (*jujubu*) and with diverse plant spirits, which usually live inside large specimens of tree species such as the Mapajo (*Ceiba samauma*) or Bibosi (*Ficus spp.*). The spirit of the Mapajo is believed to be helpful and benevolent to persons who are faithful but harmful and dangerous to persons with “weak souls,” that is, unfaithful persons, menstruating women, and, in particular, un- and newborn children. Bibosi, however, are considered to be “purely evil people” who try to enclose people’s spirits within the tree. But not all animals, plants, or other natural manifestations are considered to contain a soul at all times. Mosetene do not think they are shooting a human being in an animal “cloth” but an animal. Likewise, when felling a tree, the interlocutors do not expect to encounter a spirit. The important point for them is that the possibility of doing so exists, which is why most issue a warning to the spirit so it

will not be crushed. “I would out afterwards,” one man replied in answer to the question of how he knew which trees would contain a *wiya*’ and which not.

In addition to the Mosetene’s social relationship with the non- or ex-human societies animating the forest (“nature,”) the Mosetene lifeworld is shaped by the Wise People (*sabios*), spirits that are even closer to humans. The terms used in Mosetene—*yöctyi*’ *mintyi*’ (other humans) and *mo’khan si’ chätidye*’ (relatives from inside)—indicate the basic “sameness” to the Mosetene. This spirit society is characterized by a profound knowledge about the forest and its inhabitants. They live inside lakes, wells, or the mountain ranges that form the traditional territory of the Mosetene. In the Wise People’s perspective, these places are human settlements. Often, the entrance to these “places with charm” is described as being protected by a giant serpent:

Those who live upstream the San Luis Grande River are Wise People. [...] For them, everything is easy. With every single shot of his arrow he kills an animal. They also cure themselves easily, there are no sick people. They go to town or visit other Wise People. At midnight you can hear them From here they go to the Laguna Azul. There they have a town, but we can only see a lake. (F, 44, San Luis Grande)

Wise People may provide selected male Mosetene with healing and shamanic capabilities. The skills that healers and shamans receive include the ability to extract objects of witchcraft (e.g., stones) from the bewitched person’s body, as well as to reattach the escaped soul of a person to its body.<sup>3</sup> Shamans have the additional ability to transform themselves into other beings and see other beings’ souls in human shape and to negotiate with the “Owner” spirits on the availability of potential prey. These abilities are temporally limited, depending on how strictly the healer or shaman follows the obligations attached to the skills. At present, the indigenous population recognizes two healers who are consulted on spirit-related illnesses, while nobody has the status of a shaman. This corresponds to the widely accepted fact that communication and exchange with the Wise People is becoming increasingly disrupted.

### Transformation of Worldviews

Considering that worldviews consist of the dialectical relationship between ontological assumptions and the experienced realm of lifeworlds, changes in worldviews can be explained by observed changes in the ontology and changes in how life is experienced and in what people consider as action-guiding values. This section describes the recent and rapid transformation of worldviews and the related changes in the lifeworld of the Mosetene in Pilón Lajas:

My uncle had a wife here and [a wife inside], he even had a child with the [wise] woman. Before they came to visit us sometimes, when I was a boy I saw them. But nowadays they do not come anymore. [...] They analyze if you

believe in them and their advice, and if you do not believe with your heart, they do not show up. (M, 63, Gredal)

A few older interlocutors claimed to have personally met the Wise People when they were younger. All agreed that nowadays they cannot be seen anymore. Indeed, the gathered information indicates that among younger people, knowledge about the spirit society stems from oral history rather than personal experience; spiritual knowledge is thus less informed by experience and more strongly marked by uncertainties and doubts.

the Mosetene worldview is undergoing, mainly due to the increasing transcultural exchange with Tacana and Andean settlers as well as the growing integration into the nation state and market economy. In the collective memory of the Mosetene, this transformation relates back to the economic booms of cinchona bark and rubber (1870-1920), cattle ranching (1940 onwards), timber and skins (1990s), and tourism (today)—but also to the missionary activities in the 18th century by Franciscans and the contemporary spread of evangelical sects. In addition, “modern” development projects (see also Iamele 2001; SERNAP and CRTM 2009) had and have repercussions on the Mosetene lifeworld and the social relations with the spiritual beings which co-inhabit the forest.

In addition to becoming alienated from the Wise People, Mosetene are becoming more strongly incorporated into national society and are experiencing changes regarding political participation. This is affecting their lifeworlds in several ways: for instance, the 2009 political constitution recognizes Mosetene as one of the country’s thirty-six indigenous nations. This means that they are now enjoying civic rights in the context of the Plurinational State of Bolivia. Several Mosetene participated in the 2012 and 2013 Indigenous Marches towards La Paz in solidarity with other indigenous peoples from the lowlands, demanding the right to their own development within their territories. In 2014, many Mosetene and Tsimane of Pilón Lajas were issued an identity card for the first time, formally establishing citizenship and the right to vote.

The recognition of Mosetene as an indigenous nation by the state, but also the creation of the Pilón Lajas Indigenous Territory and Biosphere Reserve, have thus increased the interaction with state representatives. This has altered intergenerational power relations. While in the past the political sphere was controlled by elder people, nowadays mostly young men represent and mediate relationships between the Mosetene and national society. Knowledge of Spanish and national political processes have become more important than spiritual knowledge. As spirit and non-human societies are not included in the political considerations of young people who do not have a personal relationship with these, older people are losing control over the basic values guiding interactions within and outside their communities.

Economic inclusion is further challenging the transmission and distribution of knowledge among Mosetene. Subsistence of most residents along the Quiquibey River is

based on hunting, and shifting cultivation of rice, plantains, and manioc (the average cultivated area is 0.5 ha/household). Images of “development” increase the younger men’s desires for status symbols such as DVD players and electricity generators. The money required to buy these items is either obtained by taking occasional paid jobs (e.g., clearing landowners’ plots along the road), or by selling small quantities of timber<sup>4</sup> or surpluses of the agricultural production, which requires the cultivation of larger plots. Consumables—requested mostly by women (e.g., sugar, oil, soap) and children (e.g., sweets) but also men (e.g., strong alcohol and shotgun cartridges)—are typically bartered in exchange for woven fronds of Jatata palm (*Geonoma deversa*) used in roof construction.

The greater a person’s integration into national society and the market economy, the greater their willingness to risk the anger of the “Owner” spirits (i.e., by using more resources), while being fully aware of the possible consequences. Death and illness of family members were frequently attributed to punishments by the “Owner” spirits resulting from overexploitation. Many Mosetene acknowledge that changing practices related to resource use, such as hunting with and shotguns instead of bow and arrow or participating in the fur trade and logging (prior to the 1992 Supreme Decree), not only offend the “Owner” spirits, but also lead to the loss of direct interactions with the Wise People as knowledge providers. As one male explained:

We do not live anymore the way we should. I know that all these modern things [radios, televisions, motors etc.] make that the Wise People do not visit. But even if we cannot see them we have to keep in our heart what they taught our elders. (M, 27, Asunción del Quiquibey)

Most people agree that the way of life of the spirit society still constitutes an important role model for how relationships between human and non-human societies ought to be. But the ways in which this ontological position is interpreted and translated into everyday actions differ considerably among individuals. All Mosetene we met do not question the existence of the Wise People and protect the spaces where they dwell (particularly the Laguna Azul) from uses that could compromise their way of living. The same is true for the relationship with the “Owner” spirits: although there are no shamans that could negotiate directly with them, hunters (men) avoid the “homes” of their prey (the mountains), and most place their requests to the “Owner” to release its “wild pets,” in the form of an offering, using coca leaves and tobacco. However, for some people—regardless of gender or age category—this appears to be done out of habit, while others report having a personal social relationship with the spirits in question.

Many Mosetene do not perceive these transformations as problematic, as most aspects of the Mosetene lifeworld are dynamic: categories of ethnic identity, kinship relations, spatial occupation, and forest and river ecologies are characterized by flux and change. Although lifeworlds are shifting, perspectivism continues to form the ontological

basis of the Masetene worldview. All Masetene we talked with *know* that “nature” is animated and that trees are not simply trees but could just as well take the form of a human being. The principal change is that although people maintain a relationship with the Wise People and the “Owner” spirits, these interactions are no longer direct.

## The Relevance of Ontology in Co-management

The co-existence of different ontologies and the transformations the Masetene worldview and lifeworlds are undergoing related to the interaction with actors and institutions representing other worldviews has practical consequences for the co-management of Pilón Lajas. The “modern world” and the actors representing it—including in many instances the CRTM—are so much more powerful that the perspectivist ontological position is made invisible by and for the non-Masetene. The inhabitants of Pilón Lajas are not inherently “conservationists,” but their worldview and a lifeworld where societal networks with the forest societies are lived, has in the past led to ecological outcomes that are compatible with the objectives of conservation.

Until now, park authorities have taken a paternalistic position towards the indigenous population. They consider the indigenous population as allies in conservation as they denounce illegal activities within Pilón Lajas, a task which the Biosphere Reserve with only eleven park rangers and decreasing funding does not have the necessary means to complete on its own. Nevertheless, the Biosphere Reserve claims single authority over natural resource management of Pilón Lajas and limits the competencies and participation of the CRTM to sociocultural aspects of governance (SERNAP and CRTM 2009; interviews). The legitimacy and utility of indigenous knowledge, for instance, is considered to be limited to the knowledge of medicinal plants, which has to be “rescued” (SERNAP and CRTM 2009) by science. This paternalistic position is reproduced on a daily basis. For example, one director explained:

They are a bit like children; they do not care about the future or about money. They cannot organize themselves. It is really to work with them. But [their actions] are not a problem [for conservation], the real threat are the settlers who want to see their labour pay off. (Park director ad interim, 2013, Rurrenabaque)

Park authorities have in understanding the relationships between the CRTM and its membership base, or between *corregidores* and community members, which are not based on power through control but bear many traits of the Amazonian power idiom of Master-Owner relations. This is in misunderstandings that arise based on differing views of decision making competency: the CRTM has little decision making competency regarding issues directly affecting the indigenous population, while non-indigenous actors generally assume that agreements made with the CRTM are binding and Unlike the park director, who can

make decisions in the name of his staff, the members of the CRTM can—and will—be deposed if their decisions are non-consensual among their membership base.

The co-management plan supports development projects, as increased welfare is believed to reduce pressure on endangered species. However, these—like the promotion of ecotourism at the Laguna Azul described in the introduction—recurrently fail. Donor and government agencies on the one hand, and Masetene and Tsimane on the other, make decisions and plan activities based on different premises. As Masetene make decisions based on their lifeworld, for example, they may decide based on a dream that today is a hunting day or migrate without prior notice to another village for several weeks to see a healer as their child’s soul has been detached from its body, they may not contribute as planned to the project activities. NGOs and government authorities judge such behavior as unreliable and lazy, and several organizations have withdrawn from their cooperation with the Masetene, focusing more on the Andean settler population, who are not only judged as the “bigger threat” to the environment but also “easier to work with” (personal communication), that is, there is a higher probability of achieving the project’s objectives. This competition over cooperation funds is increasing the tensions between Masetene and the Andean settlers.

Asunción del Quilibey, the community closest to Rurrenabaque, is another example of the caused by the efforts of the development projects to detach indigenous livelihoods from the direct use of forest resources. Due to its relatively easy access (two to three hours by boat), ecotourism was promoted in the community to make families less dependent on hunting and Many families were attracted by the prospect of an income and a functioning school and thus were persuaded to become more sedentary. The concentration of roughly thirty families, however, put too much pressure on the local ecosystem, and hunting is becoming increasingly

As the demand for ecotourism could not live up to the expectations of the local population, people now engage more in wage labor and trade. We observed that agricultural plots in this community are 30-50 percent bigger than in smaller upstream communities, and illegal logging is slightly more frequent.

As forest resource use by the Masetene is closely related to their worldview, the transformation of this worldview has consequences for resource use. Masetene themselves at the encounter of two different ontologies. This can lead to contradictory actions by people who on the one hand follow societal ties and obligations related to the perspectivist ontology and on the other hand are beginning to adopt a logic of considering the forest as a pool of resources. When referring to the forest, park rangers in particular used the image of a “big market” in which food and tools are free of charge, an image that stands in sharp contrast to the animated forest of the perspectivist worldview. Instead of climbing up Majo palm trees to collect its fruits and let the tree reproduce fruits for the future, increasingly Masetene just fell the tree. Park authorities fail to recognize that these changes are related

to the contradictions of detaching forest resources from the social sphere and cannot be overcome simply by more environmental education.

## Discussion and Conclusion

The case study shows that Mositene lifeworlds, in their intermediary, function between ontology on the one hand and formal and informal institutions and practices regulating natural resource management on the other and are taking on new forms. Although the Mositene have a long history of contact with the Western ontology through their interaction with missionaries, traders, and loggers, exposure has increased in recent years through further integration in the market economy and changes in political participation at the national level. The communities along the Quiquibey River experience varying degrees of integration and transformation. Their integration into modern Bolivian society has led to the emergence of new institutions such as the CRTM or the Management Plan and Life Plan, while at the same time important aspects of the Mositene's sociopolitical organization have been lost.

Despite these transformations in the realm of everyday experiences, Mositene lifeworlds have maintained their perspectivist ontological foundation. People do not perceive the forest they inhabit as part of a natural environment; instead, they see it as an extended web of social relationships. Understanding nature in terms of perspectivism means recognizing that nature is endowed with a kind of agency or intention that can be captured by attentive humans interacting with Wise People and "Owner" spirits. The expansion of lifeworlds to embrace not only perspectivist relationships and institutions but also aspects and concepts of modern sociopolitical organization creates contradictions—or asymmetries—within Mositene society and in the Mositene's interaction with representatives of a Western ontology.

The contradictions created within the Mositene society revolve around the question of what kind of future development people envisage for the communities in Pilón Lajas. A future based on traditional normative frameworks involving an equal-footing relationship with non-human societies? One that is inscribed in modernity—with schools, access to Western medicine, and market-based relations? Are these futures mutually exclusive, or can they be combined? These contradictions are generated not only within different sections of the Mositene population but also among individuals. One man may make a case for why he prefers living in the forest, away from the national society he considers heinous for having lost its connection to non-human societies, and a week later at the assembly of corregidores demand the construction of an access route to his community to facilitate trade. These contradictions are particularly strong among male individuals who were or are active in the CRTM, as corregidores, and/or as park rangers, hence among individuals whose lifeworlds are more exposed to the ambiguities arising from their close interaction with the modern ontology.

The relationship between the perspectivist and the modern ontology is constantly being and re-negotiated by each individual and within the indigenous population as a whole. This "simultaneity of the non-simultaneous"<sup>5</sup> creates and misunderstandings within the population of Pilón Lajas as well as between them and external actors, such as the park authorities and NGOs. The inner asymmetry of relationships—between human and non-human societies, between elders and youth—reinforces the outer asymmetry, that is, the marginalization of the Mositene. In the encounter with stakeholders that embrace a dominant worldview and are less exposed to ontological contradictions—such as government agencies and conservationists—or with those who managed to incorporate their worldview in the national political agenda—such as the Andean settlers—the Mositene worldview is more than often simply overheard or not even brought on the table. Misinterpretation, marginalization, and disparagement of the Mositene worldview has silenced it to a degree that it took nearly a year of constant interaction with the main author of this paper for people to open up and speak about the highly personal topic of how they see the world.

We thus argue that the and pitfalls among the indigenous population and park authorities are based on an "uncontrolled equivocation" (Viveiros de Castro 2004b) that

the enormous power asymmetries between Western and indigenous ontologies. The governance setup of Pilón Lajas, represented by the Management Plan and Life Plan, is based on an anthropocentric separation of humans from animals, of the social-economic from the natural. It thus expands ontological asymmetries into the realms of lifeworlds through development planning and resource allocation to different groups of people. The notion of biodiversity management and conservation of ecosystems as such is intrinsically linked to the assumed distinction and superiority of society over nature (Howitt and Suchet-Pearson 2006).

The results of this study show that Mositene relational ontology—notwithstanding the transformations related to transcultural exchange, political and economic integration, and missionary activities—differs from the biocentric ontology underlying the co-management concept of the state. Co-management thus necessarily also requires an in-depth debate on how worldviews can co-exist, implying a of social institutions and a reconceptualization of the notion of governance.

The separation of the complex of ontological beliefs and lifeworlds from natural resource management makes it for Mositene to really become active subjects of a more sustainable management of natural resources. In the context of the co-management of Pilón Lajas, it is therefore crucial to create conditions that allow the Mositene ontology to be reconnected with the related lifeworld and for their links with concrete practices of managing natural resources to be recreated. Both the internal and external asymmetries created through and reinforced by the encounter of worldviews of different dominance and power and connected lifeworlds have to be made visible and reduced. We see different possible



pathways to overcoming the contradictions of Mosetene lifeworlds manifested in resource use in the Biosphere Reserve Pilón Lajas.

One of them revolves around strengthening the role of elder men and women as knowledge bearers. In the context of transcultural exchange with the national highland indigenous societies, the prestige of elder men has declined, as young men are considered to be to navigate between the two worlds (Reyes-García et al. 2008). It is however mostly the elders who are more embedded in the perspectivist ontology and hold what is often called “traditional ecological knowledge” (Reyes-García et al. 2015), acknowledged to contribute to conservation (Turner and Berkes 2006). Knowledgeable elder men and women should thus be truly represented in the CRTM.

Not only elders have lost in importance in decision making processes affecting the indigenous territory but also Wise People and “Owner” spirits. Nobody would doubt the existence of elders, Wise People, or Owner spirits, but people feel that the kind of knowledge they possess is not as useful when dealing with the national society and market economy. To enable an environment in which Mosetene can reenact, without shamans, the social relationships with “nature” that form the basis of their worldview and lifeworlds, intra-ontological on the ontological and epistemological position of all involved actors are needed. Based on this, an inter-ontological dialogue could contribute to making the “uncontrolled equivocations” visible and breaking up power asymmetries.

