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Article

Exploring Institutional Factors Influencing Equity in Two Payments for Ecosystem Service Schemes

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Abstract

Payments for Ecosystem Services (PES) are considered promising instruments for promoting conservation and addressing socio-economic goals, including equity. While several studies analyse how institutions enable the delivery of cost effective conservation, fewer studies focus on the role that informal institutions play in influencing equitable outcomes especially in Africa. Focussing on the role of formal and informal institutions, this article contributes to the emergence of work that reflects alternative conceptualisations to mainstream neoclassical understandings of PES. A qualitative research approach is applied analysing two Kenyan cases to illustrate how historical institutional processes influence present day equity outcomes. The study explores both procedural and distributive equity. The results reveal that despite very similar land tenure origins, the schemes differ considerably regarding their equity outcomes. Formal and informal institutional interplay was found to influence perceptions of land value over time and bargaining processes are identified as determinants of the different equity outcomes. The study also reveals that institutional interplay may influence the simultaneous achievement of different equity dimensions. The study therefore recommends the integration of mechanisms that reconcile both formal and informal institutions, such as land tenure distribution and cultural norms in design and implementation of PES schemes to better achieve equity.

Keywords: equity, institutions, payments for ecosystem services, power

INTRODUCTION

Widespread acceptance of Payments for Ecosystem Services (PES), including Reduced Emissions from Deforestation and Forest Degradation (REDD+), risks overlooking informal institutional factors that are relevant for the equitable achievement of conservation goals (Vatn 2010; Hendrickson and Corbera 2015; Van Hecken et al. 2015). Several studies have adopted analyses focusing on formal institutions, such as legal frameworks and land/resource tenure, and explored equity dimensions under PES from a theoretical perspective (Pascual et al. 2010; Vatn 2010; McDermott et al. 2013). Although less directed towards Africa, these studies contribute significantly to advance awareness of how the design of formal institutions enable the delivery of cost effective conservation outcomes and poverty reduction (Pagiola et al. 2005; Paavola and Adger 2006; Wunder 2008; Pagiola et al. 2005; Muradian and Gómez-Baggethun, 2013). Few studies, however, explicitly apply a practical focus on the complex role that informal institutions play—such as traditional norms and customs—in influencing equitable outcomes under PES schemes (García-Amado et al. 2011; Lipper and Neves 2011). Some argue that such oversight has led to superficial understandings of the role of power relations and

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culture in shaping PES outcomes (Van Hecken et al. 2015; Chan et al. 2017).

Focus on formal and informal institutions adds to a body of works that demonstrate the growth of alternative PES discourses which deviate from the standard neoliberal conservation-efficiency conceptualisation to emphasise equity dimensions and enhance understanding of the underlying drivers of participation (McAfee and Shapiro 2010). Analyses of the relationship between institutions and equity are important because PES are considered promising market-based tools to achieve conservation by rewarding resource users through monetary and non-monetary benefits, on condition that conservation of natural resources and/or reduced emissions of carbon is achieved (Landell-mills and Porras 2002; Pagiola et al. 2005; Pascual et al. 2005; Wunder 20005; Hausknost et al. 2017).[1] However, enthusiasm for PES adoption, and the establishment of formal rules and regulations can divert attention away from the influence of informal institutions on equitable outcomes. It is increasingly accepted, for example, that market efficiency assumptions and commodity fetishism mask the power imbalances that shape participation in negotiations and decision-making processes over PES design and outcomes (Kosoy and Corbera 2010; Norgaard 2010; Brockington 2011; McAfee 2012; McDermott et al., 2013). There is, thus, growing interest in exploring the extent to which existing inequities are reinforced under PES schemes (Mahanty et al. 2013; Roth and Dressler 2012; Rodríguez-de-Francisco and Budds 2015), and the degree to which PES-related socio-economic benefits are distributed (Ferraro and Simpson 2002; Corbera et al. 2007). In particular, there is growing consensus that PES research should be conceptualised from a broader socio-institutional context to capture equity and power relations (Muradian et al. 2010; Van Hecken and Bastiaensen 2010; Pascual et al. 2014; Van Hecken et al. 2015). Various calls have been made to address this increasing interest, which challenges mainstream assumptions of neoclassical PES thinking, including methodological requests for, 1) in-depth process-oriented analyses to highlight the institutional factors mediating outcomes and; and 2) case-specific institutional histories based on the view that global standards for design and implementation do not guarantee uniform emergence and operation of local level PES schemes (Peskett et al. 2011; Chhatre et al. 2012; McDermott et al. 2012; Van Hecken et al. 2015).

This article responds to the above calls and contributes to the growing body of alternative conceptualisations by presenting an empirical analysis that examines the role of formal and informal institutions in determining equity outcomes, taking two PES schemes in Kenya as examples. The study explores both procedural and distributive equity outcomes. Procedural equity refers to participation in processes of negotiating scheme establishment and delivery, whereas, distributive equity refers to the allocation of benefits, costs and risks resulting from PES implementation (McDermott et al. 2013). To understand the institutional influences over equitable outcomes, we conduct a case study of two 'PES-like'[2] conservation schemes. An institutional analysis of PES is fitting because most schemes are socially and politically constructed (Muradian et al. 2010; Vatn 2010). Moreover, in developing countries, PES schemes strongly depend on community and state involvement (Sommerville et al. 2010). To understand the institutional dimensions over time and assess their influence over outcomes in PES, the study addressed the following research questions: (1) which actors are currently involved in the delivery of the PES scheme? (2) wow equitable are the schemes? and (3) wow did the PES scheme emerge? As market-based tools such as PES are a relatively new addition to the mosaic of conservation approaches in Kenya, there is much interest in their potential for overcoming the biases of earlier coercive methods.

The article is structured as follows: Section 2 presents the framework for the institutional analysis of equity outcomes. Section 3 describes the methodology used for the empirical case studies. The results are presented in Section 4. Section 5 offers a comparative analysis and discussion, followed by our conclusions in Section 6.

FRAMEWORK FOR ANALYSING THE INSTITUTIONAL DRIVERS OF EQUITY IN PES

The framework illustrated in Figure 1 links 1) the historical interplay between formal and informal institutions to 2) the context within which PES schemes have emerged in order to explore and 3) the procedural and distributive equity outcomes amongst scheme members. The perceptions from respondents across different scales of the study sites provide the empirical data that inform understandings of equity.

Institutions constitute the written and unwritten rules that influence human behaviour. North (1990: 3) defined institutions as "the rules of the game" that structure economic, social and political interactions. Institutions are critical for PES analyses because they regulate human interaction with natural resources . Many institutions that influence human interaction are informal and "created, communicated, and enforced outside of officially sanctioned channels" (Helmke and Levistsky 2004: 725).