For the co-management in Pilón Lajas, this means that all actors’ worldviews have to be represented in project planning and governance decisions. We propose the organization of workshops and courses in which park authorities; NGO experts; Andean settlers; and Mosetene, Tsimane, and Tacana learn about the respective worldview and the underlying assumptions of the other actors and share their respective sociospiritual view on the area that they jointly manage. An exchange must take place on how the contradictions between their respective knowledge and values can be reconciled to develop joint natural resource management tools (Gambon and Rist 2018; Rathwell et al. 2015; Tengö et al. 2014). The objective of such a platform is not the complete dissolution of all the contradictions emerging from the encounter of worldviews and lifeworlds but a more handling of these. A possible outcome of this could be concrete measures such as the participatory mapping and communication of sacred sites and inclusion of such sites in management decisions. Another outcome could be that unlike today, CRTM and the indigenous population are included from an early stage in planning processes. Park authorities or conservation NGOs should not only seek approval by CRTM of the projects they have developed, but the indigenous population of Pilón Lajas should have a real on the outcome of planning, design, and implementation of projects. The recognition of the indigenous population as subjects in natural resource governance by SERNAP and other actors is crucial. Challenges in achieving this objective have to be tackled and goals

negotiated via ongoing social learning processes that address power imbalances between knowledge producers (Cornell et al. 2013; Muller 2014).

This view on sustainability recognizes change over temporal and spatial scales and involves complex social-ecological interactions and feedbacks. We currently consider the lack of acceptance of simultaneously existing worlds, or ontologies, the biggest obstacle to a real dialogue between the actors in Pilón Lajas.

## Notes

<sup>1</sup>During the research period, the Biosphere Reserve saw three Directors, two of whom were park rangers assuming the position ad interim.

<sup>2</sup>In this case, the reciprocal category is “pet,” although the concept does not imply full domestication (i.e., with the animal completely dependent on its owner). The term “wild pet” is used to make this distinct conceptualization visible.

<sup>3</sup>*Susto* (fright) is an illness resulting from the disconnection of the soul and the body (Thomas et al. 2009).

<sup>4</sup>The amount sold is usually less than 0.5 m<sup>3</sup>, as more would be too heavy to be transported by canoe.

<sup>5</sup>Ernst Bloch (1962) coined the term “simultaneity of the non-simultaneous” in the 1930s to analyze the ideological crisis of the time. According to him, people can physically live at one time and culturally and cognitively in another, earlier time. Here, we use the concept to describe how people can live in both a perspectivist and modern reality.

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# **Paper III: The Political Ontology of Protected Area Co-Management: Worlding and Nature Perceptions among Stakeholders**

Gambon, Helen and Patrick Bottazzi, forthcoming

Submitted to *Journal of Political Ecology*

# The political ontology of protected area co-management: worlding and nature perceptions among stakeholders

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## Abstract

Political ontology reveals the processes of domination at play in the enactment of realities in a (post) colonial context. In this article, we illustrate the implications of the power asymmetries inherent in conservation and co-management of protected areas involving indigenous populations. We do so by exploring the case of Pilon Lajas in the Bolivian Amazon region, an area with double legal status as an Indigenous Territory and Biosphere Reserve. Drawing from our ethnographic fieldwork, we describe how indigenous relational ontology and the modern ontology of 'cultural diversity' are enacted by different stakeholders, and analyse critically the problems that arise for protected area management owing to the domination of a single ontology in a context where different ontologies are enacted. We finish by presenting our argument that solving such problems requires a cognitive justice approach.

**Keywords:** participation, society–nature relationship, relational ontology, territorial management, resource use, Bolivia

## Résumé

L'ontologie politique révèle les processus de domination en jeu dans la mise en œuvre des réalités dans un contexte (post-) colonial. Dans cet article, nous illustrons les implications des asymétries de pouvoir inhérentes à la conservation et à la cogestion des zones protégées impliquant des populations autochtones. Nous explorons le cas de Pilon Lajas dans l'Amazonie bolivienne, une aire ayant un double statut juridique en tant que territoire autochtone et réserve de la biosphère. En nous appuyant sur notre travail de terrain ethnographique, nous décrivons comment l'ontologie relationnelle autochtone et l'ontologie moderne de la 'diversité culturelle' sont mises en œuvre par les différents acteurs, et nous analysons de manière critique les problèmes qui se posent pour la gestion des aires protégées en raison de la domination d'une seule ontologie dans un contexte où différentes ontologies sont mises en œuvre. Nous terminons en présentant notre argument selon lequel la résolution de ces problèmes nécessite une approche de justice cognitive.

**Mots clés:** participation, relation société-nature, ontologie relationnelle, gestion du territoire, utilisation des ressources, Bolivie

## Resumen

La ontología política revela los procesos de dominación en juego en la promulgación de realidades en un contexto (post-) colonial. En este artículo ilustramos las implicaciones de las asimetrías de poder inherentes a la conservación y la cogestión de las áreas protegidas en las que participan poblaciones indígenas. Lo hacemos explorando el caso de Pilon Lajas en la Amazonía boliviana, un área con doble condición jurídica como Territorio Indígena y Reserva de la Biosfera. A partir de nuestro trabajo de campo etnográfico, describimos cómo la ontología relacional indígena y la ontología moderna de la "diversidad cultural" son promulgadas por diferentes actores, y analizamos críticamente los problemas que surgen para la gestión de las áreas protegidas debido al dominio de una sola ontología en un contexto en el que diferentes ontologías son puestas en práctica. Terminamos presentando nuestro argumento de que la solución de esos problemas requiere un enfoque de justicia cognitiva.

**Palabras clave:** participación, relación sociedad-naturaleza, ontología relacional, gestión territorial, uso de recursos, Bolivia

## 1. Introduction

Since the late 20<sup>th</sup> century, protected areas have been considered a main pillar of the conservation of biodiversity and natural resources (West *et al.* 2006). The initial ‘fortress approach’ (Galvin and Haller 2008), where any human influence was considered a threat to the ‘pristine wilderness’ (Nash 1967), was criticized in light of research showing that most of these allegedly pristine areas had been used and shaped by local (indigenous) populations over centuries (Gómez-Pompa and Kaus 1992, Pimbert and Pretty 1995). Although biological diversity and cultural diversity are now recognized as inextricably linked (Boillat *et al.* 2010, IUCN 1997, Maffi 2005), most conservation policies continue to present them as separate entities. This separation has a negative impact on protected area management in Bolivia and elsewhere, which is characterized by unsustainable practices of natural resource appropriation due to an unsuccessful integration of indigenous populations into territorial management (Colchester 2004). To overcome these shortcomings and increase the efficiency of conservation efforts, participation of local people in decision-making processes and co-management have become key arguments supporting conservationist approaches (Dovers *et al.* 2015, Pimbert and Pretty 1995). It has become widely accepted in conservation science and policy that difficulties in combining indigenous modes of living and conservation programmes are due to (ethno-) epistemologically divergent views (Coombes *et al.* 2011, Gombay 2014).

There exists an ongoing debate in anthropology comparing the multiple conceptions of the human–nature relationship across Western and non-Western societies (Descola 2005, Sahlins 2014, Viveiros de Castro 1998). In modern ontology<sup>1</sup>, humans are viewed in a position of conceptual and physical domination over the natural world (Howitt and Suchet-Pearson 2006). Modern science has long denied the rationality of indigenous ontologies and classified them under the term ‘culture’, while considering its own epistemic and ontological position as superior (Blaser, 2013). During the past two decades or so, an ‘ontological turn’ (Escobar 2007, Holbraad and Pedersen 2017) in social theory has challenged the universality of modern assumptions about nature and culture by drawing increased attention to ontology and the consequences of how we theorize the constitution of the world (Henare *et al.* 2007, Joronen and Häkli 2017, Scott 2013).

For instance, the relational ontology of many Amerindian hunter-gatherer societies transcends modern positions on the human-nature relationship and on personhood, by extending agency, intentionality and social institutions to animals, plants, and other “natural” manifestations (Costa and Fausto 2010, Ingold 2000, Viveiros de Castro 1998). Viveiros de Castro (2004a) calls this ‘multinaturalism’: it is the human condition that is the common element of all societies, not the ‘world out there’. This deeply challenges the assumptions underlying modern notions of the opposition of the material world and a multitude of representations, or of the separation of nature and culture (Henare *et al.* 2007).

A group of researchers defending the ontological turn developed a framework which refers to the politics involved in the co-existence of multiple ontologies that Mario Blaser (2009) calls ‘political ontology’. This perspective takes into account not only social perceptions but also their consequences for practices, their performativity and, consequently, the transformation of the world – or ontology – itself (Blaser 2013). As multiple co-existing and enacted ontologies (pluriverse) trouble the project of a common world, they are necessarily political (Blaser 2014). ‘Worlding’ – the enactment of an ontology in a pluriverse – cannot be sealed around individuals or ethnic boundaries but should be conceived in a dynamic process of co-habitation, encroachment or hybridization among distinguished groups (Bingham and Hinchliffe 2008). Blaser (2013: 558) emphasizes that ‘[w]orlding is a contested, arduous, and not entirely coherent process and never takes place in a vacuum without connections to other ways of worlding. Yet the connections do not cancel their radical differences’. Contemporaneous indigeneity can be seen as a ‘customization’ of modern values, practices and perceptions for strategic reasons (Greene 2009). Therefore, the co-management of protected areas requires going beyond dichotomist and essentialist theories of the ‘modern’ vs. ‘indigenous’. As political ontology as a theoretical approach reveals the processes of domination at play in the enactment of ontologies in a (post-)colonial context, it is a useful concept for analyzing co-management schemes for protected areas involving indigenous populations. Political ecology literature usually situates power as originating in human agency, in political economies, in post-structuralist, discursive power in a Foucauldian sense, or in a combination of these (Ahlborg and Nightingale 2018, Svarstad *et al.* 2018). In political ontology, power issues are determined by the right to enact a different ontology, and thus a different reality. Political economy long ago claimed interdependence of the recognition of cultural identity and distributive aspects of resource access and, more generally, socio-economic justice (Fraser 1995, Honneth 2001). More recently, environmental justice literature has

<sup>1</sup> We acknowledge the great diversity and internal contradictions of the values underlying modern and other ontologies, but for practical purposes, we use those overarching terms in this article as they highlight the fundamental differences in the respective ontological assumptions.

emphasized the importance of the tripartite typology of concerns – recognition, procedure and distribution – as the main vectors of social inclusion in environmental protection (Schlosberg 2013). In conservation science, cultural recognition has become an essential condition for valorizing local conservation knowledge and supporting collaboration between forest users and conservationists (Berkes 2012, Zanotti *et al.* 2020). However, cultural recognition has often been limited to ‘respect for culture’ within the same modern paradigm (Martin *et al.* 2016). Our contribution is an attempt to take a step ahead by showing both the importance and difficulty of moving from a passive recognition to an active (re)-worlding, with practical implications and deep power-based restructuration through cognitive justice. Cognitive justice is not a challenge of access to education and legitimated knowledge but the right to enact an ontological disobedience. As Burman (2017) argues, critical attention to ontological power asymmetries allows for better understanding the material power asymmetries at the core of political ecology analyses. Burman (2017: 935) further contends that cognitive injustice and material injustice are ‘dialectically connected in the sense that the former provides a justification and a naturalization of the latter, and the latter is a material expression of the former’.

Conventional approaches to managing protected areas are built on the (modern) assumption that nature can and must be managed by humans (Coombes *et al.* 2011). Although they have begun to recognize that their way of understanding and perceiving nature may differ from that of indigenous people, state actors and conservationists view these variations as different cultural representations of a single world out there. The assumption of one natural world and multiple cultural representations of it leads to the idea that conflicts between the state, conservationists and indigenous peoples on how to manage the environment are epistemological (Gombay 2014). However, there is growing evidence that many so-called resource conflicts are, in fact, ontological conflicts revolving around different assumptions about reality and how these manifest in power-loaded arenas (Blaser 2013, Coombes *et al.* 2011, Howitt and Suchet-Pearson 2006). Thus, co-management schemes can be politically charged with contestations about nature(s) if they involve actors from multiple ontological backgrounds (Gombay 2014).

In this article, we illustrate the implications of the power asymmetries inherent in political ontology for the conservation and co-management of protected areas. We do so by exploring the case of the Pilón Lajas Indigenous Territory and Biosphere Reserve (hereafter Pilón Lajas) in the Bolivian Amazon region. The area’s double legal status as an indigenous territory and a protected area provided the basis for the development of a co-management scheme between state authorities and indigenous peoples. Gambon and Rist (2019) demonstrate the co-existence of multiple ontologies, which can loosely be categorized as naturalist (modern) and relational (perspectivist) ontologies, in Pilón Lajas. Three lowland indigenous peoples – the legal owners of the Indigenous Territory – Andean settlers of Aymara and Quechua origin as well as government agencies and NGOs, which promote nature conservation on one hand and colonization and development of the Bolivian lowlands on the other hand, interact and shape the governance processes in the area and its buffer zone. The ontological power relations between them are so asymmetrical that the perspectivist worlding often remains invisible and unaddressed in the co-management. We first describe how these ontologies are enacted by different stakeholders, focusing on the spaces where they interact and mingle (blurred frontiers between the ontologies). We then proceed to a critical analysis of the problems in protected area management that arise from the domination of a single ontology in a context where different ontologies are enacted. We finish by presenting our argument that solving such problems requires a cognitive justice approach.

## 2. Methods

This research is based on 14 months of fieldwork by the first author in Pilón Lajas between July 2012 and August 2014. This investigation was oriented by previous ethnographic fieldwork carried out by the co-author in the same area between 2003 and 2011. The research base was in Rurrenabaque, a town of about 13,000 inhabitants, where the Tsimane Mosetene Regional Council (*Concejo Regional Tsimane Mosetene*, CRTM) and the local office of the National Service for Protected Areas (*Servicio Nacional de Areas Protegidas*, SERNAP) are located.

To capture the viewpoints and narratives deployed by the co-management institutions, six semi-structured interviews were conducted with the directors<sup>2</sup> of the Biosphere Reserve as well as with park rangers. Five semi-structured interviews were conducted with the CRTM’s president, vice-president and the person responsible for land and territory. The interviews were complemented with numerous informal interviews with park rangers and administrative and planning staff of the Biosphere Reserve, as well as

<sup>2</sup> During the research period, the Biosphere Reserve had three directors, two of whom were former park rangers assuming their position *ad interim*.

with all representatives of the CRTM<sup>3</sup> and experts advising them throughout the research period. Further, the first author observed the degree, form and content of the interaction between the CRTM and SERNAP in the facilities shared by these institutions.

The emic perspective of the Mositene and Tsimane in the least accessible areas of Pilón Lajas was assessed through participatory observation in the communities along the Quiquibey River. A significant amount of time was spent in the Mositene-dominated communities of Gredal and San Luis Grande<sup>4</sup>, which are respectively located about six hours and one-and-a-half days away from Rurrenabaque by motorized canoe. Shorter visits to six other communities along the Quiquibey River (Bolsón, San Luis Chico, San Bernardo, Corte, Bisal and Asunción del Quiquibey) and one on the Beni River (Charque) complemented the insights into how the Mositene and Tsimane perceive and interact with their environment.

The main method applied in the communities was participatory observation (DeWalt and DeWalt 2011, Hammersley and Atkinson 2007). The first author participated in the daily activities of various women, men and children, which was essential for obtaining consent and building a relationship based on trust that established the foundation for conversations and unstructured interviews (Bernard 2017) on myths, values, worldviews and related resource use practices. Participating in the daily activities of five families in Gredal and four families in San Luis Grande enabled data obtained through conversations and interviews to be validated against people's actions and integrated into observations of the interlocutors' lifeworlds. Conversations were held in Spanish and included discussions of words or concepts used in Mositene.

### 3. Co-management in Pilón Lajas

The 22 protected areas in Bolivia are not only all inhabited but half of them intersect and five share a significant surface with indigenous territories (Fundación Tierra 2010). One such protected area is Pilón Lajas. The 4,000 km<sup>2</sup> area was declared a Biosphere Reserve by the UNESCO Man and Biosphere Programme in 1977 (Surkin *et al.* 2010), and in 1992, it was the fifth area to be declared Indigenous Territory by Supreme Decree (No. 23110 Republic of Bolivia). The same decree recognized the region as a biosphere reserve of national interest to preserve biodiversity and the genetic integrity of the area's flora and fauna. The collective property of indigenous lands was incorporated in 1996 in the national legislation as Native Community Lands (*Tierra Comunitaria de Origen*, TCO) and recognized in 2009 in the New Political Constitution as Indigenous Native Peasant Territories (*Territorios Indígena Originario Campesino*, TIOC).

The CRTM was founded in 1991 as a branch of the Tsimane Council, located in San Borja, to ensure territorial claims of the Tsimane and Mositene communities of Pilón Lajas. However, as the organization did not function continuously between 1991 and 2001, the Tsimane Council assumed representation of the indigenous communities in Pilón Lajas. In 2002, the CRTM was re-established and became independent (Surkin *et al.* 2010). The management of the Biosphere Reserve was assumed in the first years by a French NGO. In 1998, the newly created SERNAP took over management responsibilities (Pauquet 2005).

Co-management in Pilón Lajas did not start until 2004. Based on the area's double legal status, the latest logging concessions within Pilón Lajas were reversed in the late 1990s (Pauquet 2005), while two oil exploration blocks were halted in 2002 and 2004, respectively (Laats *et al.* 2012). The recognition of common goals between the CRTM and the local SERNAP led to the management committee's decision<sup>5</sup> in 2004 to develop a joint management plan for the period 2007–2017, the Management Plan and Life Plan (*Plan de Manejo y Plan de Vida de la RB-TCO*). The joint management plan, which introduced a hitherto unknown model of co-management between the state and indigenous peoples in Bolivia, was concluded and approved by the Management Committee, the CRTM and the assembly of village leaders<sup>6</sup> in June 2005 (Surkin *et al.* 2010). One year later, the Morales administration launched a National Development Plan that provided the basis for the state's future relationships with social organizations, among others, in protected areas, and postulated the active participation of social and productive organizations as well as the co-

<sup>3</sup> The executive committee of the CRTM consists of a president, a vice-president and one person responsible for the issues of land and territory, health, education and gender each.

<sup>4</sup> Household and village size vary significantly over time due to the high mobility of the Mositene. During the research period, between 8 and 15 adults lived in Gredal, and between 8 and 12 adults lived in San Luis Grande.

<sup>5</sup> The management committee is constituted by representatives from indigenous organizations, communities, SERNAP and states' authorities (municipalities and prefectures).

<sup>6</sup> The *Asamblea de Corregidores* is the operative body supporting the CRTM, meeting roughly every four months. The highest (formal) decision-making authority in the TCO, however, is the General Assembly of Communities (*Gran Asamblea General de las Comunidades*), convened every three years.

management of those areas (Ministerio de Planificación del 2006). The principle of co-management of protected areas was also incorporated in the New Political Constitution of 2009 (Article 385). In accordance with these processes, the management plan for Pilon Lajas was finally approved by the national government at the end of 2008 and published in 2009 (Surkin *et al.* 2010). An update process started in 2013 and ended in late 2018. The updated management plan was approved by SERNAP and a ministerial resolution in 2019, but the document has yet to be published.

Both the park authorities and the CRTM describe co-management as highly beneficial:

This area is characterized by the mutual assistance of the communities and park rangers. With co-management, we can work better than in other protected areas. It favors us greatly.  
(Director ad interim of the Biosphere Reserve, Rurrenabaque, 2013)

This account has been reproduced in various studies (Costas Monje 2010, Mariaca *et al.* 2011, Painter *et al.* 2011, Surkin *et al.* 2010) and has proved to be strategically effective for both institutions for raising funds and acquiring development and conservation projects (SERNAP and CRTM interviews). However, previous research indicates that co-management remains conflictive (Gambon and Rist 2018). We argue that some of these conflicts are rooted in the asymmetric recognition, and thus representation, of different ontologies enacted by the involved stakeholders in the way that co-management is formalized and implemented. In the following subsections, we present three core elements illustrating conflicts based on diverging ways of working: (a) participation, (b) territory and (c) 'culture' and resources.

#### **a) Participation**

In mid-October 2013, a committee consisting of the CRTM board, two environmental NGO consultants to the indigenous organization and two park rangers of the Biosphere Reserve left Rurrenabaque on a seven-day trip to visit all the communities along the Quiquibey and Beni Rivers. The joint community visit presented a sign of rapprochement between the two institutions after a conflict had erupted the year before, putting a temporary halt to co-management (Gambon and Rist 2018). The main objective of the tour, which was to be repeated later along the Rurrenabaque–Yucumo road, was to inform the river communities about the initiation of the process for updating the management and life plan for Pilon Lajas, to be completed in 2017. The update was anticipated to affect the objectives for education, health, socio-environmental monitoring, productive projects and the re-zoning of the Biosphere Reserve. A consultant financed by the Wildlife Conservation Society (WCS) and mandated by the CRTM to ensure that the indigenous population's views and needs were integrated in the updated management plan consulted people to obtain their opinions on the above-mentioned topics and assess the communities' needs and problems. One of the park rangers urged the community to resume joint patrols – an activity that most consider a vital part of co-management – and most communities agreed to support the park rangers in their work. The meeting concluded after the CRTM shared information on additional topics currently affecting the TCO.

Those meetings revealed key flaws in the participatory process for the development and update of the management plan. One of these flaws concerned exclusion from the decision-making process of entire villages. While the village meeting in Asunción del Quiquibey, the largest community along the Quiquibey River, lasted seven hours, meetings in the smaller communities of Bisal and San Bernardo lasted barely one hour. When asked about the difference in priority given to different communities, the president of the CRTM answered that people in small communities 'do not understand anyway' what these meetings are about. Indeed, people in Asunción are generally better educated, as it has its own school up to 8<sup>th</sup> grade due to its size. Several of the (male) inhabitants have occupied posts at the CRTM and/or SERNAP in the past and are, thus, well versed in both the relational and modern worlds as well as with the categories of conservation and resource management. However, the Tsimane in the smaller communities of Bisal and San Bernardo predominantly enact a relational world and have greater difficulty in interacting with the modern world. San Bernardo is home to one of two healers capable of treating spirit-related illnesses recognized in Pilon Lajas. This kind of knowledge is not acquired by the person but is provided by the Wise People, a spirit society considered by some as ancestors. They may take the healer's capacity away if he does not follow the obligations attached to his skills. Despite his important role as a healer, which is inextricably linked to his relationship with the Wise People and non-human societies, his knowledge – based on a relational ontology – is not considered relevant for the elaboration of the new management plan by either conservationists or the CRTM.

Traditionally, a shaman guided the communities with his knowledge, dreams and the advice he received from the Wise People. These days, no one is recognized as having shamanic capabilities (i.e. the ability to transform into other beings, see other beings' souls in human shape and negotiate the availability of potential prey with the 'owner' spirits), which points to a disruption in the communication and exchange with the Wise People as a consequence of ontological marginalization (see also Gambon and Rist 2019). Today's political representation, consisting of a *Corregidor* for each community and the CRTM

representing the TCO is, thus, a relatively new construct<sup>7</sup> that changes traditional patterns of authority. The CRTM's representatives are mostly young men, while *Corregidores* are usually middle-aged men, and both are mediating entities – the former between the indigenous population and the state and the latter between the communities and the CRTM. Nevertheless, they are often accorded decision-making authority by the state, NGOs and researchers. In practice, neither the CRTM nor the *Corregidores* have decision-making power over the TCO, only the community assembly. However, accountability for the Mosetene and Tsimane is less directed towards other community members than towards other-than-human societies of the forest, meaning that 'human' institutions ultimately have little authority over the inhabitants of Pílon Lajas.

Although the indigenous population's level of participation has increased with every management plan since the area's creation, their role has tended to remain one of providing information and approval (Bottazzi 2009). Despite their participation in the socio-economic diagnostic of the area, the participatory mapping of areas in use and consultation regarding problems, constraints, potentials and management objectives, the agenda was clearly set by SERNAP and WCS. The indigenous population's participation was, and remains limited to, operational aspects: the CRTM and the indigenous population today participate in activities or decision-making related to management actions, such as joint patrols or specific alternative economic projects. While they have a say in matters related to the economic or social development of the area, decisions related to conservation are taken by SERNAP. As only scientific knowledge of ecosystems is valued, SERNAP and conservation NGOs represent the authority on environmental issues. SERNAP and NGOs have never questioned the supremacy of science over indigenous knowledge. Thus, a debate on the worldviews and values underlying conservation and resource use has never taken place.

#### **b) Territory**

I wonder sometimes: are we the owners [of Pílon Lajas] or are we guests? (CRTM – Land and Territory officer, Rurrenabaque, 2014)

Each institution's representatives cited legal arguments for why they should have priority in decision-making in the area over the other institution: the CRTM claimed its status as the legal owner of communal lands but conceded rights to SERNAP over the management of the area's resources. SERNAP claimed that the legal provisions defining the area as protected precede the ones defining it as an indigenous territory<sup>8</sup>, giving the former priority. It must be noted that there exists a legislative gap, as the General Regulations on Protected Areas (Supreme Decree No. 24781, Republic of Bolivia 1997) do not recognize Biosphere Reserves among the management categories of Bolivian protected areas, and the criteria for planning and management of this type of protected area are not clearly defined. For practical and operational purposes, the Biosphere Reserve is considered equivalent to the management category of Integrated Management Natural Area (*Area Natural de Manejo Integrado*, ANMI), which is the only conservation category that allows productive activities (Management Plan and Life Plan 2018–2028, unpublished).

Supreme Decree No. 727 (Plurinational State of Bolivia 2010) established the automatic conversion of TCOs to TIOC, thus extending collective land tenure to territorial rights (Bottazzi and Rist 2012). Nevertheless, the inhabitants of Pílon Lajas vehemently oppose the conversion of their TCO to a TIOC chiefly because it would reduce the bargaining power of the three groups which are indigenous to the area vis-à-vis the settler organizations of the region. The Aymara and Quechua settlers in the transition zone today outnumber the indigenous population of Pílon Lajas by a 4-to-1 ratio (Bottazzi 2008, unpublished data provided by CRTM). The settlers have been pushing for the expansion of the agricultural frontier, increasing pressure on indigenous communities, mainly along the road. The indigenous population fears that through the conversion of the Pílon Lajas into a TIOC, the settlers could claim access or even property rights.

At the same time, the emic notion of territoriality is based on a relational ontology and the rejection of legal permeability does not extend to social practices. The Tsimane and Mosetene notions of territory are not limited to a single physical space delineated by formal or informal human norms and geometrical boundaries but combine mythical representations, social ties and other-than-human entities as previous studies have documented (Bottazzi 2014, Daillant 2003, Ellis 1997, Rist *et al.* 2014). Tsimane have a taste for movement through permanent and long-lasting visit to parents (called *sobaqui*). The territory becomes a complex web of pathways connecting human and other-than-human (Ellis 1997) rather than a polygon on

<sup>7</sup> Between 1804 and 1845, the Franciscan missionaries established *Caciques* (leaders within the colonial system) in their missions in Alto Beni. Thus, the Mosetene have experienced a longer tradition of this kind of political authority than the Tsimane have (Barba Sanjinez and OPIM 2010).

<sup>8</sup> Despite being declared a UNESCO Biosphere Reserve in 1977, it was not until 1992 that the Biosphere Reserve was officially recognized in Bolivia via Supreme Decree – the same decree that created the Indigenous Territory.

a map. Following these interpretations, access to, and use of, natural resources is based on a conceptualization of the environment as constituted through diverse forms of social relationships with and between both human and other-than-human entities, symbols and myths, and extends over the traditionally occupied areas around San Borja, Maniquí River, Alto Beni and beyond (Reyes-García *et al.* 2014). In this view, the territory is the product of a lived experience in the physical world but also in the symbolic world. Indeed, the Tsimane and Mosaic languages do not possess a word for ‘territory’. Our interlocutors were quite puzzled when they had to think of a translation. *Jum’ jākḥ* (good land) probably comes closest to the concept of territory. However, when asked about the territory, everybody, from women in the villages to indigenous leaders to park authorities and conservation NGOs, used the image of the *casa grande* (big house) to describe Pilón Lajas. Political leaders of the CRTM frequently used it to define a clearly delineated territory with established rules for access and exclusion. Conservationists use it to convey the importance of a respectful engagement with nature to protect the forest as a home for all: indigenous peoples, animals and plants. Mosaic and Tsimane in the communities incorporated the image in their vocabulary (*dursi aca*). However, we argue that the conceptualization of *dursi aca* goes beyond that of the conservationists and the CRTM. In the past, the shaman performed rituals asking for good hunting and fishing outcomes in the *shipa*, a special house usually in the center of the community. Dead kin and other-than-human visitors (e.g. Wise People, owner spirits of the animals and fish, tree spirits) would visit this house and share *chicha* (fermented manioc beer) with the people. The *shipa* was, thus, a place where relationships between the different human and other-than-human societies animating the forest were reinforced and knowledge was exchanged between them (Bottazzi 2014, Ellis 1997, Huanca 1999, Zyherman 2013). The image of the house as the space in which the connection and affiliation between the diverse forest societies is performed and renewed has been incorporated into community members’ conceptualizations of territory. The legal category of the TIOC – designed to overcome social fragmentation based on ethnicity – thus, achieves a better conceptualization of the social reality of indigenous peoples in Bolivia. Nevertheless, the inhabitants of Pilón Lajas perceive it as undermining their bargaining power vis-à-vis highland settlers in determining their way of life and related land use.

With the new challenges of protecting the physical space and managing the resources of Pilón Lajas, the Tsimane and Mosaic have progressively adopted a legal conception of territory based on a polygonal definition (Bottazzi 2014). There is an overlap between the polygonal and relational worldviews; they are not fundamentally incompatible but can be subject to contradictions or conflicts according to the context. Conflicts appear, for example, over the so-called indigenous park rangers that have been selected in the communities to work for SERNAP to control hunting and timber extraction, sometimes putting themselves in a critical position with the traditional uses of their own family. Mobility is also at stake, as the Tsimane and Mosaic used to move constantly across the ‘borders’ to reach their parents or to extract resources. The purpose of ‘developing’ Pilón Lajas is often in conflict with these territorial practices, as it requires being sedentary from the point of view of modern institutions.

#### c) ‘Culture’ and resources

I feel that for the park authorities we are just another species that has to be protected from extinction. (former leader of the CRTM, Gredal, 2013)

The aforementioned meeting in Asunción del Quilibey continued after lunch for the first half-hour or so with only women present. They stated that they needed capacity building and tools for handicrafts, a rice peeling machine, a corn grinder and a sugar cane press, among other things. Little by little, the men of the community joined the conversation and requested a carpentry workshop, equipment and the enlargement of the school to enable the community’s children to graduate from high school. The NGO consultant initiated a brief debate about whether it was appropriate to introduce artefacts that are alien to the local population’s culture, such as rice peeling machines. After the women insisted that peeling rice in a *tacú* (a large wooden mortar) was very tiring and time-consuming, it was decided that this discussion would be postponed.

The discussion about whether the tools that would facilitate women’s work would change Mosaic and Tsimane culture not only concerns gender roles and the position of women in both indigenous and national societies but also the understanding of what constitutes ‘culture’ and how it is to be ‘preserved’. Indigenous women are often described – and describe themselves – as custodians of traditional knowledge and of biodiversity (Deda and Rubian 2004, Magni 2017). As such, it seems comprehensible that the NGO consultant asked whether the introduction of new tools would alter the local culture. However, the introduction of tools that would facilitate men’s work was not questioned. Chainsaws or motors for boats are increasingly common in the villages, and the requested carpentry workshop was not challenged. This points to an understanding of men as the productive workforce and women as the guardians of culture, whereas culture is considered something tangible. This understanding separates the economic from the



socio-cultural and undermines both the role that men play in maintaining social relationships with other-than-human societies as well as the one that women play in productive activities.

Stakeholders from the modern world defend a rather essentialized and utilitarian notion of Mosetene and Tsimane ‘culture’ as it appears in the management plans. In this view, cultural aspects are considered valuable mainly if they contribute to the sustainable use of natural resources. Hunting, fishing, gathering and slash-and-burn agriculture are presented as the main cultural patterns besides language, perceptions and spirituality. The Management Plan 2018–2028 identifies a range of indicators for the ‘cultural evaluation’ of the TCO. High knowledge of plant and animal species or soil types in one of the local languages is associated with a higher ‘cultural value’, as are a range of practices and technologies related to the use of these species. ‘Belief-based rules’ that regulate access to, use and management of, natural resources and cultural reproduction are other indicators that have been assessed. The assessment states that communities along the Quilibey River have broader knowledge of hunting and fishing than the road communities do and that they give more practical use to the species. It concludes that in the TCO, the levels of cultural indicators are high, meaning that the ‘culture is dynamic, but is reproducing itself’ (SERNAP and CRTM 2019: 127ff).

Apart from being questionable from the methodological viewpoint (e.g. do Andean settlers have less culture because they know and use fewer species?), this cultural evaluation indicates a reduction of culture to material culture. Instead of recognizing relationships that the Mosetene and Tsimane maintain with human and other-than-human entities as pillars of culture, this aspect is wrapped in the category of ‘beliefs’. It creates a separation between biodiversity, natural resources and economy, on one hand, and culture, social relationships and worldview, on the other hand – aspects that, in the relational ontology, are closely interconnected.

This separation means that the management plan puts a considerable focus on the development of economic alternatives for indigenous people and peasant settlers as a key strategy for reducing pressure on natural resources. These projects include ecotourism and the production of non-timber forest products, such as *jatata*. The economic development projects have proved to be most successful when conducted with peasant settlers, and they regularly fail when implemented with the Mosetene and Tsimane. The numerous failed projects have led many NGO workers and park authorities to conclude that the Mosetene and Tsimane are ‘lazy’ and impossible to work with because, unlike the peasant settlers, they seem not to assume the responsibility of being a counterpart in the projects.

One of the main problems at stake, however, is that the indigenous ways of being-in-place and social organization do not align with the conditions that these projects impose upon the population. The indigenous way of life adapts to an ever-changing environment with limited predictability. People tend not to set goals and plan ahead but decide each morning what the day’s main task will be. These decisions are based, for instance, on the weather conditions but also on the dreams that a person had the night before, e.g. indicating a successful hunting trip. If a bad harvest is foreseeable, families might prefer to visit relatives elsewhere or find temporary wage work along the road. The frequently promoted ecotourism projects or the cultivation of cacao are challenged by the high spatial mobility of Tsimane and Mosetene families.

While resource use in the Mosetene and Tsimane societies is defined by clear social rules, these are rarely enforced by other human beings. Particularly the Tsimane tend not to confront other persons in open conflict. Existing conflicts only become visible when the consumption of large amounts of alcohol is involved or when someone is accused of having bewitched another person (itself a strategy to engage in a conflict). At the core of the norms and rules guiding the access and use of natural resources is the principle of not using more than is needed for one’s subsistence. However, other community members do not oppose someone’s exceedance in fishing, hunting or extracting *jatata* or other resources. They know that the owner spirits allow fishing, hunting and other resource extraction if it is based on justified needs, and they expect the respective spirit to punish infringers if they are bothered by human actions (see also Bottazzi 2014, Daillant 1998, 2003, Gambon and Rist 2019, Rist *et al.* 2014). The owner spirits of the fish and the animals will appear to an infringer in a dream to warn him or her that the exceedance must stop. If the person does not follow this warning, he or she will be cursed with illness. The owner spirit may also appear to the infringer as an animal or a person. However, such encounters are highly dangerous, as only shamans are believed to have the capacity to overcome such encounters – that is, to handle a change in perspective. Thus, the social obligations enforced by forest spirits, and particularly the owner spirits and their guardians, are the highest instance regulating resource use and access, above rules established by the communities, the CRTM or the protected area.