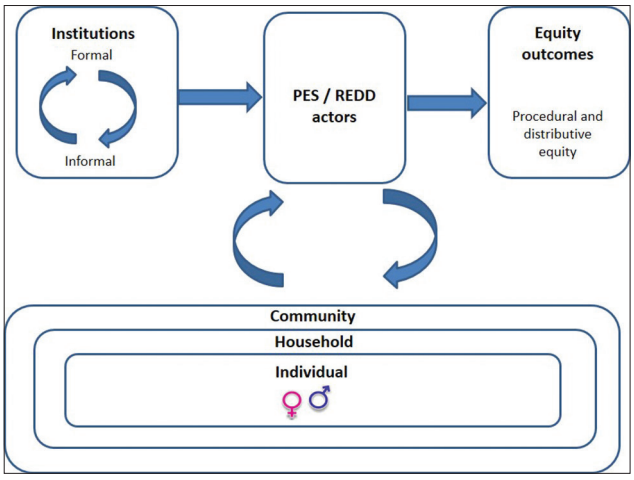

Figure 1
Framework for analysis of equity outcomes in PES

Although highly relevant, informal institutional factors tend to be undervalued in research on PES (Pascual et al. 2010; Hejnowicz et al. 2014).[1]

The second component of the framework represents the existing arrangement of actors under the PES scheme. PES models represent a constellation of actors including public, private and community organisations. We therefore emphasise that PES projects do not occur in a vacuum, free from formal and informal institutional factors, but are rather placed within existing actor arrangements that are shaped by historical dynamics between institutions.

The third component of the framework illustrates the equity outcomes that result from a PES scheme. Perceptions of equity can be "powerful determinants of human behaviour" (Loft et al. 2017: 164). Therefore, it is increasingly recognised that equity plays a key role in determining PES outcomes. Procedural equity refers to concepts of 'democratic decision-making', and is analysed according to accountability and responsiveness with respect to local citizens (Brown and Corbera 2003; Di Gregorio et al. 2013). Ribot (2006) emphasises the importance of assessing the degree to which implementing actors are considered representative of resident communities. He also considers the nature of their appointments and the frequency of regular elections as central to procedural equity. In contrast, distributive equity refers to the allocation of benefits, costs and risks that result from PES schemes and that provide incentives for households and communities to change land management practices (Pascual et al. 2010; Loft et al. 2017). In this article, we focus on perceptions regarding the equity of benefit distribution which is analysed based on the context-specific claims and perceptions of PES participants (Sikor et al. 2014; Howard et al. 2016).[2] Distributional equity can be evaluated according to the principles of equality, social welfare, merit and need (McDermott et al. 2013).

Power is a critical factor that influences every component of the framework and is incorporated as feedback loops to represent the dynamic relationships that condition PES design and outcomes. Although we acknowledge the complexity of the concept of power, as famously shown by Foucault (1982), we refer to power here as one actors control of the decisions, actions, thinking and environment of others (cf Bryant 2002). The existing arrangements of PES actors are therefore considered to be a product of embedded power relations within and between various institutions over time. PES schemes can reconfigure power relations by allocating different actors—including private scheme implementers, government agencies and various groups of local communities—influence over participation in, and benefits from PES schemes, irrespective of their formal rights. Power can therefore transform and/or reinforce relations between actors by affecting the wide range of social relations that influence equity outcomes (Ribot and Peluso 2003).

METHODOLOGY

This article combines two case studies that were part of the first and third authors' Ph.D. research sites. The case study approach was used because it is a rigorous method for exploring the complexities of informal institutions and is heralded as a "method that holds up well when compared to other methods in the gamut of social science research methodology" (Flyvjberg 2006). Given the relatively limited research on PES in Kenya, and the need for empirically grounded discussions around how PES outcomes unfold at the local level, the case study method was considered as a highly suitable to enable the researchers to "'close in' on real-life situations" by exploring respondents' perceptions (ibid).

The following section describes the cases that were selected, followed by a presentation of the methods used for data collection, sampling and analysis.

PES cases

The Mara North Conservancy (Mara) and the Kasigau Corridor REDD+ Project (Kasigau) share underlying PES principles of providing financial and other forms of incentives to local communities to promote biodiversity conservation and carbon sequestration respectively. Mara is located in Narok County and Kasigau is located in Taita Taveta County, both in the semi-arid rangelands of Southern Kenya (see Figure 2).

The schemes share important historical similarities in land tenure. They were subject to one of Kenya's earliest rangeland reforms: the 1968 Land (Group Representative) Act[3], which aimed at formalising land tenure in previously 'open access' communal lands (Njogu and Dietz 2006; Mwangi 2007a). Since the establishment of the Act, both project areas have undergone a process of land privatisation.

The two schemes are adjacent to protected areas,[4] boasting rich biodiversity, including wildlife. Mara is implemented on 74,000 acres of land that is privately owned by 800 individual households from the pastoralist Maasai ethnic group. Each member household owns approximately 150 acres. Households can decide what share of their land (if at all) to allocate to the PES scheme. Based on an individual contract with the household head, PES members receive monthly payments from twelve high-end tourist camps that are part of the conservancy's wildlife tourism landscape. The project is implemented by a private company (Seiya Limited) on behalf of the tourism operators. Each participating household exchanges non-consumptive land use rights to the company for a defined monthly payment, which is delivered through bank transfers to the household's account. The contracts include regulations that prohibit land subdivision, wildlife poaching and regulations

1 This may be attributed to the view that institutions tend to be understood rather vaguely and are often defined by scholars "to mean almost anything" (Ostrom 2005a: 820 cited in Kirsten et al. 2009), and often remain "black boxes" (Olivier De Sardan 2013). At the local level, institutions are rarely explicitly defined but instead, implicitly alluded to; disentangling findings for concrete interpretation, therefore, remains challenging.

2 Perceptions of costs and risks were the basis of a different publication emerging from this study (Kariuki and Birner 2015) and have also been documented within the Mara context by Bedelian (2013).