These spiritual institutions clearly differ from the current process of territorial management and regulation undertaken by ongoing national reforms and institutions. Such initiatives mainly target a concentration of the indigenous population in larger, sedentary settlements to facilitate the provision of

services, such as healthcare and education, and greater incorporation in the market economy to reduce pressure on the environment caused by hunting and logging. Contrary to the standardized conception of development based on sedentarization and human control, the practices of resource use related to the worlding of indigenous people are only sustainable if they are connected with dynamic forms of being-in-place – namely, small hamlets connected through kinship and marriage ties that grow and diminish in size in accordance with the environmental conditions. This means that the institutional arrangements which are created or sustained by the management plan aim at transforming Masetene and Tsimane societies in a way that disconnects them from their ontological foundations of resource use practices. Consequently, the indigenous population's forms of resource use, considered environment-friendly in principle by the management plan, result in being unsustainable when paired with the institutional arrangements of the nation state and market economy. This is exemplified by a comparison of the communities of Asunción del Quilibey and San Luis Chico, the most populated (about 20 families and 12 families, respectively) of the eight communities on the Quilibey River, with the others consisting of one or two extended families. These two communities face more significant environmental issues than the smaller ones. Hunting trips are longer and less successful than in the less populated areas. This increases pressure on non-timber forest products (e.g. it now takes up to four hours to walk to the harvesting areas for *jatata* from San Luis Chico, while people in smaller communities may reach their harvesting areas within half an hour to an hour's walk), and larger areas of forest are cleared for agriculture. This trend is even more accentuated when comparing riverine communities with Tsimane communities along the Rurrenabake–Yucumo road.

#### 4. Discussion

The empirical example shows that co-management constitutes an arena in which 'uncontrolled equivocations' (Viveiros de Castro 2004b) between the indigenous population and the park authorities take place. Uncontrolled equivocation refers to a communicative disjuncture between interlocutors whose ontologies are different and who are unaware that they are enacting different worlds (Blaser 2009, Viveiros de Castro 2004b). In this case, these equivocations happen between park authorities and indigenous peoples. However, the indigenous population is not homogeneous, and several inhabitants of Pilón Lajas also enact a modern ontology along the relational ontology. People may enact different ontological registers according to the arena in which they are interacting, such as a political or lifeworld arena. In particular, members of the CRTM, who are supposed to assume the position of 'translating agents' between the indigenous population and the nation state (Bottazzi 2014), often recreate the power imbalances between the modern and relational ontologies. As a result, they prioritize indigenous voices that understand and manage 'modern' thinking and arguments and silence those who base their decision-making on dreams and their social relationship with other-than-human societies.

How different ontologies and worldviews become political and lead to conceptual and practical inequalities is a difficult question to answer. Simple 'respect for cultural diversity' is not a sufficient step forward to include social justice in conservation issues (Martin *et al.* 2016). The subtle or naïve inclusion of 'cultural patterns' in Westernized management processes can, as we have seen, play against the full recognition of a more complex and comprehensive worlding. By breaking the full ontological structure, and consequently its profound signification, by reassigning cultural tasks by age, gender and level of education, or by omitting the social aspects of human–nature interactions, the co-management process enacts a symbolic violence on indigenous communities that can be more destructive than complete spatial exclusion.

The modern world and the actors representing it – including, in many instances, the CRTM – are so much more powerful than the perspectivist world and those that enact it that indigenous worldviews have become almost non-existent. Although the management plans emphasize Tsimane and Masetene 'harmonious life with nature', it remains limited to a modern dualist representation of space. There is no direct link between the Tsimane and Masetene worlding and the planning proposed in the management plan. The concept of 'territory' as a delimited area with specific rights to the use of renewable resources is new to the Masetene and Tsimane conception (Bottazzi 2014).

Political representation of indigenous populations is based on 'modern' premises of organization, and the CRTM's members and the *corregidores* enact, jointly with SERNAP, a modern imaginary of outcome-oriented resource management (improved biodiversity conservation). At the same time, the very same persons also enact a relational, process-oriented reality in which the notion of 'management' can best be described as the management of social relations. Contexts of ontological diversity and heterogeneity dismantle the clear distinctions between nature and culture, human and non-human, modern and relational (Umans and Arce 2014). We call this blurredness 'the simultaneity of the non-simultaneous' after Bloch

(1962), who used it to analyze the ideological crisis of the 1930s. According to him, people can physically live in one time and culturally and cognitively in an earlier time. Here, we use this concept to describe how people can live in both a relational and a modern reality, enacting both ontologies.

To what extent can ontological differences be merged or hybridized before becoming mere cultures at the service of a supposedly common world dominated by Western knowledge? This case study shows that ontologies are not fixed categories that can be described and catalogued, and ontology does not just replace the concept of culture (Blaser 2014). The blurred borders between ontologies – and thus the ontologies themselves – are constantly re-negotiated through inter-ontological interaction (Blaser 2009, Harris and Robb 2012). One result of such interaction can be seen, for instance, in the Bolivian state, which has endeavoured to incorporate indigenous ethical principles, territoriality and governance into the national constitution, applied at the local level. Conceptualizing indigeneity is, nevertheless, a difficult task for a state, and many tend to invoke essentialized imaginaries of local, place-based and traditional (and thus static) communities (Coombes *et al.* 2011, McCreary and Milligan 2014). Although Bolivia has certainly gone a long way to recognize indigenous rights, recognition also tends to normalize ontologies. Difference, then, again becomes a different way of knowing instead of a different reality influencing not only the use of land and natural resources but also governance and being-in-place (Fraser 1995, Honneth 2001, Martin *et al.* 2016, McCreary and Milligan 2014, Schlosberg 2013).

Although many local communities have developed common property resource management systems that can sustain both livelihoods and fundamental ecological processes, these institutions are being challenged by the modern state, market and demographic pressures (Belsky 2000). These constraints are also apparent in Pilón Lajas. Although the TCO covers an area of 346,126 hectares, 37% of its surface has been declared areas of strict protection, making them (theoretically) inaccessible to the indigenous population. Increased population density related to the concentration in larger settlements and general population growth reduce the sustainability of the practices of Mosetene and Tsimane. They, too, must find solutions to deal with changing land use patterns resulting from inter-ethnic marriages with peasant settlers, tenure individualization tendencies in communities along the road and the call for formal education and the related loss of knowledge (Bottazzi 2014) that is needed to re-enact the indigenous worlding, because in the end, the goal of conservationists and indigenous people is the same: to maintain a ‘healthy environment’. It is the different motivations and significations behind this goal that render co-management so difficult. There is a historically determined power imbalance between the Western modern ontological perspectives underpinning the currently dominant biocentric views of park management and the relational worldview of the indigenous population. This leads to a situation where advocates of the modern ontology claim the universal authority to define the meanings of ‘healthy’ and ‘environment’.

The case of Pilón Lajas shows that if co-management (or participation of local communities in conservation efforts in general) is to be successful, political ownership of the participation process is not sufficient. Ownership must pervade the spheres of worlding, enacting, space and practice (Haller *et al.* 2016, Liechti *et al.* 2010). We propose a cognitive justice approach to contribute to the solution of political ontology problems. De Sousa Santos (2012, 2007) argues that the privilege and dominance of Eurocentric systems of knowledge in relation to other ways of knowing the world creates injustices that can only be overcome by epistemological dialogues. Burmann (2017: 925) expands the concept of cognitive justice to the realm of ontology by asking ‘whose reality is allowed to be real’. Such a cognitive justice approach goes beyond participation by recognizing the plurality of realities (and related knowledge systems) and the connections between ontology and lifeworlds (Visvanathan 2005). A dialogue on contrasting, competing or complementing ontologies must be structured such that it ensures the right of different ways of worlding to enter the spaces of decision-making but, more importantly, the quality of the space into which different ways of worlding enter (Reilly 2013). It is important to note that cognitive justice ‘does not (...) relegate science to an uncritical domain of equally valid knowledges. Instead, it calls for a confrontation of science with other ways of knowing the world, towards more responsible dialogues on what knowledge forms the basis for just, sustainable and peaceful development’ (van der Velden 2009: 44).

Beisel and Jaeger (2007) propose fluidity as a design principle for cognitive justice, while van der Velden (2009) suggests adaptability. Similarly, Umans and Arce (2014) propose a ‘go-with-the-flow’ approach for contexts where ontologies encounter and interact – an approach based on fluidity and blurredness. Van der Velden (2005) compares cognitive justice processes to diversity in ecological systems, influencing the system’s ability and capacity to adapt to change and solve problems. She argues that outcomes of cognitive justice processes are more flexible (accommodating diverse interests) and more democratic (incorporating different values). Cognitive justice is, thus, fundamental if sustainability is understood not as an end state to reach but as an ongoing social learning process. This view on sustainability recognizes change over temporal and spatial scales and involves complex inter-ontological interactions and

feedback (Cornell *et al.* 2013). However, there is no prescription for what a management plan for the Pílon Lajas Biosphere Reserve and Indigenous Communal Lands would look like if developed by following a cognitive justice approach. Indeed, it will be challenging to translate and incorporate the often invisible, intangible and transforming elements of relationalism into administrative processes. The focus must be on the process, accommodating the blurredness and fluidity inherent in ontological pluralism (Muller 2014).

## **5. Conclusion**

Co-management in the Pílon Lajas Indigenous Territory and Biosphere Reserve over the last decade has had positive impacts on biodiversity conservation and environmental sustainability on one hand and on territorial rights and the organizational capacity of the CRTM on the other. However, co-management has also created a political arena in which park authorities, policymakers, experts and indigenous leaders establish the norms of governance and management. This political arena is entirely based on mononatural and multicultural assumptions: the world is a single one and different cultural perceptions of it can be brought in line through co-management institutions. The indigenous leaders have become part of this arena of action by being embedded in it. For many community members, however, the relationship with ‘natural resources’ is primarily a social one, as ‘nature’ has agency and intentionality. One’s position in the world is not always as it appears, as the point of view creates the subject, not the object (Viveiros de Castro, 1998). The Mosetene and Tsimane, thus, enact a multinaturalist and monocultural world. While park management as perceived from a mononatural perspective entails the management of resources and is outcome oriented, territorial management from a multinatural perspective is concerned with the maintenance of social relationships and is process oriented. Taking political ontology seriously means that theorization of power needs to be reconceptualized and extended to other-than-human stakeholders – and the environment not just considered as consisting of ‘resources’ over which access and control are negotiated, but as (an) actor(s) with agency and intentionality. Cognitive justice goes beyond a simple recognition of cultural identities by announcing the responsibility of scientific agents, conservationists and practitioners to make huge epistemological efforts to question deep-rooted assumptions about the constitution of the world. Cognitive justice calls for a recognition of ontological diversity. The uncovering of ontological power imbalances and the reconciliation of realities potentially yields promising outcomes in biodiversity conservation, in recognition of indigenous rights, and in reduction of environmental conflicts.

## **Acknowledgements**

This research was financed by the Swiss National Science Foundation (SNSF) through the Research Module, ‘Transcultural Governance of the Environment in Latin America (TransGELA)’ (Grant No. PDFMP1\_137179). Partial support was also obtained through SNSF grant AgroWork No. 176736.

## **Conflicts of Interest**

The authors declare that there are no conflicts of interest to disclose.

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## **Paper IV: Whose Knowledge, Whose Development? Use and Role of Local and External Knowledge in Agroforestry Projects in Bolivia**

Jacobi, Johanna, Sarah-Lan Mathez-Stiefel, Helen Gambon, Stephan Rist, Miguel Altieri 2017  
*Environmental Management* 59 (3): 464–476.

# Whose Knowledge, Whose Development? Use and Role of Local and External Knowledge in Agroforestry Projects in Bolivia

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Received: 13 February 2016 / Accepted: 6 December 2016  
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**Abstract** Agroforestry often relies on local knowledge, which is gaining recognition in development projects. However, how local knowledge can articulate with external and scientific knowledge is little known. Our study explored the use and integration of local and external knowledge in agroforestry projects in Bolivia. In 42 field visits and 62 interviews with agroforestry farmers, civil society representatives, and policymakers, we found a diverse knowledge base. We examined how local and external knowledge contribute to livelihood assets and tree and crop diversity. Projects based predominantly on external knowledge tended to promote a single combination of tree and crop species and targeted mainly financial capital, whereas projects with a local or mixed knowledge base tended to focus on food security and increased natural capital (e.g., soil restoration) and used a higher diversity of trees and crops than those with an external knowledge base. The integration of different forms of knowledge can enable farmers to better cope with new challenges emerging as a result of climate change, fluctuating market prices for cash crops, and surrounding destructive land

use strategies such as uncontrolled fires and aerial fumigation with herbicides. However, many projects still tended to prioritize external knowledge and undervalue local knowledge—a tendency that has long been institutionalized in the formal educational system and in extension services. More dialogue is needed between different forms of knowledge, which can be promoted by strengthening local organizations and their networks, reforming agricultural educational institutions, and working in close interaction with policymakers.

**Keywords** Traditional agricultural knowledge · Local knowledge · Agroforestry · Knowledge co-production · Bolivia

## Introduction

Agroforestry is increasingly recognized as an important agroecological practice that may balance farming families' ability to meet their food and income needs with the sustainable management and conservation of (agro)biodiversity, while contributing to climate change adaptation and mitigation (Nair and Garrity 2012). Past research and development projects among smallholders in the tropics have demonstrated positive relationships between agroforestry and improved livelihoods (Roshetko et al. 2007; Johansson et al. 2013). Diversified agroforestry systems can significantly enhance smallholders' social-ecological resilience by increasing and diversifying productivity while mitigating economic and environmental risks (Jacobi et al. 2015). Moreover, they play an important role in sustaining biodiversity in mosaic landscapes, as well in revegetating and restoring degraded agricultural areas (Schroth et al. 2004).

Agroforestry systems are knowledge intensive (e.g., regarding species selection and combination and management

**Electronic supplementary material** The online version of this article (doi:10.1007/s00267-016-0805-0) contains supplementary material, which is available to authorized users.

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techniques) as compared to mechanized agricultural packages such as green-revolution technologies (Franzel et al. 2004; Jacobi et al. 2015). Furthermore, agroforestry practices are highly context-specific, making it difficult to develop scaling-up strategies (Johansson et al. 2013; Coe et al. 2014). While agricultural research and extension in the Andean region and in the Amazon lowlands have been dominated by a Western-centered approach that privileges scientific knowledge (Gonzales 2012; Urioste 2012; Boillat 2014), many agroforestry techniques are the product of traditional or local knowledge (Sorgedraeger et al. 1991; Thapa et al. 1995; Altieri 2004). Aware that local and external knowledge cannot always be clearly separated, by local knowledge in this study we refer to both traditional and new experimental knowledge that has been developed, used, and reproduced by farmers and other local actors. By external knowledge, we refer to scientific and practical knowledge brought in from a different region; for example, about techniques and species that were not common in a given place before a project was initiated or before an organization started to work there.

In parallel with the rise of applied and action research that has promoted the active participation of local actors, a growing number of scholars have advocated for the recognition and use of local and indigenous forms of knowledge in agricultural research and extension (Scoones and Thompson 1994; Brokensha et al. 1980; Chambers et al. 1989; Powell 2006). A focus on local knowledge has been presented as an alternative to externally driven, top-down development focused on the transfer of technology (Pottier 2003). More recently, the importance of local agricultural knowledge has also been stressed for climate change adaptation and mitigation (Altieri 2004; Mertz et al. 2009; Pokorny et al. 2013). Moreover, agroforestry scholars have highlighted the importance of including local and traditional knowledge in natural resource management planning (Schulz et al. 1994; Thapa et al. 1995; Sinclair and Walker 1998; Couly and Sist 2013). Local knowledge should be used and valued wherever external knowledge, for example about agriculture, ecology, or self-organization in interest groups, is applied; this will advance efforts to achieve social equity and reduce poverty, and it will strengthen local people's efforts to face emerging, often externally induced challenges (see Rist and Dahdouh-Guebas 2006).

Focusing on local knowledge is in line with the concept of endogenous development (Haverkort et al. 2003; Rist et al. 2011) or "development from within," which calls for the concretization of aspirations of local actors based on local potential, resources and knowledge. In development-oriented research, the co-production of knowledge by scientific and nonscientific actors as part of a social learning process has been promoted for the joint building of the normative goal of sustainability (Rist et al. 2006; Pohl et al. 2010; Williams and Hardison 2013). Following Haverkort

et al. (2003), endogenous development is based on local resources—including knowledge—and ways of social organization, which are complemented by exogenous knowledge and resources. Therefore, endogenous development "does not imply isolation: nor does it limit its attention to local processes. It actively uses the opportunities provided by globalization" (Haverkort et al. 2003: 30).

The case of agroforestry in Bolivia is especially interesting because there is a high level of biological and ecological diversity, combined with a rich cultural heritage that has led to the development of highly productive and resilient traditional agricultural systems (Gilles et al. 2013). Local farmers have a rich traditional knowledge of woody plants in many parts of Bolivia (Sorgedraeger et al. 1991; Johnson 1998; Mathez-Stiefel et al. 2012; Brandt et al. 2013): agroforestry has been practiced in the Andes since before the Inca empire (Chepstow-Lusty and Winfield 2000; Morlon 1996), and the people of the Amazon rainforests practiced agriculture with trees already in pre-Columbian times, as we know from the widespread Amazonian dark earths (Hecht 2003).

The local agroforestry knowledge base in Bolivia has been investigated by only a few studies (Sorgedraeger, et al. 1991; Johnson 1998; Aguilar et al. 2008; Hinojosa 2010; Brandt et al. 2013; Escalera and Oporto *in press*), despite its potential to contribute to locally adapted solutions to economic and ecological challenges. There is also an important gap in research on the articulation between different forms of knowledge—local traditional knowledge and external knowledge based on Western science—in the implementation of agroforestry systems and practices. This understanding is, however, needed to help harness local agroforestry knowledge for development policy and practice.

Against this background, the objective of the present essay is to explore the role of local and external agricultural knowledge in agroforestry projects in Bolivia by (1) evaluating the differentiated contribution of the two bodies of knowledge to livelihood assets, as well as tree and crop diversity in Bolivian agroforestry projects; (2) describing how different types of knowledge are incorporated in these projects; and (3) identifying constraints and opportunities for the further integration of local and external knowledge in agroforestry projects in Bolivia.

## Methods

### Study Area

Bolivia is among the countries with the highest terrestrial biodiversity in the world. Indeed, the tropical Andes are one of the world's acknowledged biodiversity hotspots (Myers et al. 2000). Bolivia's dominant topographical features are the

complex body of the Andes with the altiplano (highlands); the sub-Andean mountain ranges with the inter-Andean valleys, and the eastern plains in the lowlands (Ibisch and Mérida 2004). Being the home of at least 36 indigenous groups, the country is also very culturally diverse. Awareness of this high biological and cultural diversity informed Bolivia's 2009 constitution and several laws: the new constitution established Bolivia as a plurinational state, granting indigenous groups and peasant communities extensive rights regarding territorial control, self-determination (including autonomy), and political representation (Arts. 1, 211, 289, 403), and new governmental bodies such as the Authority of the Rights of Mother Earth or the National Assembly of Agroecological Production (CNAPE) have been established.

### Data Collection

We broadly defined agroforestry as the use of trees and shrubs in agricultural production systems and livestock keeping (Nair 1992). Using a snowball sampling method, we identified more than 50 agroforestry projects (including some initiatives of individual farmers) across Bolivia's nine departments (Fig. 1). Of these projects we visited 42, as permitted by weather and road conditions. The inventory is by no means exhaustive; many agroforestry activities may have remained unaccounted for, due to their physical remoteness or to the fact that not all farmers and extension workers use the term “agroforestry” to refer to the use of woody plants in agriculture. We conducted 62 in-depth, semi-structured interviews with farmers, civil society organization (CSO) workers, and government representatives. For each agroforestry project, we interviewed farmers (24 in total) and/or CSO representatives involved (31 in total, from 24 organizations). Furthermore, we interviewed seven government representatives in the Bolivian cities of La Paz, Cochabamba, Santa Cruz, and Tarija who worked in the field of family farming and forestry at the subnational or national level.

For each of the agroforestry projects investigated, tree and crop species and their benefits were recorded by means of free-listing exercises, in which agroforestry farmers were asked to describe all the plants they cultivated and their uses. A transect walk was conducted for each agroforestry project, together with someone from the organization in charge or the farming family. During these walks, we discussed agroforestry practices and explored related knowledge. The accompanying person was asked since when this knowledge and the related techniques had been in use locally and how they had been transmitted. Detailed notes were taken of the observations and discussions. The findings were later discussed in more detail during a semi-structured interview. We asked in the interviews how and by whom the agroforestry project had been initiated (upon

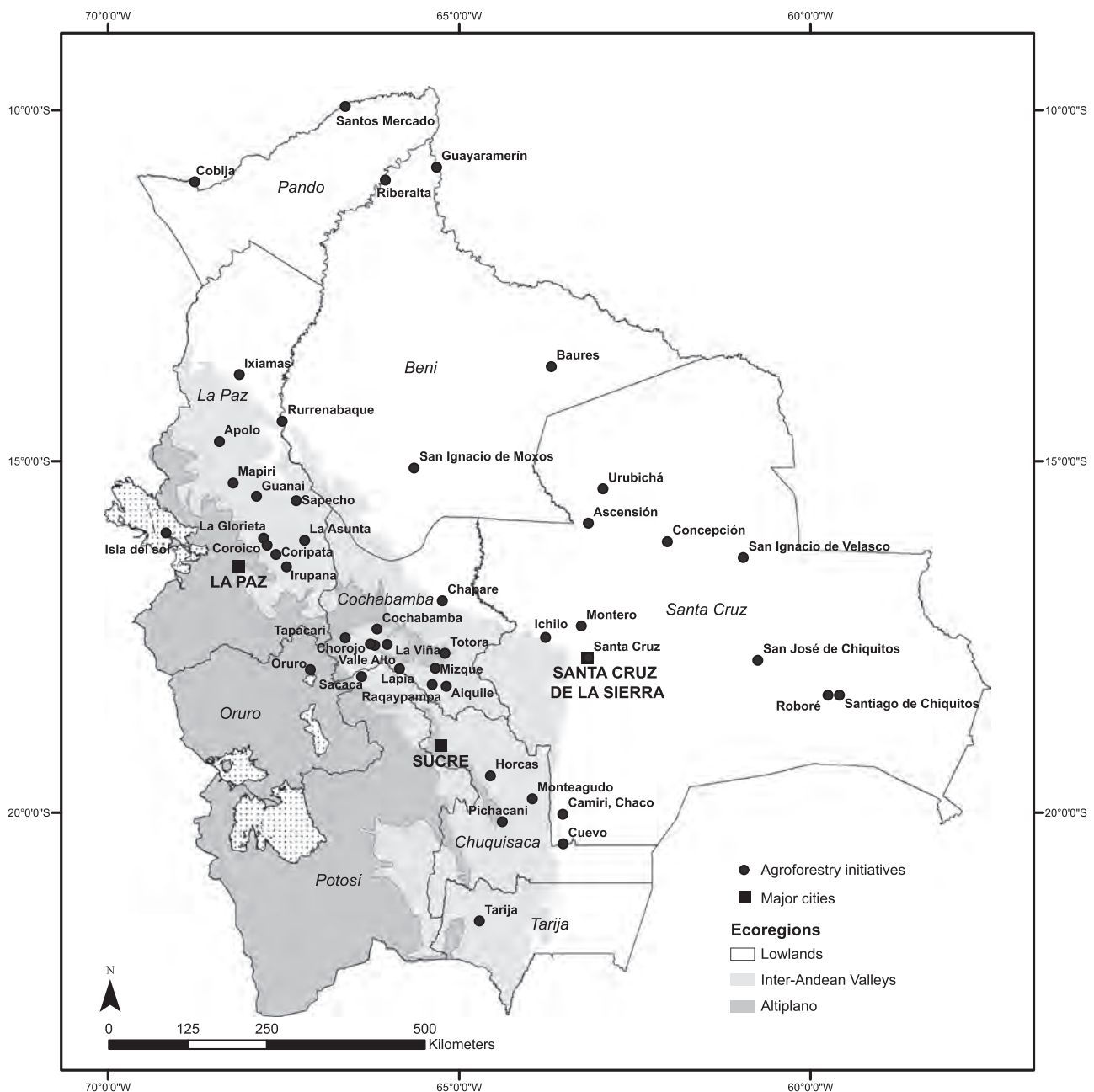
endogenous or exogenous initiative) and where the knowledge had come from. Furthermore, we asked about the project's activities and benefits, for example regarding food security, the families' financial situation, soils, productivity, adaptation to climate stress, capacity building, local infrastructure, and interest groups. This assessment was based on the interviewee's perceptions, and livelihood assets targeted by the projects as mentioned in the interviews or in the project documents. We did not further monitor or evaluate the projects' livelihood outcomes. Interviewees were also asked to list constraints on agroforestry implementation from their point of view.

### Data Analysis

Interviews were transcribed, then coded and analyzed using qualitative content analysis following Patton (2002). We grouped agroforestry projects according to whether they were initiated by local people or by an external actor, and according to the knowledge base they were working with (mostly local, mostly external, or a combination of both). We also recorded the total number of specific livelihood assets which each agroforestry project targeted, based on the project goal and activities described in project documents, as well as on direct observation and the interviews with project staff and farmers. We used the five categories defined by DFID (1999)—financial capital (e.g., earnings, savings, debts), human capital (education and agroforestry knowledge), physical capital (e.g., equipment, seedlings and tree nurseries), social capital (e.g., networks, cooperatives, and reciprocal arrangements) and natural capital (soil, watershed and biodiversity protection and productivity)—plus a sixth: production of food for the households and for sale. In addition, we recorded the number of tree and crop species used in the project, and gave each project a diversity score ranging from 1 to 5 (1 for only one tree and one crop species, 2 for three to five combined species, 3 for six to ten species, 4 for eleven to fifteen species, and 5 for more than fifteen species). The species count was estimated based on the interviews and on direct observation, but an exhaustive inventory was not carried out.

### Results

Table S1 summarizes the contribution of 42 agroforestry projects to local livelihoods (the five livelihood assets plus food security) and to agrobiodiversity. More than half of the projects investigated (22) were exogenous initiatives. Nevertheless, the majority of projects and organizations (34) relied at least in part on local knowledge (“knowledge base” in Table S1). The National Agricultural and Forestry Innovation Institute (INIAF), for example, has a mandate to preserve agrobiodiversity and “ancestral” agricultural knowledge, and



**Fig. 1** Agroforestry projects in Bolivia included in this study

to contribute to food security and sovereignty by fostering a “dialogue of wisdom” (Law No. 144 of Productive, Communal, and Agricultural Revolution).

An organization more directly related to agroforestry and local knowledge is the Institute for Man, Agriculture and Ecology (IPHAE), which originated from the suggestion of farmers in the Pando and Beni Departments, and was then supported by the Bolivian government and Bolivian universities. Their initial purpose was to combine different forms of knowledge of local actors to jointly develop projects. Their agroforestry projects with

copoazú (*Theobroma grandiflorum*), combined with a local copoazú pulp factory and marketing channels to the major Bolivian cities, have had positive impacts on local livelihoods and the environment (UNDP 2008; Vos et al. 2015).

The majority of the agroforestry projects (31) used a mixed knowledge base, meaning in most cases that they used local tree species as well as introduced species and varieties (e.g., cocoa hybrids) and relied on local knowledge of tree management (e.g., pruning) and tree-crop interactions. Exogenous projects tended to target single livelihood benefits to increase financial capital (e.g. agroforestry with



coffee as a cash crop, as in the Caranavi project described in Table S1). The eight projects predominantly based on external knowledge targeted on average 2.0 different livelihood assets and had an average tree and crop diversity score of 2.13. Projects with a local or mixed knowledge base tended to focus on food security and increased natural capital (e.g., building soil fertility): The projects with a local or mixed knowledge base targeted similar numbers of livelihood assets (3.5 on average for mixed-knowledge-base projects and 3.7 for local-knowledge-base projects), and had similar tree and crop diversity scores (3.75 and 4.00, respectively). Whereas financial and natural capital were enhanced by most projects, endogenous projects focused much more on social networks and leadership, which contribute to social and human capital. Projects that integrated different forms of knowledge contributed to a diversity of livelihood assets—for example, homegardens with fruit trees and vegetables for a diversified diet—focusing on gender, sale and bartering, and knowledge exchange. In terms of agrobiodiversity, projects using a local or mixed knowledge base involved a higher number of tree species and crops than those with an external knowledge base, which tended to promote a single combination of tree and crop species, such as coffee with leguminous shade trees from the *Inga* genus (as in the Coroico project described in Table S1).

### Integration of Local and External Knowledge

This section describes cases from three regions in Bolivia where local (often traditional) knowledge has been successfully integrated with external and scientific knowledge.

### Silvopastoral Systems in the Bolivian Chaco

In the semi-arid region of the Gran Chaco, with a dry season of about seven months, temperatures that often exceed 40 °C, and a total annual rainfall between 400 and 800 mm, trees that bear fruit in the dry season are crucial to the survival of livestock, a major livelihood and income source. Interviewees (two CSO members and two farmers) said that more than 120 fodder plant species (trees, shrubs and herbs) have traditionally been used in silvopastoral systems in the Chaco, such as quebracho blanco (*Aspidosperma quebracho-blanco*), algarrobo blanco (*Prosopis alba*), and algarrobo negro (*Prosopis nigra*).

Today, land degradation as a consequence of overgrazing is a major problem, and silvopastoral systems can only be maintained by means of an integrative approach promoted by local organizations called *monte diferido* (Fig. 2, right). This technique includes fallow phases, fencing, hay and silage production, and limited livestock numbers. It uses a wide variety of native tree and shrub species, including fodder trees that bear nutritious fruit in the dry season, as well as newly introduced grass varieties of the *Panicum* genus. The technique makes use of the rich traditional knowledge, particularly on fodder trees. According to the two CSO representatives, annual dry biomass production in the Chaco can be as low as 140 kg/ha without such management practices, compared to more than 1000 kg/ha in a well-managed system (see also Joaquín 2014). They estimated that cattle ideally needed 4000 kg of dry biomass per head per year, and could not gain weight in an ecosystem with less than 500 kg of dry biomass production per hectare per year.



**Fig. 2** Two nearby locations in the municipality of Cuevo, Santa Cruz Department. *Left*: soil erosion and low plant diversity due to overgrazing. *Right*: silvopastoral system with native fodder trees

(algarrobo negro/*Prosopis* sp.) that bear fruit for livestock twice a year and produce leaves that are used as fodder

The interviewees said that only a combination of the *monte diferido* land management practices with storage of hay and silage and water harvested in the rainy season made it possible to maintain productivity in the dry season. The project thus contributed to food security (meat and milk), financial capital (income), natural capital (soil and biodiversity conservation, biomass production), physical capital (fencing and planting material), and human capital (capacity building).

### Cocoa, Coffee, and Coca in the Yungas of La Paz

Many agroforestry farms in the Yungas, the eastern slope of the Andes, have a mix of subsistence and local-market orientation with some export orientation. The most important agroforestry crop in economic terms is coffee. We found combinations of high-yielding cultivars of coffee and cocoa in diversified agroforestry systems, which draw on a combination of local and external knowledge provided by farmers, their organizations, and agricultural consultants. Three of the nine coffee agroforestry projects (two of them endogenous) also used local tree species such as achachairú (*Garcinia humilis*) and subsistence crops such as walusa (*Xanthosoma sagittifolium*), along with the associated local knowledge about their cultivation and use. Exogenous projects focused on export crops (cocoa/coffee), but used locally adapted N-fixing *Inga* species to improve soils and provide biomass and shade.

Overall cocoa yields around the town of Rurrenabaque were reported to be rather low, as one interviewee indicated, ranging from 150–370 kg/ha/year for hybrid varieties to 180–290 kg/ha/year for local varieties. A previous study in the adjacent Alto Beni region (Jacobi et al. 2013) showed that, with knowledge integration activities such as knowledge exchange platforms and technical assistance among local farmers and their organizations, focusing on local experimental knowledge, cocoa yields were higher than those reported by our interviewee, and higher under agroforestry than in cocoa monocultures (466.5 kg/ha/year under agroforestry and 350 kg/ha/year in monocultures). Farmers cultivating organic cocoa in agroforestry systems had higher incomes than farmers with cocoa monocultures, due to organic certification and additional income from agroforestry products, which increased their resilience to economic and ecological stress (Jacobi et al. 2015). Cocoa agroforestry in the Yungas contributed to financial (export of certified organic cocoa), natural (soil and biodiversity conservation), human (capacity building), social (cooperatives), and physical (planting material) capital, as well as food security (fruit trees in cocoa agroforestry systems).

Coca (*Erythroxylum coca*) is a traditional crop of the Yungas and used to be cultivated in diversified systems before the demand from the international drug market and

the associated increase in producer prices led many families to opt for input-intensive coca monocultures, as three coca-agroforestry farmers explained in the interviews. They described aromatic plants that were traditionally associated with coca to control pests and diseases, such as quirquiña (*Porophyllum ruderale*). More than 200 farming families had sought and received organic certification for diversified coca plantations without the use of agrochemicals in recent years, as according to them, there was an increasing demand for organic coca leaves for tea and for chewing. One local organization recommended and implemented agroforestry systems with coca as a cash crop together with local trees, shrubs, and herbs. They promoted “dynamic” agroforestry systems (also known as “successional” agroforestry), which are based on high plant diversity and density following a successional process over the years from diversified plantations dominated by pioneer plant species to secondary species to primary species. The concept is based on different stages of succession towards increasing complexity. A colonizing stage is followed by a stage of accumulation, where plant biomass and soil organic matter are accumulated, and this finally leads to a stage of abundance with high biodiversity and biomass. Most crops are understood to be part of the abundance stage, which, in order to remain productive, requires interventions such as pruning and selective weeding. The concept of successional agroforestry systems is based on the traditional forest gardens used in southern Mexico, which have a high share of native vegetation, as well as on the technique of using plants from secondary and primary forests in cultivation systems to accelerate succession, which is practiced by the Kayapo people in the Amazon Basin (Schulz et al. 1994). Three farmers who managed such a system explained in interviews that they had obtained their knowledge through direct observation, trial and error, exchange with other farmers, and trainings by local and foreign CSOs. A representative of the local organization explained that successional agroforestry systems needed intensive management and close observation of natural processes, which posed an obstacle for its implementation. Recognizing that earlier designs were rather complex, they were working to simplify the systems without compromising the principles of increasing biomass and biodiversity. They did so by planting trees at lower densities, e.g., high-value timber trees every 20 m instead of every 12 m or less, as previously recommended. They also opted for more fast-growing species to accumulate biomass, and only grew them to a diameter of 10–15 cm before cutting them down and incorporating them into the system as mulch, an alteration intended to increase light and growth in the system. This innovative management of dynamic agroforestry was developed together with farming families in the Yungas based on the above-mentioned traditional systems, but in an adapted form that met needs

identified by the families. For instance, cocoa trees require an increased amount of light in order to flower. The resulting adapted system produces not only food, but also income.

### Quinoa-Quishuara System in the Altiplano

Although we could not find agroforestry projects implemented by CSOs in the Altiplano, we found an example of quinoa production diversified with local trees and vegetables in the community of Cantasi Utiri, 105 km southeast of the city of Oruro, at almost 4000 m above sea level. The agroforestry farmer, originally from the community, had worked with a local organization as an agronomist in the field of quinoa production. Inspired by the organization's agroecological approach, he started experimenting on his own land and combined quinoa with a native tree from the Altiplano, quishuara (*Buddleja coriacea*), to increase soil fertility and humidity, and garlic as a pest repellent. He also planted fava beans, peas, oats, and potatoes with quinoa. With this intercropping technique, he said that he was cultivating quinoa for the sixth year in a row without the need of shifting to another plot or using mineral fertilizer. Hedgerows of native grasses and shrubs helped to prevent soil erosion. He explained that he was trying to conserve knowledge about how his family cultivated quinoa in earlier times. His knowledge on how to combine and manage the crops came from his family, his own experiments, and his work experience with the local organization. His activities contributed to natural capital (soil fertility and agrobiodiversity), food security, financial capital (quinoa sales), and human capital (his own knowledge).

In contrast to the currently dominant quinoa monoculture resulting from the quinoa export boom which leads to soil degradation and desertification in the Altiplano, traditional quinoa production used to take place with living fences and windbreaks of local trees and shrubs (Sorgedraeger et al. 1991; Aguilar et al. 2008). Kerssen (2015) described how communities in the southern Altiplano have started to hold workshops that bring together quinoa farmers who live in the communities and producers who have migrated and are now based in the major cities, enabling them to jointly develop ecologically and culturally acceptable ways of producing quinoa. An important aspect of these workshops is the collective recovery of traditional knowledge, norms, and practices, such as the traditional fallow phases called *mantos* (Kerssen 2015).