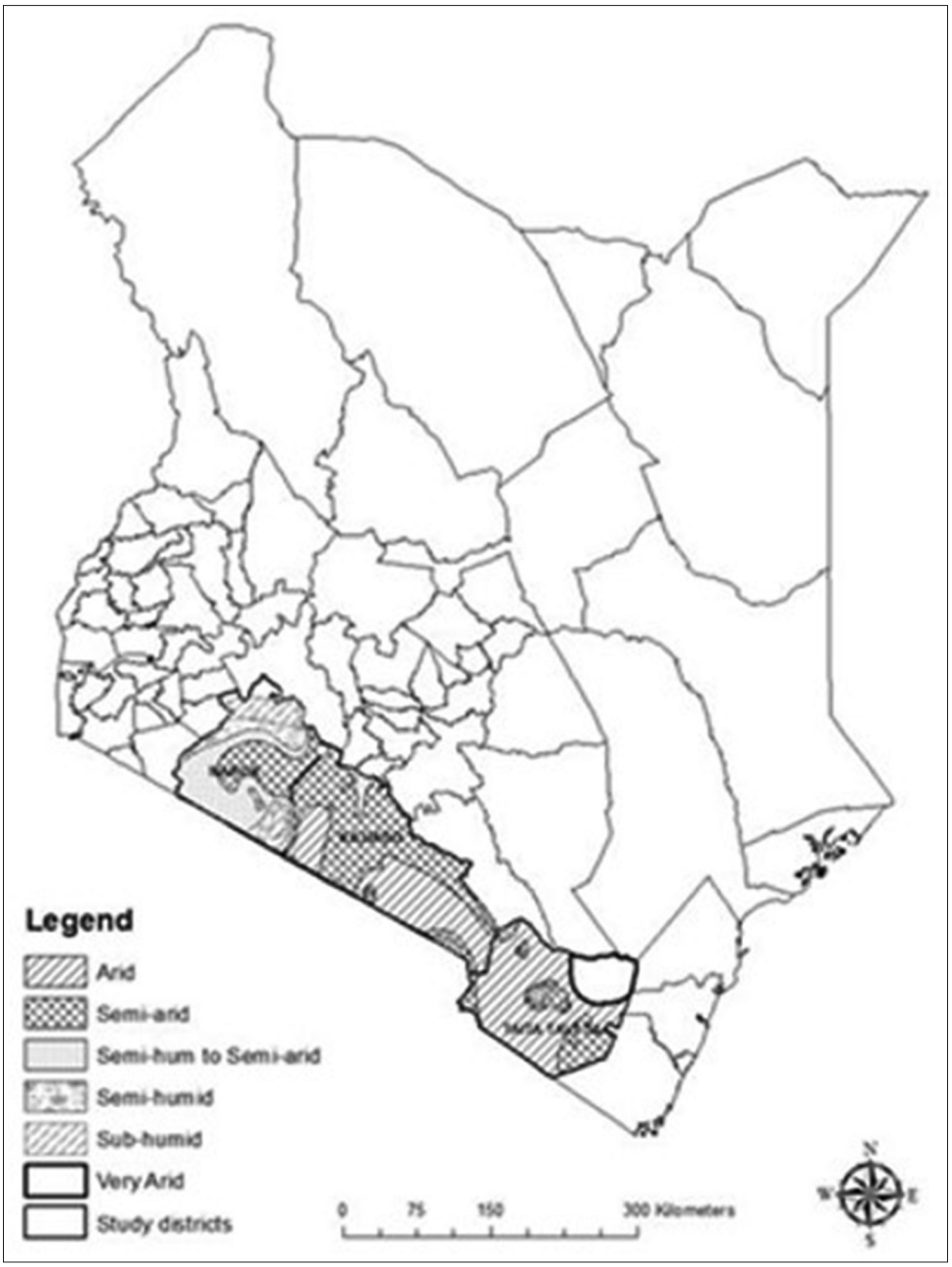

Figure 2
Map of case study sites Source: Abisalom Omolo (ILRI)

that restrict settlements and grazing (which is permitted only in designated areas). The conservancy has a mandate to promote economic prosperity, community empowerment and sound ecosystem management (Mara North Conservancy n.d.).

The Kasigau project aims to protect forests, and therefore sequester carbon, secure a safe habitat for wildlife and promote community development (Wildlife Works 2017). It is implemented on approximately 500,000 acres of land, which comprises 14 ranches with a mixture of individual and group ownership.[5] Like Mara, Kasigau is also managed by a private company (Wildlife Works). The carbon rights agreements that the implementer secured with the management of the ranches stipulate refraining from deforestation for charcoal burning, settlement, expansion of cultivated land, and wildlife poaching. Households that own land within the ranches benefit in cash, through a contractual agreement that allocates one-third of the total revenues from carbon credit sales to the land-owning households. There are approximately 115,000 additional households that live in settlement areas adjacent to the project, that have historically utilised the project areas for various purposes, but lack formal tenure rights. For these households, the project has allocated one-third of the carbon revenues to be used for communal initiatives of the communities' choice, such as developing water supply systems, health and education facilities (Chomba et al. 2016). The remaining third of the carbon revenues is allocated to the private implementing company (Table 1).[6]

Table 1
Case Study Characteristics

Site Characteristics	Mara		Kasigau	
Ecosystem service focus	**Biodiversity** (wildlife)		Carbon, **biodiversity**	
Status	2009 - present		2005-2035	
Number of members	800		4,300 (ranch owning families) 115,000 adjacent households	
Main livelihood	Pastoral		Agro-pastoral	
Payment source and delivery	**Private** (tourism)		Private (international carbon market)	
Tenure (acres)	**Former communally owned land, currently subdivided**		**Former communally owned land, currently subdivided**	
Land amount (acres)	Approximately 74,000		Approximately 500,000	
Restrictions imposed by the PES/REDD + schemes	**Human settlement, wildlife poaching, deforestation**, grazing, sale of land		**Human settlement, wildlife poaching, deforestation**, charcoal burning, agricultural expansion	
Benefit distribution	**Direct** (USD 1.3 per acre, monthly)	**Indirect** through donor funding	**Direct** (USD 4.5 per tonne)	**Indirect** through community projects

Note: Similarities between sites emphasised in bold.

Data collection, sampling and analysis

To illustrate the institutional processes that influence equity outcomes in PES, a qualitative approach was adopted, which enabled the capture of complex social and environmental phenomena by interviewing multiple respondents at different scales in order to explore of a variety of meanings (Bryman 2008; Cresswell 2009). In his exploration of institutions and environmental policy, Vatn (2005) emphasises that human behaviour is socially created and choices reflect "norms, rules, and expectations built into the institutions of a society". Because the PES schemes are viewed from a neoliberal perspective chiefly as tools for addressing environmental problems at minimum cost, institutional analyses tend to focus on transactions costs and economic efficiency (Paavola et al. 2006; Wunder and Albán 2008; Wunder et al. 2008). However, to encompass a broader understanding of socio-institutional complexities applying alternative methodologies is necessary (Corbera et al. 2009; McDermott et al. 2012; Visseren-Hamakers et al. 2012). Qualitative research therefore lends itself to this study because multiple actors interact under varying institutional arrangements with different motivations for participation, which has implications regarding the equity of the project outcomes.

Over a period of 11 months (2013–2015), data were collected by the authors using in-depth household interviews, gender disaggregated focus group discussions and key informant interviews with different sets of actors as shown in Table 2. The objective was to identify existing actor arrangements and their relations of power to identify the factors influencing equity outcomes. In addition, an interactive mapping tool called "Process Net-Map" (Schiffer, 2007; Birner et al. 2011) was applied with project implementers and scheme members to capture the informal institutions embedded in local-level perceptions of power/influence over procedural and distributive equity.[7] Participants (up to 10) were asked to trace the establishment of the scheme by identifying actors and their relationships over time; each relationship was illustrated on paper and perceptions of the forces driving equity outcomes were debated and ranked. The influence of the identified actors over equity outcomes was perceived on a scale of 0 to 6 (0 indicating no influence and 6 indicating the highest level of influence). Key informant interviews with scheme implementers and other local experts were used to corroborate evidence from the Process Net-Maps. Further, contextual information regarding scheme establishment, benefits, and resource use was gathered from participatory community-level group discussions which were gender-disaggregated to capture important categorical differences. At the household level, data was collected using in-depth interviews. Open-ended questions were posed to male and female members of the households to solicit rich information on procedural and distributional aspects of equity (Charmaz 2006).