### Constraints on the Integration of Local Knowledge

The examples above show how local and external knowledge can be integrated successfully in agroforestry projects.

They also indicate that this integration can create culturally appropriate and ecologically sustainable farming systems that enable the continued existence of local farming communities while producing goods both for subsistence and for national and export markets. However, such activities tended to be rather isolated, and usually involved only a limited number of agroforestry farmers in each farming community. If such positive examples are to have a greater impact, it is important to understand why local agroforestry knowledge does not currently receive more attention and support. Agroforestry as well as local and traditional knowledge are prioritized in Bolivian laws and national development plans, such as Law 300 on Mother Earth and Integral Development for Living Well, Law 3525 on Ecological Production, Law 337 on Support of Agricultural Production and Restitution of Forests, and the Agricultural Sector Development Plan (MDRyT 2014). We identified two government-supported agroforestry programs (the aforementioned project around Riberalta and Guayaramerín with copoazú agroforestry in the Pando and Beni Departments, and diversified coffee agroforests in the Yungas of La Paz). However, our interviewees indicated that agroforestry projects implemented by national CSOs and international development agencies tended to apply externally developed approaches without taking sufficient account of local knowledge. The interviews pointed to five main reasons for this, which we summarize below.

### Preference for Ready-Made Solutions

As two interviewees from CSOs explained, decision makers and project designers favored ready-made technological solutions. The resulting project activities did not correspond to the farmers' reality:

Every community has their own form of agroforestry, a diversity which is very often not compatible with projects and associated technology packages. (CSO representative, Santa Cruz)

Two CSO representatives stated that projects should be oriented toward what already exists, rather than imposing an external solution. They pointed out that many solutions of this kind were already in place locally, but that planners and policymakers were reluctant to take them into account, because they considered local and traditional practices difficult to mechanize and therefore regarded them as backward. As an example, one of the CSO representatives described *zanjas*, ditches along the crops filled with cow dung mixed with leaves, a technique based on local experimental knowledge. According to her, improved soil water retention capacity was shown after 3–4 years, and the growth and health of crops were considerably improved due to higher soil fertility. Although increased water



retention capacity and soil fertility are highly desirable for improved productivity and livelihoods, policymakers showed little interest in *zanjas*, and there was thus no feedback from practice to policy. One politician expressed in the interview that diversified agroforestry systems were not suited for large-scale production, which is why he considered diversified farming based on traditional concepts to be a niche approach. Hoch et al. (2012) showed that local low-input, low-risk approaches are often more adapted to local realities than expensive, high-risk external technologies, but suggested that overestimation of the potential of externally promoted techniques and underestimation of local approaches is common in development work.

### Skepticism About Local Knowledge

Interviewees from CSOs stated that their own staff members were not necessarily convinced of agroecological principles guiding the implementation of diversified agroforestry systems that take into account local approaches. For example, one organization described irrigation technology as their priority, but their projects did not apply any local soil conservation techniques such as cover crops, or techniques to increase soil organic matter and retain water in the soil, which might have enhanced agricultural systems' resilience to drought. CSO representatives reported that politicians did not visit successful farmers and their plots, and that they showed little interest in agricultural approaches based on local knowledge, although Article 1 of the Framework Law on the Rights of Mother Earth and Integral Development for Living Well explicitly refers to the need for "restoring and strengthening local and ancestral knowledge".

Four interviewees emphasized the role of INIAF, which is in charge of technical assistance and preservation of traditional agricultural knowledge and agrobiodiversity in line with the Framework Law on the Rights of Mother Earth and Law No. 144 of Productive, Communal, and Agricultural Revolution. However, two of them said that the prevailing perspective in INIAF and other agricultural organizations underestimated the productive capacity of diversified farming systems and any meaning of 'living well' beyond increased agricultural productivity. One interviewee said that INIAF should use information on locally adapted agroforestry systems and regretted that there was no feedback mechanism between agroforestry farmers and the organization.

### Lack of Communication

The interviewed agroforestry farmers mentioned that there was a lack of communication and knowledge exchange on

an equal basis between CSOs and farmers, which they interpreted as most agricultural and development organizations' lack of interest in their knowledge and practices. This echoes the statement by Powell (2006, 518) that "most current practice consistently militates against the type of relationship and the type of communication that are essential if development policy and practice are to be anything other than an imposition of external ideas". Another aspect was that few organizations used information on social issues (e.g., gender aspects) in their programs and projects. One agroforestry farmer near Cochabamba explained, for example, that she had never seen an agroforestry project focusing on women and their homegardens, which are traditionally highly diverse combinations of fruit trees, herbs, and vegetables. According to her, projects were usually dominated by men and focused on what she called "male agroecosystems", which were the plots designated for marketable crops instead of household consumption. She assigned this to a fragmented way of thinking in exogenous project designs:

There is one project for fruit, and another one for vegetables, but no link between the two, no combination of both, [which is] how we have always done it. (agroforestry farmer, Cochabamba)

### Insufficient Project Follow-Up

Five interviewees from CSOs said that the short project durations undermined the success of agroforestry. According to them, knowledge transmission and application depended to a large extent on CSOs, which were often unable to provide continuous support to project participants. They said that most projects distributed seedlings, but few of them supported their planting and maintenance. Agroforestry farmers also mentioned this point, along with the need for more integrated project designs focusing on plant knowledge and maintenance in addition to tree planting. For example, two interviewees had accidentally mowed down small trees that a project had planted on their farms because they did not recognize them. A coca agroforestry consultant said:

We organize courses on agroforestry, and the participants become intrigued, but as we cannot do that in continuity, there is no real progress. We, together with the government, are failing the farming families. (agroforestry farmer and consultant, La Asunta)

As a result, farmers who were at first highly interested were left without support when the project ended, and abandoned their agroforestry system when difficulties arose.

These failures had a multiplier effect on their neighbors, especially when demonstration plots were not well managed or were abandoned, as this was taken as proof that agroforestry did not work. The five CSO interviewees who mentioned this issue said that it was crucial not only to develop successful experiences of diversified agroforestry, but also to maintain them by providing ongoing support to farmers.

### Lack of Validation in Formal Education

Most importantly, a consensus from the interviews was that the root causes for neglect of local and traditional agroforestry knowledge by agricultural organizations were to be found in the formal education system. Sixteen interviewees (14 CSO members and two agroforestry farmers) mentioned that the theoretical and practical emphasis in agronomy and related faculties was on the productivity of monocultures, and that agroforestry as polyculture was usually not taught. This approach was deeply rooted in the curriculum, in a system they described as highly centralized and hierarchic with little or no exchange with development organizations or farmers. According to them, this situation has led to a lack of human capital, and has been exacerbated by the fact that agricultural extension in many parts of Bolivia has been organized mainly by the private sector, fostering input-intensive, export-oriented monocultures.

### Ways to Promote Integration of Local Knowledge

Our interviews indicated that there has not been enough interaction between agroforestry practitioners, extension service providers, and policymakers, and that there is a need for alternative ways of producing and distributing knowledge.

Four CSO representatives said that the decentralization of university facilities was crucial to agricultural education—a suggestion that is in part already being implemented, with an annex of the faculty of agronomy of the Universidad Mayor de San Andres La Paz in Alto Beni, and a satellite campus of the Catholic University of Bolivia in Carmen Pampa near Coroico in the Yungas. An agronomy lecturer from the Universidad Mayor de San Andres explained that agronomy students there came mainly from local farming families and continued to help their families, for example during the coca and coffee harvests, while studying. However, this decentralization of higher education is not sufficient if it does not include local agroforestry knowledge and practices in the curricula and establish institutionalized forms of knowledge

exchange between the universities, consultants, and farmers.

Many projects used local knowledge, but we found few examples of ongoing agroforestry knowledge co-production, such as organizations inviting agroforestry farmers and consultants to knowledge exchange events in farming communities. We observed this practice in the field of cocoa cultivation in the departments of La Paz and Beni. Four members of CSOs working on cocoa agroforestry said they had positive experiences conducting such events on-farm, because many cocoa producers lived in remote areas, and because participants were much more interested in learning practices they could directly apply. Working with *peritos*, agricultural consultants who are also local farmers seemed the most promising approach, but it was only used by two CSOs in our sample. These interviewees stated that this scheme had proven successful in the field but faced resistance in higher levels of the hierarchy of governmental and non-governmental organizations.

One of our questions to agroforestry farmers was whether their neighbors were interested in doing something similar or had already done so. A consensus among interviewees was that most neighbors were interested, but that this interest was in many cases not enough for agroforestry practices to be adopted. Adoption only occurred where agroforestry knowledge was either already present because of widespread traditional use (e.g., in homegardens around Cochabamba), or made accessible by a facilitating organization (e.g., cocoa agroforestry in the Yungas). Projects that build up farmer leadership seem to be more successful, such as using *peritos* in Alto Beni, and *yapuchiris* in Tapacari Province near Cochabamba (Ricaldi Arévalo and Aguilar 2014). *Yapuchiris* are traditional local farmer leaders who collect, produce, and share agroecological knowledge and risk management strategies. Using both ancestral and new techniques acquired from exogenous projects and organizations, their work can be regarded as an example of farmer-to-farmer knowledge transmission blending with scientific knowledge promoted and used by CSOs, and they can become effective promoters of agroecological practices.

One politician stated that ‘recovering the relationship with Mother Earth’ in the population would strongly influence the adoption of agroecological principles including agroforestry. He said that the government’s discourse on the rights of Mother Earth was lively, but that financing for agricultural development and extension was more directed to what he called Western scientific knowledge-based agriculture (e.g. promoting highly productive cattle breeds and pasture varieties instead of traditional silvopastoral systems in the Bolivian Chaco). According to him, a more holistic view of development that acknowledges the potential sustainability and resilience of such systems was

missing among decision-makers. This statement relates to a clash with the dominant Western scientific worldview that separates the social from the natural world, and where the laws of nature are disconnected from the social and spiritual domains of life (Rist and Dahdouh-Guebas 2006). This “monism of matter” (Mathez-Stiefel et al. 2007) leads to a vision of agricultural development in many organizations that overemphasizes the productivity of single crops or breeds. The traditional Andean worldview, on the other hand, is based on a “monism of the mind”, in which the material and social worlds are regarded as connected and interrelated. In this view, material phenomena are expressions of social and spiritual phenomena, and the balance between these spheres has to be maintained through reciprocity (Mathez-Stiefel et al. 2007; Boillat et al. 2012; Gonzales 2012). Local and traditional knowledge on agroforestry in Bolivia often seems to be based on such a worldview of reciprocity, as shown by our interviews with several agroforestry farmers. One farmer, for example, expressed this as the imperative to give something back to Mother Earth or the forest—be it in the form of a ritual or by providing habitat for biodiversity in the landscapes—rather than only extracting goods. Such a critical view on predominant resource extractivism was also expressed in seven other interviews. These different worldviews shape the way the concept of development itself is perceived. While Western development discourses often focus on economic well-being, Amerindian perspectives often aim at a balance between human, ecological, and spiritual environments (Rist and Dahdouh-Guebas 2006; Albó 2011). One widely-known example is the indigenous concept of *Vivir bien*, which has been discussed as an alternative to classical Western development theory (Kerssen 2015). However, the Western scientific view tends to undervalue other worldviews by making a hegemonic claim to truth (Rist and Dahdouh-Guebas 2006). In line with this perception, our interviewees indicated a devaluation of agroforestry in general and local knowledge in particular in formal educational and scientific structures. The Bolivian educational system has been designed according to a Western science-based “monism of matter,” neglecting local and indigenous knowledge and traditional agricultural systems. This can be considered a global phenomenon, as scientists worldwide have usually supported exogenous over endogenous approaches. Nyong et al. (2007) argue, for example, that scientists have tended to limit plant trials for forestry and agroforestry to known species that have performed well in other parts of the world. In doing so, they neglect to take into account those local practices that have passed the test of time and sustainability by evolving over hundreds or thousands of years while remaining culturally anchored (Altieri and Nicholls 2013).

Johannsson et al. (2013) show that in cases where collaboration among the project staff, government counterparts and other stakeholders had been established at multiple levels, more agroforestry trees survived and a larger proportion of households practiced agroforestry. According to Hoch et al. (2012), farmers in the Amazon Basin tend to favor low-risk approaches based on locally available inputs.

The example from the Yungas of highly diversified and knowledge-intensive successional agroforestry systems based on traditional homegardens and adapted to some market strategies indicates that there is no one-fits-all solution for agroforestry systems. Altieri (2004) argues that traditional agricultural knowledge is place-specific, evolving in time in a particular habitat and culture, and that the transfer of specific technologies to other places may fail if social, ecological or cultural aspects differ. Therefore, agroecology science and practice focus not so much on specific technologies but rather on underlying principles used in techniques to meet the environmental requirements of specific places (Altieri 2004). Coe and colleagues also recognize this challenge and the need for a co-learning paradigm embedded in development for the design of locally adapted agroforestry options (Coe et al. 2014).

In Bolivia, a legal-political framework supporting local knowledge and agroecological forms of family farming was established under the Morales administration (Sager 2014; McKay et al. 2014). This study indicates that the enforcement of this framework is limited in the field of agroforestry. We conclude from our study that more collaboration and exchange among decision makers and practitioners is needed before projects are designed, making it possible to communicate a message that is coherent and focuses on principles rather than techniques.

An important role for development-oriented research may be that of promoting collaborative learning among stakeholders in complex natural resource governance situations (Johannsson et al. 2013). In this view, the role of research goes beyond the production and transmission of knowledge to practitioners, to focus on enhancing the integration of different forms of knowledge (Rist et al. 2007). Pohl et al. (2010) describe three basic roles of researchers in knowledge co-production for sustainable resource management: (1) that of a reflective scientist, providing expertise based on scientific knowledge validated according to the norms of the natural or social sciences; (2) that of an intermediary, making different forms of knowledge visible and linking them around common interests; and (3) the role of a facilitator, enhancing communication among different groups of actors, and promoting joint reflection aimed at a common understanding and collective action, as part of a learning process. Based on our findings, we consider all three roles crucial to integrating different forms of knowledge in agroforestry research.

## Conclusions

Although there were encouraging examples of integration of local agroforestry knowledge, exogenous agroforestry projects were described by farmers we interviewed as insufficiently adapted to local realities because they were structured according to a fragmented understanding of natural resources and livelihood activities, whereas in local and traditional knowledge systems in Bolivia the environmental, social, and spiritual spheres of life are often connected. We interpret this as an expression of conflicting perceptions regarding the meaning of “development”. Furthermore, our results indicate that local agroforestry knowledge tends to be undervalued because of a dominant epistemological model based on Western scientific knowledge and values, which is institutionalized in extension services and educational structures.

Agricultural and development projects that effectively integrate external and local forms of knowledge can only be maintained and scaled up if they are embedded in supportive networks and backed by an integrative epistemological framework that takes into account the various dimensions of sustainability. Moreover, truly participatory approaches are needed that not only include local actors in project activities but also embrace their knowledge systems and worldviews by means of social learning and dialogue. In line with Johansson et al. (2013), we believe that collaborative learning among stakeholders built on respect, equity, and empowerment forms the basis for identifying barriers and developing solutions. As such, it is a critical success factor for policies and projects aiming to contribute to a culturally, socially, and environmentally acceptable understanding of development.

We suggest that an increasingly important role for scientists, beyond knowledge production and transfer, will be to facilitate a dialogue between different forms of knowledge to create such synergies. This can be achieved by identifying ways to enhance knowledge co-production, strengthening local organizations and their networks, reforming agricultural educational institutions, and informing policymakers.

**Acknowledgements** We thank all interviewees for their time, support for, and interest in the study, especially the agroforestry farmers. We also thank two anonymous reviewers for helpful comments, as well as Amanda Morgan and Marlène Thibault for language editing. This research was supported by the Swiss National Science Foundation [grant number P2BEP1\_148876].

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no competing interests.

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**Paper V: Empowerment Identities as a Basis of Creativity in  
Conservation? Constitutional Conditions for Bottom-Up Institution  
Building for the Management of the Commons**

Haller, Tobias, Ramez Eid, Helen Gambon, Angelika Lätsch, forthcoming

To be submitted to *Society & Natural Resources* in August 2020

# Empowerment Identities as a Basis of Creativity in Conservation? Constitutional Conditions for Bottom-Up Institution Building for the Management of the Commons

DRAFT VERSION

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*Abstract:* This contribution shall advance the theoretical approach on bottom-up institution building processes called ‘constitutionality’ based on a comparison of case studies of participatory commons management, which show empirical constellations under which a more conscious process of rule-making in resource management took place (see Haller et al 2016 in this journal, Haller et al. 2018). Influenced by a combination of new institutionalism and political ecology (NIPE), our key interest in using this approach was to understand in a comparative way under which conditions a sense of ownership of the institution-building process can develop in situations of asymmetric power relations among actors of local communities. Newer publications indicate that the process of new bottom-up institution building, however, has a broader effect than just focussing on developing new rules for management of common-pool resources: They indicate that building new institutions do also push new identities and change the role of local actors in broader society that helps to empower them and also creates reflexivity of their position in society, often being negatively labelled and also loaded with racism. The paper provides a comparison of new findings from research in Israel (forestry and grazing), Bolivia (forestry and hunting–gathering), and Norway (fisheries). We argue that via resource crisis or threats and bottom-up institution-building processes, old and new identities are created and reproduced, often linked to the political notion of indigeneity. Therefore, constitutionality contexts fuel and reinforce identity in general as well as bargaining power in a positive feedback loop: as identity - not only understood as indigenous identity - is strengthened, so is the legitimacy to craft alternative rules to what the state proposes and to be creative. This creates room for local decision-making processes as the basis for sustainable common pool resource (CPR) management and maintenance by local rules of use as an alternative to conservation.