The respondents for Net-Map exercises, key informant interviews and group discussions were purposively sampled using a snowball method to capture a well-informed sample. In the Mara, the household interviewees were randomly selected from a membership list of the scheme using randomly generated numbers. As no membership list were available in Kasigau, we visited every fifth house from three purposefully selected villages. In total, we conducted five Process Net-Maps exercises, 25 key informant, 14 group discussions, and 37 in-depth household interviews, a sample size considered a sufficient for the nature of this study (Mason 2010). The sampling strategy was based on the principle of saturation—the sample was considered to be saturated when subsequent respondents from the same category of respondents did not contribute any additional information regarding the questions raised. In Mara, our sample was distributed across three locations; while in Kasigau, we sampled respondents from three settlements neighbouring the carbon project area. Figures 3 and 4 show the sample areas for the Mara and Kasigau, respectively. Quality assurance included triangulation of methods and follow-up data collection regarding local perceptions. Data were transcribed and analysed inductively using content analysis, which uses keywords to group emerging themes (Glaser and Strauss 2009).

Table 2
Summary of data collection samples

Method	Gender	Mara	Kasigau	Total
In-depth Intra Household Interviews (with scheme members)	♂	10	9	37
	♀	9	9	
Group Discussion (members)	♂	4	5	14
	♀	4	5	
Process Netmap	♂	2	1	3
	♀	1	1	2
Key Informant Interviews (with key stakeholders)		14	11	25

RESULTS

The Process Net-Map results are presented first as they illustrate the actors in the PES scheme, and the nature of their interactions. Subsequently, we present the perceptions of the actors' influence over current equity outcomes. Procedural equity was analysed by considering perceptions of access to decision-making mechanisms and accountability and responsiveness of decision-makers; whereas distributional equity was assessed based on the perceptions of the benefit-sharing arrangements.

PES actors and perceptions of equity outcomes in Mara

The Mara scheme was characterised by an arrangement between local and private actors. As the Net-Map illustrates (Figure 5), there is a Board of Governors that is elected by the Tourism Partners, and a Landowners Committee that is elected by the land owners. The Board of Governors and the Landowners Committee negotiate the contract regarding PES. Resource-use regulations are enforced by the Grazing Committee that consists of nominated community members established to manage a rotational grazing program and work with a network of community rangers. The community rangers liaise with landowners on the locations that are open for grazing throughout the year.

Perceptions of procedural equity in the Mara

Perceptions of procedural equity in the Mara pointed to an elaborate decision-making process that involved elections and nominations of community representatives for the Landowners Committee and the Grazing Committee. However, respondents expressed reservations regarding the extent of meaningful participation, which is an important component of procedural equity. For instance, respondents lamented about poor access to information from the Grazing Committee regarding designated grazing locations and general conservation management. After the project inception meeting in 2009, there was an expectation that meetings would be held annually and it was most concerning for respondents that this expectation was not met; only one general meeting was held in 2014 (key informants 4 and 5). Respondents, therefore, perceived of the mechanisms for ensuring procedural equity as inadequate, failing to provide sufficient room for meaningful participation.

Perceptions of distributive equity in the Mara

Land tenure was identified as the key determinant of distributive equity, which was described by respondents with reference to the revenue-sharing arrangement. From tourism-derived incomes, revenues of USD 1.3 per acre of land were allocated to all conservancy members, as stipulated in contract regulations. The majority of respondents reported that they allocated between 100 and 150 acres to conservation (resulting in a monthly revenue of USD 130-195). Most respondents perceived of the revenue-sharing agreement as equitable because land was considered evenly distributed, which led to similar pay-outs (key informants 5 and 3; group discussions). The respondents gave credit to the implementing company (Seiya Limited) for facilitating the contractual legally binding agreements between landowners and tourism operators.

The gendered dimensions of equity were, however, significantly imbalanced. The results show that approximately two per cent of the contract holders were women, mostly widows who often granted responsibility for revenue collection to male relatives (group discussions, key informants 2, 3 and 5). Furthermore, in male-headed households, tourism benefits were transferred directly to the household head's bank accounts, rendering the majority of female spouses indirect beneficiaries. Distributional equity in the Mara was thus biased towards male landowners, while the only access that women had to the benefits of the project were mediated through male household heads. Since they were not considered to be members of the PES scheme, women also had limited access to procedural rights, including information on the developments of the project or decision-making mechanisms.

Perceived power of actors over equitable outcomes in Mara

To better understand the driving forces behind the equity outcomes identified, perceptions regarding the power of actors to influence outcomes were discussed using the Process Net-Map tool. Figure 5 illustrates that the Board of Governors and the Grazing Committee were identified almost unanimously as having the highest influence levels (awarded 6 on the influence scale from 0-6). Both groups of actors were perceived as powerful enough to influence distributive equity, specifically regarding payments and resource-use regulations. The next highest level of influence was attributed to the private company, Seiya Limited and to the Landowners Committee (each attributed a level of 5). Surprisingly, even though tourists provided the ultimate source of the revenues, their influence over equity outcomes was considered the lowest (level 2), mainly because the contractual benefit-sharing arrangement does not depend directly on the number of tourists or the revenue created by tourism. The Tourism Partners (i.e., the operators of tourist facilities) were awarded slightly more influence (level 3) than tourists, because they had an influence on the management of revenue distribution and on contract design.[8]