## Introduction

This paper addresses the question on the role that identity processes play in the development of new bottom-up defined institutions for the management of common-pool resources (CPRs). It explores if and how the issue of identity as a process of self-perception of a local group interacting with external etic perceptions on the group impacts the way local actors shape, select and drive institutional change. We argue that this identity process is of central importance to create self-defined institutions and that this is possible when local groups and actors find ways to increase their power. We define power in a Weberian sense as the ability of actors and groups to reach their goals in the context of contra-interest of other actors and groups and this is seen in several contexts in which there is mainly authoritative power. Furthermore, the Foucauldian sense of power as the ability to form the consciousness of other actors by for example the actors controlling the state is an important aspect in this discussion, in which Foucault’s concept of governmentality and its environmental version labelled environmentality by Agrawal (2005) is criticized (see Fletcher 2020, MacKinnon 2020). This paper argues for a more dynamic definition of power as bargaining power (see Ensminger 1992, Haller 2019a,b). In this concept power of is relational to other actors and includes the view that actors can negotiate power relations based on external political and economic changes. As a consequence of such changes – i.e. failure of the state to provide services or control – provide an opportunity for leaving the legacy of the state power that forms identities to a more self-defined definition process of identity formation. This shows in our view that actors are not fully transferred into subjects with their particular desires and interests



produced by the state. We therefore also argue that actors are using ideologies with discourses and narratives strategically (see Acciaioli 2008) and not that these are forced upon them by subjectivity the state creates. This is exactly the central element that can be observed when studying bottom-up institution building processes and the sense of ownership that is produced in this process. We argue that this does not correspond with Agrawal's idea of environmentality being driven by state values but rather a conscious process of institution building that we call constitutionality (see Haller et al 2016, this journal). This term is used in order to emphasize that in real participatory institution building processes different power constellations between actors in a group are analyzed. We see empirically that in the cases we present from Israel, Norway and Bolivia local heterogeneous local actors undergo a reflective process that allows to develop self-defined interests and solutions not just for the powerful state or the most powerful actors/groups within a community. In this process, asymmetric power relations are anticipated and levelled and include discourses and interests as well as values within a group and all its members. Thus, constitutionality is defined as a conscious process of gaining ownership of the institution building process, in which all actors see themselves as having been part in the building process of rules and in which more powerful actors are levelled and the knowledge and creativity of less powerful actors are incorporated (see also Haller 2016, 2018). The basic elements that create constitutionality empirically were listed as follows:

- (a) emic view or actor-oriented perception of a need for new institutions,
- (b) participatory processes addressing power asymmetries,
- (c) pre-existing institutions that could be recombined and re-signified,
- (d) outside catalysing agents (fair platform),
- (e) recognition of local knowledge and innovations, and
- (f) higher-level recognition of the state (Haller et al. 2016; 2018).

In this new concept, the role of identity, however, has not yet been fully explored and the paper's aim is – based on three empirical cases from Israel, Bolivia and Norway – to discuss the role that identity plays in this process. The main point is that constitutionality also creates processes of identity building that change the ways people perceive and position themselves historically and politically in the broader society and the ways they then draw boundaries (there is the link to the old debate of F. Barth and all the discussion that went further on from there). Therefore, constitutionality processes seem to go beyond just resource management issues but helps to create new identities. This is what happens with newer cases on which several authors have been publishing (see cases from Senegal, Bolivia, Mexico, Israel (see special cluster Human Ecology; Haller et al. 2018 and PhDs at the University of Bern), Spain (Mallorca), Norway (Sami fishers), and Switzerland (Canton Grisons). First, all papers indicate local actors' self-awareness of their involvement in resource competitions and contests, often in state and market contexts. These contexts or action arenas are controlled by more powerful actors, who reduce the capacity of local commoners to direct their own development and environmental conservation policies. Second, the cases show how, however, that local actors did in the process finally not loose out but were able to pursue their own interests by regaining bargaining power. This is often linked with regaining a new form of identity out of the conflictive situation, an aspect which we will discuss below in more detail. Moreover, the cases also demonstrate that constitutionality often arises from the manifold failures of state actors and their actions to manage resources adequately. Lack of state capacity underlines the importance of ideologies, discourses, and narratives used by local actors to enhance legitimacy for their own selection and crafting processes of institution-building to gain bargaining power. Their approaches entail innovative strategies for the crafting of rules, often involving strategic recombination of "traditional", "modern", and/or more "formal" institutions. This creative aspect represents an important strategic element in constitutionality, also labelled as "forum" or "institution shopping" (see von Benda-Beckmann 1981; Toulmin 2009; Haller ed. 2010, 2016, 2019a,b, 2020) should not be misunderstood as "institutional bricolage": It is not the somehow put together of different forms of informal rules but a much more conscious innovative process.

## **The role of identity and institution shopping in constitutionality**

The role of identity creation and recreation seems to be an important feature about which the constitutionality approach has not been so explicit so far. Thus, the purpose of this paper will be based on new case studies to deal with this issue. The social anthropology literature has seen a paradigm shift, from defining political groups as fixed to a view of dynamic and relational identities that are created by external and internal influences (see F. Barth's seminal work on ethnic groups and boundaries). This has not just labelled the political structures of groups but has created the term 'ethnic groups' to outline that the identity of a group and its individuals is based on a constructed and iterated process of a we-they dichotomy, by which self-identity is created and maintained via boundaries which are not fixed. Ethnic identity is thus a dynamic process in which self-ascription and external ascription meet, creating a 'we-group' process and feeling. This process also takes place on several scales and within several historical contexts (see Cohen 1978) and has to do with narratives and discourses of ascriptions and self-view. These often—but not always—take place in situations of conflict, subordination, and assimilation as newer literature is discussing: We do not have the space to outline a broad overview of new approaches in social anthropology regarding the issue of identity and identity in resource-specific contexts. However several elements in the discussion are central: Sökefeld provides a very pertinent summary of identity debates in social anthropology, arguing that identity has very much to do with the construction of the "self" which is "endowed with reflexivity and agency"....in contexts of multiple identities, and that this is an important ..."supplement to the culture in anthropology..." (Sökefeld 1999:417). Furthermore, he stresses that not just Foucault has "killed" the notion of the self in Western sense, hiding controlling and manipulative powers of the state and elites. In addition, Western notions of self do not - or not to the same extent - exist in other cultures (see Geertz 1973) but that processes of otherings (see Said's work) in Non-Western contexts are related to collective identity labellings. This creates what he calls multiple selves and thus multiple identities among which actors are able to choose to a certain degree. However, how choices can be made also depends on power constellations within plural identities and selves: As Li (2000) points out new resource politics and constellations lead to what she calls positioning by using labels which are loaded with meanings internally and externally to a community and also articulated in such a differentiated way. While she is not in favour of using the self and its related identity in the context of strategic action – as Sökefeld implies and as we will also show to be an element – she hints at the issue that new constellations also mean new meanings of context and thus new identities because of the need to position oneself. However, while it is obvious that identities and related selves are not selected in a consumerist way, elements of identity are triggered and also chosen strategically and co-dependent on how dominant groups for instance in Indonesia (Li's ethnographic reference), label these identities and how local actors react to this in a process. The issue of too much or too little agency and therefore also power to select one's identity or too little power to not being able to define one's identity and thus depend on the identity definition by more powerful actors, is well picked up in Harper (2001), Dove (2006) and Igoe (2006). These works show that especially environmental issues and conflicts provides fields in which identity can emerge on the basis of environmental narratives and thus to add environmental narratives to a local group's identity in the context also of coalition making and positioning. This positioning does take place in legal plural and institutional settings and external labellings of for example the *etic* (external) notion of indigeneity from national, international, and non-governmental organisations and the *emic* responses to these new conditions of modernity.

However, if it comes again to the issue of identity in the context of environmental conflicts literature shows that environmental issues can trigger processes of identities among indigenous groups (and not only among them) but that there is more than just a response to the grabbing processes: while it is about land and environment, it is also about a different way of live and living (see also Muir et al 2010, Haller 2019 a,b,) and about reclaiming recognition and self-sovereignty (see Coombes et al 2012, Wright and Marti 2012, Mistry et al 2015). We argue that these processes of positioning and of manoeuvring within plural legal and institutional settings is on the one hand what is happening with constitutionality processes: It triggers issues of self-defined but also externally defined identities, however with an option to reflexivity and as well strategic action. Thus, local actors have to deal with different meanings of

resources such as land and land related common-pool resources in a process of externally implicated bargaining power and the processes of selection of institutions and ideologies to justify this selection. In addition, there is also something regarding process: These strategically adopted and used identities also reveal power asymmetries and narratives of suppression which lead, as we would argue, to another individual or also collective self. This, as we would argue, then triggers new identification and also the will to define “what and who we are ourselves” (see also Haller 2019a,b).

We argue that newer cases of constitutionality also shed light not just on the institution-building process but also on the identity turn, which this process can create and which also reinforces the process of constitutionality. Therefore, local groups increase their bargaining power via bridging local power asymmetries and using discourses of locality and indigeneity (see also Haller et al. 2008; Galvin and Haller eds. 2008 in the context of green enclosures) as a resource of legitimacy, which are often helped by failures or difficult situations created by the state. This is especially the case in contexts of mismanagement by the state in the emic view, but based as well on broad evidence of the overuse of resources in which the local notion of fair play is violated and in which the state does not seem to play fair according to local actors. In the slipstream as well as in the aftermath of this process identity building can take place, which has not been discussed in the constitutionality approach so far.

All the three cases stem from social anthropological research, during which standard methods from the discipline was used. All the three researchers did participant observation during a year with several revisits during their PhD between 2012-2016. They also based their mixed methods approach on participant observation combining several qualitative methods (open and structured interviews, focus groups, biographies and oral history) and household surveys. The already published work on the three case studies provides more information regarding methodology.

#### **Case study one: State failure, identity, and constitutionality among the Druz in Mount Carmel Area, Israel**

Eid (2018) present an illuminating case indicating how bottom-up institution building emerged from subordination of the Druz ethnic group by various state actors. In this example, constitutionality occurs from the coincidence of an externally introduced institutional participatory framework and a major environmental crisis in the Mount Carmel area. The Druz had lost large amounts of land in this mountain forest which they used historically as silvo-pasture commons for grazing cattle and for growing olive trees. The state of Israel began an institutional change by which the common property of the Druz areas was transferred to state property as a deliberate way to reduce the independence of the only indigenous Arab group remaining in the territory of the new state. Areas of forests could no longer be used as forest pastures, and olive trees were uprooted to plant fast-growing eucalyptus trees, some of the plantations being taken from the Druz and transformed into private property for Israeli Jewish investors. This process can be described as a way that the government pursued commons grabbing, which also undermined the continued use and maintenance of the cultural landscape ecosystem of the area. At the same time the Druz had to serve in the Israeli army because they were being given the opportunity to remain in the Israeli state. This discourse was used to keep the Druz silent and symbolically loyal to the state, as it was argued that they should not complain because of being given Israeli citizenship. On the contrary, the state administration pushed the discourse that the Druz are in debt to the state for being the sole Arab group to have received that privilege and its modern development features. However, for the Druz this was not a blessing, as they were faced with the encroachment of the Mount Carmel area and had to endure from their perspective high economic and emotional costs of being Israeli Arabs. But they lacked the power to address these issues and had to deal with the growing internal discontent of the younger generation and women as well as men towards the leaders among the Druz, who collaborated with the state.

At a further stage in the 1990s the state increased its control over the territory of Mount Carmel via an institutional change which could be described as green grabbing by trying to transform Mount Carmel into a protected area under the direction of the UNESCO Biosphere programme. Druz representatives were not consulted as a whole group with all its different sections, and the project came as a surprise for most of them. Some of them still suffered economic losses from the grabbing of their former CPRs

and the undermining of their pasture and olive tree institutions, by which they maintained the cultural landscape ecosystem. However, this process triggered a counter-process of increasing identity building of the Druz as a distinct and indigenous group to the area and also created the basis of their counter-discourse that it was their sacrificing themselves for the defence of the Israeli state on top of the commons grabbing. With the established feelings and identity of younger Druz, it was that group especially which argued that guilt should be ascribed to the state, as the state profited from the Druz's military service and removed their commons. Still the Druz were not in the position of having enough bargaining power to address the state.

However, this changed when a huge wildfire on 2 December 2010 hit the area and burned a large part of the Mount Carmel forests. The incident was devastating, as a large part of the mountain Biosphere burned down. This was due to the fact that eucalyptus burns much faster than olive trees. In addition, the forest pastures were no longer used, and lots of dry materials were left on the ground, which would have been eaten by cattle under the institution of common-property pasture management.

The inability of the government to stop the fire, which burned large parts of the forest, triggered a strategic reaction by the Druz, who got organised over this issue of state failure. Different Druz subgroups got together and discussed strategies for how to react to this situation. They felt empowered, as the government had obviously failed to combat the forest fire, so their counter-discourse was to point to the devastating outcome of the commons-grabbing process by the state as well as to the state's having ignored local ecological knowledge. In this situation of increased bargaining power compared to the state and its representatives, the identity of the Druz was re-established and led them to claim to be indigenous and knowledgeable about the area. In a next phase, the Druz leadership was also under discussion, and younger people as well as women were more strongly involved than the previous leaders, who were challenged. In addition, it became clear that the UNESCO Biosphere arrangement, which previously also acted as a way to control the people, could now be turned into an option in their strategy: the participatory rules of the UNESCO Biosphere stipulate that local inhabitants of an area have to be involved in the design and management of the Biosphere. This formal regulation in the context of the forest fire, as well as increased ethnic identity, gave the Druz groups the option to regain control over the Mount Carmel area. The failure of the Israeli government department in charge of extinguishing the fire increased the Druz's bargaining power, which they used to set up and negotiate new participatory institutions. They did so by combining old rules for pasture as well as replanting olive trees in the area, thereby regaining the commons. In addition, the old use and new rules based on the UNESCO scheme were widely discussed and adopted as a process of institution shopping. Thus, in a situation of lower bargaining power, the state could be challenged, as it was failing to address critical local problems. However, what was important was for the Druz to regain identity as an independent group, which could no longer be controlled in the same way as before the incident. This was boosted by the fact that the Druz crafted new regulations and engaged in an ethnic identity process, which was also about equalizing local internal power asymmetries between the leaders close to the state and the other interest groups. However, what was equally important, and a basis as well as a trigger for the constitutionality process, was that the Druz started to regard themselves as being indigenous to the area as first immigrants and being culturally different and leading a distinct way of life. While issues of identity triggered the process of constitutionality, the subsequent process reinforced Druz identity even more strongly.

### **Case study two: Identity and boundary processes of Tsimane/Mosetene constitutionality in Pilon Lajas, Bolivia**

The case of Biosphere Reserve Pilón Lajas, according to Gambon and Rist (2018), shows that constitutionality processes including emic views are based on underlying ontologies of what the environment means to local people. It highlights the fact that world views of lowland groups of the Tsimane and Mosetene and their interaction with the in-migrated people from the highlands called '*colonos*' mattered in terms of institution building. Pilón Lajas belongs to the Bolivian lowlands (Amazon region). As a consequence of population pressure in other parts of the extended territory of the indigenous hunter-gatherer and horticulturists, Tsimane and Mosetene, settled in the forest areas

of today's Biosphere in the 1960ies. To them the whole extended territory is inhabited by a spirit society, which is characterized by a profound knowledge about the forest and its inhabitants. The spirit society constitutes a role model for how relationships between human and non-human societies ought to be.. Additionally, according to Mosetene/Tsimane, a relationship has to be maintained with Owner spirits that control prey and fish. Access to and use of natural resources is based on a conceptualization of the environment as constituted of human and non-human communities interconnected through diverse forms of social relationships, resulting in a fluid concept of territorial boundaries.

The 1953 agrarian reform abolished the feudal hacienda system and opened up the Bolivian lowlands to a colonial process led by Andean indigenous peoples, based on the discourse that the lowlands were not inhabited. In 1975 the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) proposed a national park in the area of today's Pilón Lajas. The UNESCO Man and Biosphere programme took this proposition up and declared the area a Biosphere Reserve, that however remained a paper park. Subsequent massive migration to the lowlands with related logging and oil exploration led to a political movement in the 1990s by which indigenous peoples in the lowlands organised themselves and became a political force. This helped to ratify ILO Convention 169 and granted the indigenous peoples resource use rights, while also recognizing the area as a Biosphere and Indigenous Territory in 1992. However, the demarcation and establishment of the Biosphere was not done with the indigenous organisation Tsimane Mosetene Regional Council (*Concejo Regional Tsimane Mosetene*, CRTM). In 1994, the state introduced the institution of recognizing collective territories called *Tierras Comunitarias de Origen* (TCO), which gave the indigenous peoples organised in the CRTM collective land rights in 1997, which however had to be brought in line with the conservation goals of the Biosphere. After a rather conflictive phase between an NGO implementing the programme and the Andean immigrants, the newly created National Service for Protected Areas (SERNAP) took control of the protected area in 1998. The double status as a TCO and a Biosphere led to a mixed arrangement of state and local indigenous peoples that served both sides: it was based on a recognition of the indigenous people's political status and the need to conserve the area. CRTM got more involved in the management, and in 2004 a co-management was implemented between CRTM and SERNAP. This meant that the rights of indigenous peoples based on ILO Convention 169 were respected. However, as pressure from *colonos* increased and the first plans lacked participation of the CRTM in several issues, a new management plan was negotiated in 2007 under the lead of the Wildlife Conservation Society (WCS). In this process, an arrangement was created that included all lowland indigenous groups of the area in a constitutionality process. This process was

- locally developed as an institution based on the traditional notion of common property and local ecological knowledge;
- driven by local problem analysis and the need for new institutions;
- WCS acting as a catalysing agent, bringing most of the stakeholders together; and
- cognizant of local territorial needs—these were recognised by the state, led to a sense of ownership in the new institution-building process. What was lacking, however, was a real co-management and the recognition of the local spiritual worldviews.