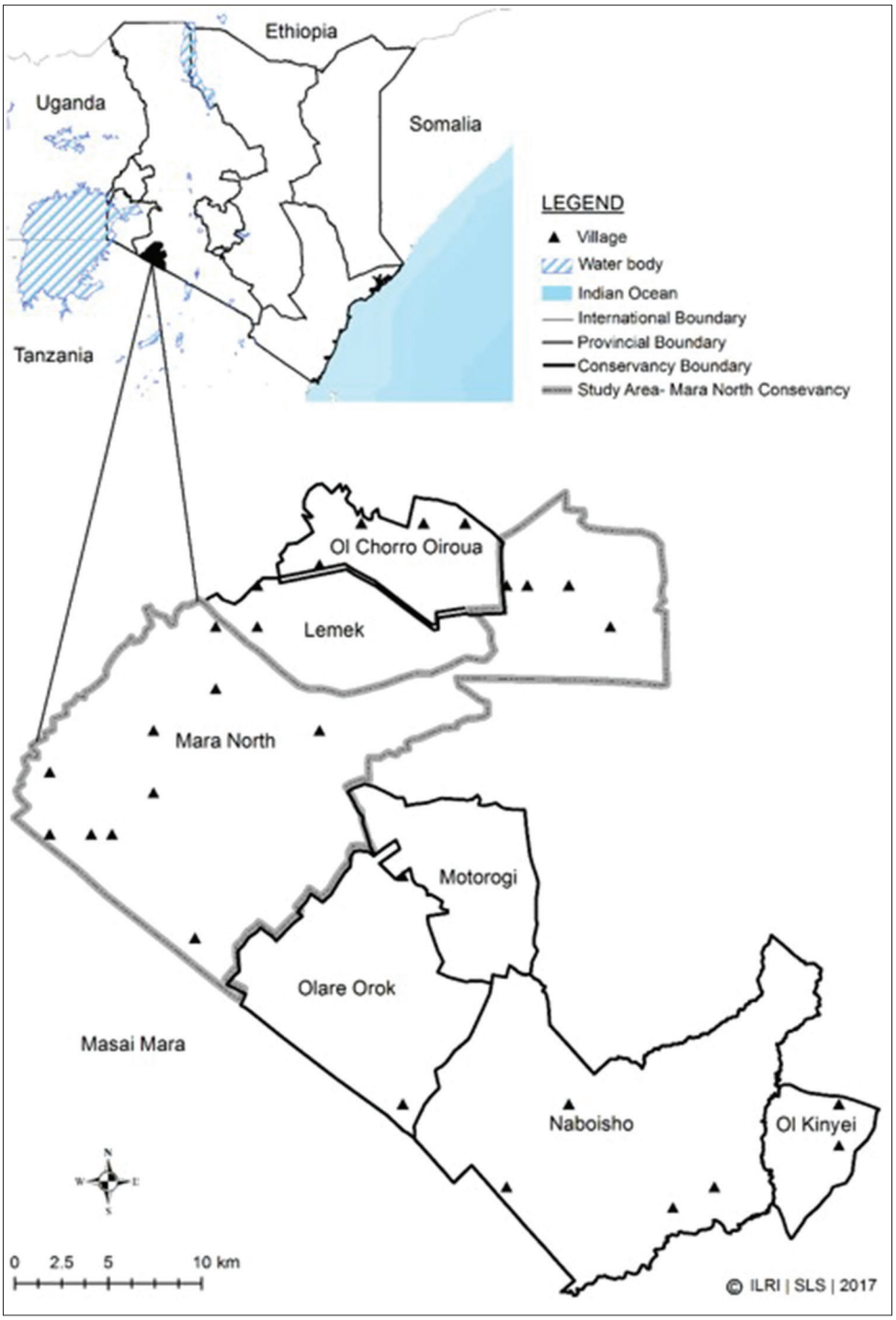

Figure 3
Sample settlements in Mara

The results imply that influential actors secured distributive equity primarily among male landowners; however, procedural equity was not readily achieved. Members of the Landowners Committee and the Board of Governors were identified as prominent and influential regarding designing the agreement of revenue sharing.[9] Respondents complained that members of the decision-making committees were often unavailable to address contract-related enquiries (household interviewees 6, 8, 11 and 15). Furthermore, even though landowners agreed to the contract terms that were read to them at a public meeting, none of the respondents retained a copy of the contract (household interviewees 5 and 9). A majority of the respondents reported that retaining contracts was not permitted (household interviewees 4 and 15), while the minority expressed a lack of clarity on the 'correct' procedure to get a copy of the contract (household interviewees 7, 9, 12 and 13).

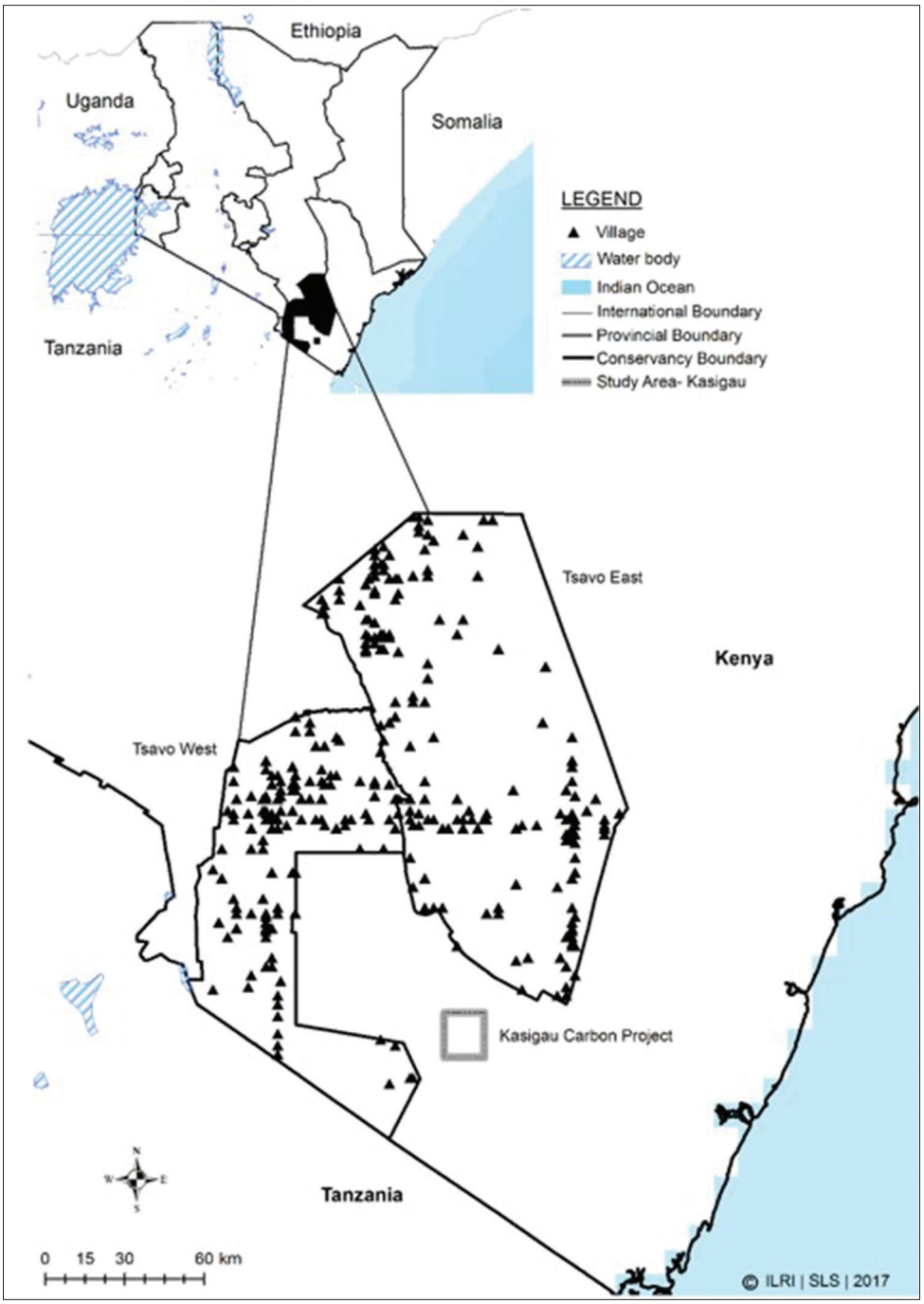

Figure 4
Sample settlements in Kasigau

PES actors and perceptions equity outcomes in Kasigau

The Net-Map (Figure 6) illustrates the institutional arrangements described by respondents from Kasigau. Wildlife Works Carbon Trust is the project entity that distributes overall revenues to local communities throughout the project area. The Locational Carbon Committees , which consisted of publicly elected community members, were established in each administrative location to prioritise and allocate carbon benefits through community projects. The Locational Carbon Committees collaborate with local Community-based Organisations (CBOs) to identify required projects. Communities were invited to elect Locational Carbon Committee members and to submit proposals to the them for desired projects to be implemented from carbon funds.