On the one hand, however, the idea of zonation and an outer fixed boundary set up by the new arrangement did not fit the ontology of the Tsimane/Mosetene groups based on the notion of flexibility in mobility and relationships with non-human societies. On the other hand, it provided protection for the indigenous peoples from the immigration and economic pressure of neo-liberal colonization via small-scale agriculture, agro-industrial investments and logging. Therefore, to some degree this institutional change could be accepted by the indigenous groups, as it provided a political gain (see Haller et al. 2008 for a similar case in Peru). The fixed boundary further separated the Tsimane/Mosetene from the communities of Quechua and Aymara ethnic groups who were indigenous to the highlands but who had immigrated to the Amazon beginning of the 1980s and are locally labelled as *colonos*. However, at the same time, local indigenous groups around the Pilón Lajas also got more and more heterogeneous. Cash needs led actors from outside as well as local actors of the area to gain money from logging, and local women were intermarrying with *colonos*, giving the latter access to the Pilón Lajas area and leading to conflicts related to changed resource use patterns. Additionally, Tsimane and

Mosetene from Alto Beni and Maniqui increased access via fluid kinship and marriage relationships. This led to a sense of needing a stricter outside boundary by the Tsimane/Mosetene communities of Pilón Lajas.

The tensions between local indigenous groups and highland indigenous immigrants were exacerbated after the political change brought Evo Morales to the Bolivian presidency and with him highland and *colono* indigenous groups to power. More and more highland indigenous peoples became *colonos* and moved to the lowlands, where they also—despite the Mother Earth (*pacha mama*) worldview—started to settle on land of the lowlanders for commercial use. Subsequently, the TCOs were questioned by *colonos* as new latifundios. The new Constitution of 2009 led to a transformation of the recognition of the right to land based on the TCO to a much broader concept of right to territory through the so-called Indigenous Native Peasant Territories (*Territorios Indígena Originario Campesino*, TIOC). The state's discourse of 'fragmented rural identities through the introduction of collective indigenous peasantry' (Fontana 2014), included the right for *colonos* to get access to the local indigenous lowland territories (Garcés 2011).

The Tsimane and Mosetene reacted to this change by insisting on the fixed boundaries established by the TCO, which they saw as a better way to protect their area. However, their bargaining power was reduced compared to the *colonos* and other Tsimane/Mosetene groups closer to the main road, who were oriented to more modern development and wanted to use the territory differently than the riverine Tsimane/Mosetene, with their hunter-gatherer and fishery focus of common property based on flexible boundaries and emically balanced relationship with the spiritual world. Nevertheless, these groups also recognize that they are themselves struggling with these external changes and they also see the TCO as a way to protect their identity in the context of the groups, who enter the territory. Thus, the identity of all the different local groups - including the road-dwelling Tsimane - was in question, and despite the fact that the previous TCO arrangement did not include the Tsimane/Mosetene ontology, the indigenous groups in their organisation proposed a hybrid form of governance based on institution shopping: the external modern conservation rule of a fixed boundary should be combined with the freedom to adopt the indigenous views on flexible boundaries and the peaceful relation with the spiritual world inside the territory. Their identity of being a hunter-gather society with a different world view, including spiritual and non-human beings related to the ecosystem, which the indigenous people have been using and shaping for centuries, was key to this process. This new institutional redefinition fitted them better, especially in the new context of potentially opening the area to more powerful groups from the highlands. It shows how local groups are able in a constitutionality process to combine institutional arrangements, which are highly linked to their (threatened) identity. At the same time, their identity as a different group is reinforced.

The case shows the differences in the perception of a territory as living, moving space that is constantly changing due to the also changing spiritual connections corresponding to lowland indigenous groups, and the notion of a territory as a fixed, delineated geographical and increasingly being in danger of becoming a privatized space in future, which is shared by *colonos*, lowland groups, and the park management running the participatory co-management of the area. The sense of ownership of the co-management structures was not evenly shared between the park management and the different local indigenous groups. In reaction, the Tsimane/Mosetene groups in Pilón Lajas opted for an abandonment of the co-management scheme. This allowed them to clarify their view and the related advantages and disadvantages of participation, which eventually made them demand to return to the TCO-arrangement, while in a stronger way developing a recombination of the earlier notion of fixed outer boundaries protecting them from encroachment and internal permeable boundaries based on their spiritual view of the world and the need for flexibility in resources management. This was based on their identity as leading a different way of life and the need to defend their lifestyle connected to their ontology of the land.

However, the study by Gambon and Rist (2018) also shows that due to changing relative prices of land and area and due to losing the previous support of the state actors, the new pluri-ethnic discourse is putting into question the local constitutionality. However, while economic heterogeneity is undermining the process, ethnic identity and ontology of the land still strengthen it.

### **Case study three: Crisis in the fisheries institutions and creation of a Sami fishermen identity in Norway**

The Sami are an indigenous people of Scandinavia and the Kola Peninsula in north-western Russia with roots in prehistory over large parts of the region. They have lived in their own small-scale societies and have become diversified in terms of different (but not mutually exclusive) livelihoods of fishing, hunting, trapping, animal husbandry, farming, and reindeer herding. The Sami people were since the 20<sup>th</sup> century victims of a forced assimilation policy by the Norwegian state via national standardization: accommodation, education, nutrition, and health care were characterized by the government's notion of equality, in which every citizen, Sami or Norwegian, should have the same opportunities. Additionally, newly established economic structures gradually led to the integration of the coastal Sami since the 1920s into the national economy, thereby causing their invisibility as a distinct group for a long time. Conflict over the damming of the Alta River during the 1980s is interpreted as the turning point of the relationship between the Sami people and the Norwegian government, resulting in the so-called 'Sami paragraph' of the Norwegian Constitution, guaranteeing for the Sami in Norway the status of an indigenous people by ratifying ILO Convention 169 and the establishment of a Sami Assembly. Whereas the reindeer-herding Sami were able to (involuntarily) dominate public discourse as the 'real Sami', traditional Sami fishermen were marginalized and invisible as an indigenous group that was not seen as distinct from other small-scale fishermen.

However, this situation changed as the coastal Sami regained their identity via conflicts over reduced access to fisheries. This common-pool resource, previously managed as a flexible, common-property institution in fjords and at the coast, which was also sensitive to environmental changes such as water temperature and changing reproduction contexts and variation of fish stocks, was later claimed to be state property, to be used commercially and managed centrally without paying attention to local ecological knowledge. Introducing technical change and promoting modernization and industrialization, the Norwegian authorities contributed to a process of overcapitalization of the commercial fleet. This led to increased debts in the fisheries, high resource use pressure, and subsequently to overuse of fish stocks under which the Sami fishermen were also suffering (Lätsch 2019). The state reacted to this depletion with an individual quota system in cod fisheries, trying to reduce the pressure. The quota system led to fishing rights being concentrated in fewer hands, at the expense of coastal Sami who faced the 'tragedy of the commoners'. The basic problem for the small-scale fishermen was that they received only a small-group quota where the fishery was closed when the total allowable catch had been reached. This happened independently of whether an individual fisher had caught his or her individual maximum quota (Hersoug 2005; Einarsbøl 2006), leading to high competition between fishers to meet the quota as quickly as possible. The formerly flexible fisheries of the coastal Sami were thus considerably constrained by increased regulation by the state, as they for example could not respond to variations in the fish stocks and were required to fish in a certain season to receive a share of the maximum quota. The state-determined management of individual fish stocks does not take into account the factors that influence the conditions under which fishing can take place, such as weather conditions. Another consequence of the limited access to fisheries was that fishermen often started to fish alone instead of having a crew (West and Hovelsrud 2010).

But as it became evident that access to their fisheries was about to be lost, some fishermen with Sami origin started to act collectively, partly in a self-established local organisation, using channels of the Sami Assembly to regain ethnic identity in order to boost their bargaining power by being part of the politically and administratively organized Sami. This seems to have been the only way in more than a century to get their fisheries rights recognized. Before that point, for more than 100 years, Sami fjord fishermen did not stand a chance in defending the fisheries, as the following quotation by a Sami fishery expert indicates:

They have tried to warn about overexploitation and asked repeatedly for limitations. And they have lost. They have lost in organisational life, they have lost in the management, and they have lost the whole way. (I.A. Eriksen, fishery expert of the Sami Parliament, at a public meeting in Olderfjord, 2.11.2006)



The Sami fishermen were then successful, as in June 2006 the Coast Fishing Commission installed by the Department of Fisheries and Coastal Affairs investigated the rights of the Sami and other groups to fish in the sea off Finnmark (Norges Offentlige Utredninger [NOU] 2008). Public meetings were held in all 17 coastal municipalities in Finnmark with the aim to include the Sami's claims, opinions, local knowledge, observations, and legal perceptions. This also triggered reflection by local Sami people on their identity, the use of the fjords, and local history. Many of the pre-existing problems of the local Sami groups rose to the surface again, and their ecological knowledge was taken seriously for the first time and included in a report, which gave them an opportunity in its drafting. Most of the community members seemed to share perspectives on questions of fishing rights, use of active gear in the fjords, the fish-farming industry that had been developed in many fjords, and the way the quota was unfairly distributed. An important issue was the question of whether rights really mattered in a situation where all the fish had been removed by the state and commercial enterprises. Nevertheless, the public meetings triggered a revitalization process by reinforcing the awareness of being Sami. As a result, the findings of the commission's work was published (White Paper, NOU 2008) and contained a series of proposals to strengthen and safeguard coastal Sami culture. Most importantly, the document reinforced the view that the Sami have a historical right to fishing and thus have to be entitled prior access to fisheries based on international human-rights law. Moreover, regarding management, the commission proposed the establishment of a Finnmark Fishing Administration that should have the authority and capacity to regulate local fjord fisheries four nautical miles out to sea as regards to size of vessels, gear usage, and quotas. Most importantly, the following four points were then picked up by the state:

- a. Consultation of the Sami Parliament on issues of Sami fisheries.
- b. A new paragraph in the Marine Resource Act emphasizing the need to consider Sami resource use and the impact on Sami local communities, in regards to the allowance of quotas.
- c. Identification and recognition of local fishing rights with claims to be addressed to the Finnmark Commission.
- d. A regional management body with advisory function.

However, the agreement included the Coast Fishing Commission only in a limited way, and many coastal Sami were disappointed as the government did not recognize their historical rights to fishing. To coastal Sami, the recognition of historical rights was not only about the right to fish, but also recognition of the coastal Sami as a distinctive group and identity. Nevertheless, the agreement shows that the coastal Sami have managed to become relevant stakeholders in fisheries. In addition, the establishment of a regional management body shows that the state is more open to paying attention to people's local knowledge and has to consider the Sami on issues of fisheries management. But the process triggered more issues related to identity than just the appointment of the Coast Fishing Commission in which the Sami participated; it also crucially stimulated new forms of mobilization and cooperation at the local level. Since 2005 new local Sami fishery organizations have mushroomed, and pre-existing fishermen's unions have also joined the discussions. Among those were the first coastal Sami fishery organization, Bivdi (2005), and the Fjord Fishermen's Association (2008), which worked on securing local fjord fishermen's access to fishing and protecting the fjords from vessels with active fishing equipment or from the negative impacts of the aquaculture industry. These were not issues on which local Sami fishermen had agreed in the participatory process, and it brought to a more formalized level what had already been claimed for decades.

This brought three new insights to constitutionality. First, succeeding in contestations over a higher fisheries quota was perceived as being much easier by installing a new, indigenous political identity that provided justified access to the fisheries; second, it contributed to the establishment of bottom-up institution building as Sami were able to discuss regulations of fisheries in their area; and third, it served as the basis for the re-established Sami identity, different from other small-scale fishermen, as a reflection of their past. This is a novel aspect in the discussion of constitutionality, as this process is not only about local participation based on a sense of ownership of the institution-building process but goes further and includes the role that recreation of identity plays in the management of local resources.



## Discussion

We suggest that these three cases extend the constitutionality concept as outlined in Haller et al. 2016 and 2018 in several ways.

First, virtually all of the cases present some form of reaction against expanding neo-liberalism or modernity via dominant development discourses. These discourses entail first the notion of making citizens of the 'other' (i.e. the 'primitive, non-civilized and traditional people') via different forms of directly forced or more subtle assimilation strategies by the state. This does not at all pay attention to local actors' identities but has an impact on these. In addition, neoliberalism in its different forms – even in Bolivia - marks a stronger presence of private and market forces, translating into increased pressure on natural and human resources—often associated with new enclosures of former commons. These are still critical for local livelihoods especially in times of economic crisis and are one of the few sources of resilience. But these factors alone do not trigger constitutionality and local collective action.

Second, in all three cases, people experience a crisis of their local groups because of increased resource extraction by more powerful external actors in collaboration with the state. This alone does not trigger constitutionality but resource scarcity (forests, fisheries, wildlife) in combination with failures (i.e. the burning down of the previous common property forest in Israel, mismanagement of fisheries in Norway) as well as transformations of the states and their governance techniques (from co-management to widen access via the discourse of the pluri-national state in Bolivia) can lead to an increase in local bargaining power. Such a process provides room for local collective action including further participatory processes that might be triggered from debates on lower levels within the groups. This gives the less powerful actors in the groups the option to participate more actively and create their own identity. When this happens, it can turn passive citizens into active political subjects with a self-defined identity who challenge etic views on who they are. The in the three cases such processes lead to the use of a discourse of self-determination to remake institutions towards greater distributive justice in access to and control over common-pool resources via new common-property institutions. More and more claims are made to reach emancipation in the sense of gaining new political control over institutions, which are defined by local actors. Furthermore, the strategic recombination of traditional and new rule-making bodies is widely operating in the context of legal pluralism of local, regional, national, and global institutions and property rights regulations in these accounts. The three cases demonstrate that local actors select particular approaches on the basis of local perceptions of what political and economic gains can be realized in that context, anticipating gains and losses in very locally specific and differentiated ways. External agents and institutions remain important in all cases, but they take on several forms: providing an initial platform for action (Norway), enabling new forms of collaboration in the case of international (UNESCO in the case of Israel and Bolivia) and national actors (Norway), as well as formal international (ILO Convention 169) and state institutions regarding sustainable development as well as human rights laws.

Third, the cases show that the political conditions under which local people and communities are able to engage in collective action and institution building on their own and for their own empowerment remain deeply challenging, especially as in all cases actors have to deal with etic views on their identity and have to struggle to challenge these and to craft their own subjectivity. It requires consideration of the different forms of power, a good timing of legitimate leading actors in order to understand at what time their bargaining power compared to the external actors and the state is high and being able to express themselves politically over a longer time period (several years) and in different contexts and on different scales (different arenas such as local, national, regional and international levels). However, reactions to expanding neo-liberalism, crisis of resources and state failures with increased bargaining power help to recognize that there is more to the issue than just resource justice: It is exactly that these groups are realizing that the challenge to challenge the etically enforced identity and create a new subjectivity based on a more indigenous identity is in itself also a strength for self-definition and an even stronger from of constitutionality.

Moreover, the three cases raise many questions regarding the emancipatory potentials of bottom-up institution building for the sustainable use of natural resources. On the one hand, the cases show that agency of local actors and their voices was enhanced in efforts to self-organize towards obtaining more

access and direct political control over desired resources that may become transformative. On the other hand, to what degree are these emancipatory outcomes really able to revert the fast-evolving push of marketization of natural and human resources towards a real, emancipatory societal transformation? In these cases, certainly, increased bargaining power of minorities and indigenous groups has allowed them to reclaim rights and historically evolving indigenous ways of life.

## Conclusion

The paper shows as a conclusion taken from the theoretical debate and the empirical data of the three cases that there are four aspects in which identity is important in relation to the six elements of constitutionality:

- Local groups increased their bargaining power via bridging local power asymmetries and using discourses of locality or indigeneity as a resource of legitimacy in the contexts of failure or inadequate management by the state and a local view that fair play is needed (this refers to elements a), b), and d))
- Local creativity was deployed for institution building, in Israel, Bolivia (combining Biosphere rules with own rules in a sense of institution shopping and hybridity), and Norway (use of indigenous rights with environmental issues challenging the quota system; this refers to elements c) and e))
- Representatives and groups engaged in a strategic process of institution shopping, combining pre-existing and newly shaped institutional elements (this refers to elements c) and e))
- Such processes were enabled because different local actors felt that everyone was involved in the process based on fair play (this refers to elements b), c), d), and e) - For Bolivia this is the case in the beginning but subsequently that element was weaker). These processes should then lead to being recognised by the state (element f) while also challenge subsidiary functions of the state by enabling local actors to self-define the level of engagement for which they should receive state support via guaranteeing basic minority rights that should be respected and defended by the governments.
- It also becomes obvious that the internal and externally triggered debate about the self of these groups have changed due to their increase of bargaining power due to changes in ideologies that minorities should have a standing and due to the state who can be seen in a crisis regarding the managing of the commons. One then sees exactly the process described by Sökefeld and also by Li that there is a ambiguity of getting rid of externally ascriptions with negative elements and strategically selecting and redefining more positive elements of identity. This process is continuing and creates windows of opportunity as well as challenges in dealing with the past and future identities to which there is not turning back and which have an impact on the way further resource issues are dealt with. Power constellations and the ability to select narratives and discourses of identity of not are central in this respect. The cases illustrate that this process are triggered by resources crisis and weakening bargaining power of state actors.

As a final point, there is a central element that is striking in all three cases related to identity: all the cases show examples in which local people were under suppression as a specific ethnic group in one way or another. All of them suffered from active and passive attempts of assimilation and subordination, or they were put under threat, as their 'culture' was perceived negatively by the dominant society. The enclosure processes which have occurred historically and which continue until today were also made possible because of the negative labelling of these groups as not modern or just being the 'other'. These then triggered the form of constitutionality which does not just address commons grabbing but also identity issues, as being centrally linked to the resources but which is also broader than just CPR governance. In all three cases, institutions and forms of organisations were established that aim to address the long-lasting 'othering' of local groups and give them a new identity. Thus, constitutionality is one step in a twofold process: identity constellations triggered constitutionality regarding CPR management, and it furthermore served to reinforce and adapt that identity and boost local bargaining power for trying to re-establish an alternative and self-defined way of life.

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# **Erklärung**

gemäss Art. 18 PromR Phil.-nat. 2019

Name/Vorname:

Matrikelnummer:

Studiengang:

Bachelor ☐

Master ☐

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Titel der Arbeit:

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Haiti	2018-2019	12 months
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Germany	2007, 2008	8 months
Mexico	2003, 2007, 2010	7 months
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Shorter (2-4 weeks) missions to Colombia, El Salvador, Peru, Honduras and Nepal; further professional stays in Kenya, Japan, Denmark and Canada

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