Perceptions of procedural equity in Kasigau

Procedural equity was captured by the respondents' perceptions of their access to local-level decision-making mechanisms and dimensions of accessibility and responsiveness to community

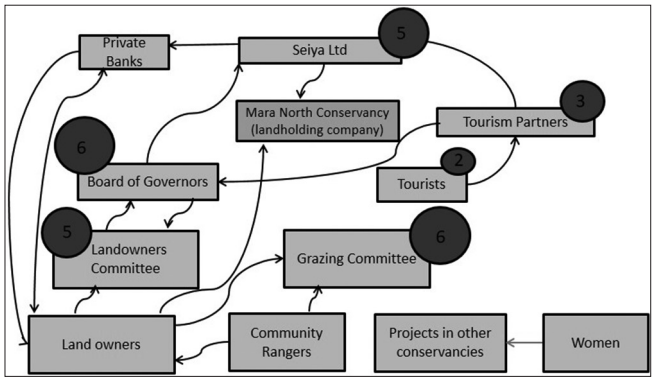

Figure 5
Mara Net-Map of actors, relationships and current levels of influence over equity outcomes

members. Most respondents felt that procedural equity was adequately catered for because not only were the Locational Carbon Committees publicly elected from within each of the respective locations, the communities are also invited to elect Locational Carbon Committee members in accordance with affirmative action principles regarding gender representation. Therefore, unlike in Mara, the results reveal that procedural equity was actively pursued through what were typically considered meaningful elections and regular meetings which were attended by both men and women.[10] Respondents did, however, highlight several governance challenges. Examples included county representatives who attempted using CBOs for political mileage (key informants 7, 11, 12 and 13; group discussions) and cases of patronage between Locational Carbon Committees and CBOs that contributed to delays in project implementation (key informant 14). To safeguard against corruption and misuse of PES funds, procedural equity was enhanced by the implementation of Standard Operating Procedures—rules governing Locational Carbon Committees and CBOs formulated in collaboration with Wildlife Works—which were subject to annual amendments intended to limit the likelihood of repeat corruption incidences.

Perceptions of distributive equity in Kasigau

Distributive equity was captured by perceptions about the extent to which carbon benefits were shared equally. The respondents felt that there was a lack of distributional equity, because there was a bias against community members who did not formally own land.[11] There were approximately 4,300 households who formally owned land in the ranches, whereas over 100,000 households did not own land (key informant 5). The Net-Map (Figure 6) illustrates the flow of carbon funds through a three-way revenue sharing arrangement between the land owners (ranch owners and shareholders), the project implementer (Wildlife Works) and the landless community members. Even though the project claimed that each of these groups was entitled to a third of the carbon revenues, this rule was not implemented in practice. The large number of community members without formal land rights were rendered residual claimants of indirect benefits. Revenues

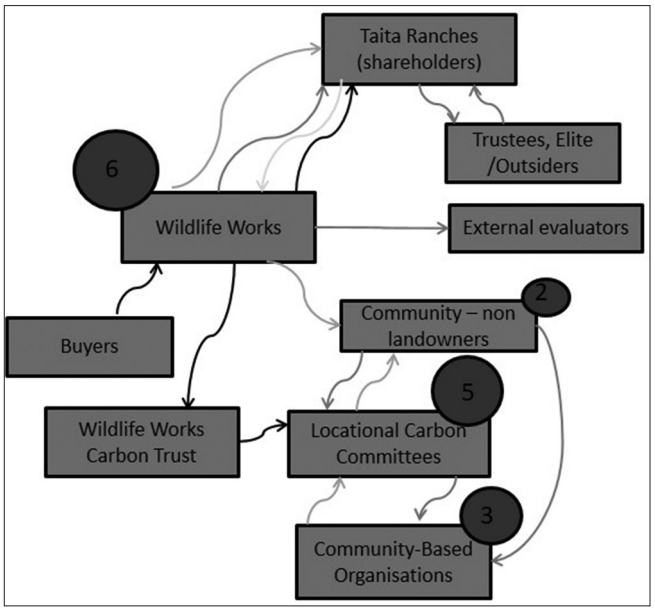

Figure 6
Kasigau Net-Map of actors, relationships and current levels of influence over equity outcomes

for community projects (such as school bursaries and social infrastructure) were only made available after carbon revenues were first allocated to the land owners for whom contractual agreements were made, and then to the project implementer. Landless communities, with no formal contractual agreement were incorporated into the scheme as beneficiaries because they had been identified as the main drivers of deforestation. Involving them as beneficiaries of the PES scheme was considered an important approach to avoid emissions. Irrespective of this important design feature, the existing revenue-sharing arrangement was still perceived as largely skewed towards meeting project costs and ensuring payments to land owners (key informants 7, 9 and 10).

Actors influence over equitable outcomes in Kasigau

Figure 6 displays the rankings of power relations and influence over equity outcomes in Kasigau. Respondents attributed the highest level of influence (level 6) to the project implementer (Wildlife Works)[12] because of their role in the sale of carbon credits, determining the distribution of revenues between the project, ranch owners and local communities, and also in establishing the institutional structures to facilitate procedural equity. The Locational Carbon Committees were found to have the next highest level of influence (level 5), specifically over distributional outcomes at the local and village levels, and their role in prioritising projects. CBOs were identified as slightly less influential than the Locational Carbon Committees over equity outcomes as their main task was to implement pre-selected projects (awarded 3 on the influence scale). Unsurprisingly, the landless community members were viewed as having the least amount of leverage over carbon benefit distribution. Overall, the results from Kasigau show

that mechanisms to enable procedural equity for the landless were much more prominent despite the inequitable distribution of land and direct carbon revenues.

Understanding equity outcomes through an historical Lens

Our results demonstrate considerable differences between the two schemes regarding equity outcomes and power relations. In Mara, equity outcomes of the PES scheme were reported largely in terms of the equality criterion as land, and the benefits were perceived as evenly distributed amongst male members. Female members, however, could access benefits only indirectly through male family members. Moreover, respondents did not consider the existing procedural mechanisms ensuring meaningful participation. In contrast, equity outcomes in Kasigau were perceived both in terms of equality and merit. The unequal distribution of land translated to unequal distribution of direct benefits, but was compensated for by democratic mechanisms that guide the selection and distribution of carbon-funded projects that were also accessible to non-land owning community members.

These rather different equity outcomes of the PES schemes occurred even though in both sites, the same form of land tenure, namely the group ranch system, had been established by the 1968 Land Act. Since then, both sites have been subject to similar land reform policy and both schemes reward ecosystem services that are linked to land use. The question arises therefore, as to why the two sites are characterised by such different equity outcomes. To answer this question, we adopt a comparative historical approach and trace the processes that led to the establishment of the two schemes. As outlined in Section 3, we used the Process Net-Map tool to get a detailed picture of the process that captures the perceptions of the respondents. Figures 7 and 8 show the step-by-step processes that occurred from ranch inception, through to scheme establishment. The numbers assigned to each arrow indicate the sequence of events and correspond to the different stages of tenure development.

Mara phase 1: Koyiaki-Lemek group ranches (the early 1970s to the mid1990s)

In the Mara, group ranches were established in the 1970s, following the Land Act of 1968. The ranches were collectively

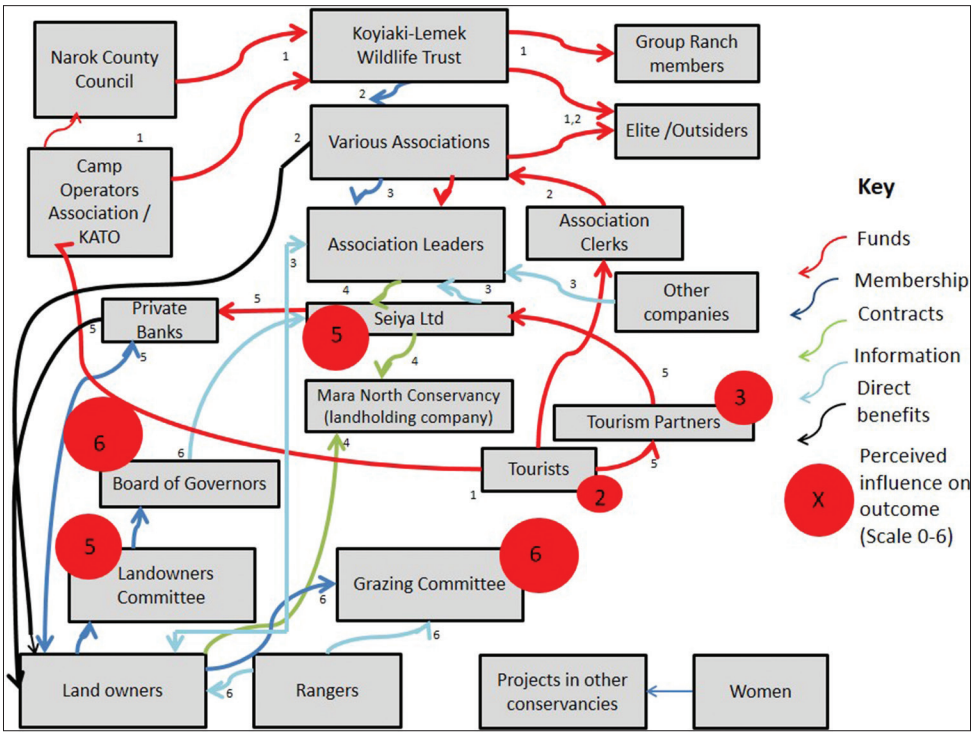

Figure 7

Process Net-Map results for the processes leading up to the establishment of the Mara scheme

Note: Phase 1 (Koyiaki-Lemek Group Ranches): Distribution of tourism benefits (received by Trust and distributed to members) both directly and indirectly in the form of community projects. Inequitable distribution due to non-fixed payment amounts and infrequent payments. Inequitable access to community projects mainly enjoyed by privileged. Procedural inequity, due to 'corrupt' group ranch officials. Phase 2 (Group Ranch Subdivision): Trust collapses and 12 Wildlife Associations are formed. Community projects are discontinued and funding diverted towards land subdivision process. Phase 3 (Group Ranch Subdivision): Tourism revenues flow to Wildlife Associations. Distributional equity uneven as different associations offer varying amounts of cash benefits. Phase 4 (Land Privatisation): Land privatised into relatively equal parcels for all on the ranch register. Establishment of conservancy through land consolidation allowing landowners to receive direct cash benefits. Overall improvement in distributional equity. Phase 5 (Institutional arrangement for benefit-sharing): Lease contracts signed between landowners and landholding company to enable the fixed distribution of benefits through direct monthly bank transfers. Distributional equity ensured, with exception of women. Phase 6 (Institutional arrangement for decision-making processes): Key actors involved in decision-making elected but complaints of negligence and exclusion

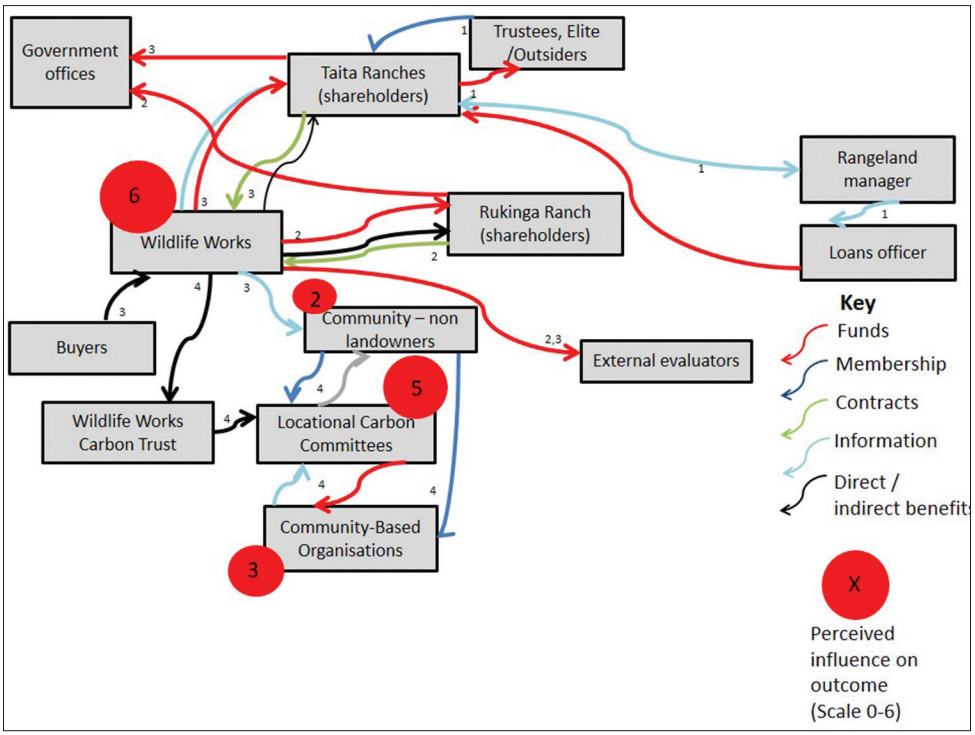

Figure 8

Net-Map results for the processes leading up to Kasigau establishment

Note: Phase 1 (Ranch Formation): Membership to ranches limited to local elites. High level of distributive inequity. Phase 2 (Mismanagement of Loans): Multiple loans from the Agricultural Finance Corporation secured but mismanaged by Rangeland managers and Loans Officers. Ranches heavily indebted and collapse. Phase 3 (Ranch Revival): Purchase of Rukinga Ranch and consequent revival of remaining ranches through REDD+ carbon rights certification and agreements. Distributive inequity as majority of the landless ineligible to receive direct benefits. Phase 4 (Institutional arrangement for benefit-sharing): Framework for delivering procedural equity regarding community-level benefit-sharing established

owned by registered members and managed by elected committees. Except for widows, membership was restricted to men over 18. This reflects the traditional patriarchal land ownership and inheritance system prevailing among the local ethnic Maasai. Since their establishment, the group ranches already generated revenues from tourism, which may be seen as an early version of PES. However, according to interview information, there was a lack of accountability and transparency with regard to the way in which the ranch leadership distributed the tourism revenues among the members (key informants 1 and 2). The dominant perception amongst the respondents was that the ranches were managed under a hierarchical power structure and that the benefits provided to ordinary members were minimal, with most revenues being accrued by the ranch officials and other elites. Interviewees also recalled that the ranch officials were rarely elected. Together with other local elites, they cemented their positions of power, which were, according to results, frequently exploited for personal gain (group discussions 1, 2 and 5).

Even though group members had, in principle, equal rights in the group ranch, it was the prevailing informal institutional arrangements of patriarchy and elite capture that prevented an equitable distribution of tourism revenues which did not promote inclusive decision-making processes. Phase 1 and the corresponding arrows in Figure 6 reflect the protracted period of dissatisfaction of the ranch members with respect to unevenly distributed revenues.

As a result of the group ranch members' discontent, the Koyiaki-Lemek Wildlife Trust was formed in 1995. The Trust brought together leaders from two neighbouring ranches (Koyiaki and Lemek) that generated income from tourism to facilitate a fairer distribution of funds from game-viewing fees and tourist facilities located within the ranches. According to respondents, the establishment of the Trust enabled members to gain increased and more regular access to the tourism revenues. Members received a share of the revenues that were distributed approximately every three months and was in the range of USD 50 to USD 300. However, the respondents still perceived of constrained distributive equity. For instance, the new system was still affected by nepotism and patronage, because these were, in the perception of the respondents, the primary channels through which members could access regular cash benefits (household interviewees 2, 7 and 15). These inequities continued to reinforce unequal power relations between the few highly influential and connected ranch officials and other local elites, especially traditional leadership, on the one hand and ordinary members on the other. The experience at this early stage indicates that the level of distributive equity realised in the current scheme has its roots in group ranch membership. Likewise, the level of procedural (in)equity realised at present has its roots in the norms that lead to power asymmetries

between elites and ordinary group members and between men and women.

Mara phases 2–6: group ranch subdivision (1998–2010)

In view of the inequities that characterised Phase 1, pressure to gain control over land and associated benefits reached a pinnacle in the early 1990s, leading to a government-backed move for privatisation (key informants 1, 2 and 3). During this second phase, a formal process of land subdivision was initiated, which transformed group ranch membership to individual landowner status (arrow 2). According to the majority of respondents, most members supported the initiative once an agreement was reached to subdivide the land into equal parcels of approximately 150 acres.[13] While, the majority of members received relatively equally sized parcels, unmarried women were however excluded on the basis of gender-biased inheritance norms and practices, which informally restricted land ownership only to those members who were listed in the group ranch register (key informants 2, 3, 5 and 15; female group discussants).

During the lengthy subdivision process, which lasted over ten years and involved the dissolution of the Trust[14], the group members did not access benefits from tourism (household interviewees 2, 5, 7 and 17). This led to an increasing sense of urgency among the members to gain access to these funds again (arrow 2). In the absence of the Trust, a range of locally created institutions[15] called "wildlife associations" emerged to distribute tourism benefits among members (arrow 3; key informants 1, 2, 15, male group discussants). According to interview information, the membership in these associations was chaotic, and the benefit-flows unstable. The respondents of the Process Net-Map identified the creation of 12 new associations within the project area. Landowners joined these associations to be able to receive tourism revenues. In many instances, membership was based on political affiliation, clientelism and nepotism, as some associations were established by former ranch officials who utilised their positions of power to leverage member support (household interviewees 3, 9 and 13).

In 2009, the Mara North Conservancy was established on individually owned land with the aim to consolidate the distribution of the benefits from tourism. The respondents emphasised that the current revenue-sharing arrangement was by far more equitable than any of the prior arrangements (arrows 4–6). Payments were no longer infrequent and relatively equal amounts were received by the majority of the land owners.

This historical analysis offers valuable insights that help to explain the current equity outcomes. The relatively equitable distribution of revenues to the land owners (distributive equity) is not simply a reflection of the fact that the subdivision of the ranch led to a relatively equal land distribution. It is rather the outcome of a struggle against the unequal distribution of tourism revenues that lasted for decades. The inequality was the consequence of informal institutions that granted the power to distribute the tourism revenues to local elites. The dissatisfaction with the unequal outcome triggered a process of collective action that succeeded in the establishment of the formal institutional arrangements of the Conservancy. In combination with the rather balanced distribution of land ownership, this formal institutional arrangement is indeed able to deliver a more equitable distribution of tourism revenues than any of the previous arrangements. However, despite legally being able to own land, the informal rules that result in the unequal access of women to tourism revenues were never challenged, and hence, this form of inequality continues to persist. Likewise, the informal institutional arrangements reflected in the power of the elites continue to exist preventing the achievement of procedural equity. A case in point is the absence of regular annual meetings and the fact that most land owners do not even have a copy of the contract that forms the basis of the payments they receive (see Section 4.2 for details). Table 3 below provides a summary.

Kasigau phase 1: Taita group ranches (early 1970s)

The land in Taita was subject to the same Group Ranch subdivision policies and laws as in Mara in the 1960s and the 1970s. Nevertheless, for reasons that are unclear from our results, multiple categories of formal entitlements to the land in the ranches emerged, namely government leases granted to individuals, shareholding partnerships, and private companies. Moreover, several group ranches in Taita were created in the form of Directed Agricultural Companies. The Directed Agricultural Companies were reserved for the community, but to attain formal membership, community members had to purchase shares, which according to the current exchange rate were equivalent to USD 0.20. Alternatively, membership could be secured in exchange for

Table 3

Summary of the existence (✓) or non-existence (X) of distributive and procedural equity outcomes (depending on stage of land tenure)

Case study: Equity dimension	Tenure: Communal land ownership (group ranch)	Tenure: Private land ownership
Mara		
Distributive equity: Land	✓	✓
Distributive equity: Revenue sharing	X	✓
Procedural equity	X	X
Kasigau		
Distributive equity: Land	X	X
Distributive equity: Revenue sharing	X	X
Procedural equity	X	

one head of cattle (key informants 6, 7 and 8). The majority of community members did not, however purchase shares in the ranches (group discussants; key informants 7 and 8), because incentives to join ranches were low, as land for livestock grazing, firewood collection and charcoal burning was still accessible.[16] Moreover, as explained by the respondents, there was widespread perception that customary land claims provided sufficient security of land tenure, therefore, there was no obvious reason to become a formal member of a group ranch.

The reluctance of community members to establish formal land rights for themselves provided an opportunity for trustees to take advantage by allocating themselves, village elders and other associates leases, either as individuals, partners or shareholders in private companies (key informants 6, 7 and 8).[17] This is indicated in Phase 1 (arrow 1) in Figure 8. Ranch formation, therefore, served to separate the majority of community members from the minority elite. The different tenure arrangements and associated incentive structures in Kasigau provides an initial explanation for the divergent equity outcomes between the two sites.

Kasigau phases 2–4: collapse of Taita group ranches (1990–2000)

According to the respondents, the ranches in Taita failed to generate sufficient income (arrow 2; key informants 6 and 7). They had to rely heavily on loans from the Agricultural Finance Corporation for livestock purchase and infrastructure development (group discussants; key informants 7 and 9). With limited experience in commercial livestock ranching, the elderly group ranch directors entrusted government-funded range management officers, who worked closely with finance officers. According to various respondents, these two players exploited the knowledge asymmetry between managers and ranch members by frequently securing and mismanaging loans, which contributed to the collapse of the group ranches (male group discussants; key informant 6). The ranches were further affected by severe droughts (1972–1974, 1984), which decimated livestock populations, and unlike the Mara, lacked alternative income sources through tourism. By the early 1990s, most ranches were vacant and redundant, or were leased out for grazing. Communities from nearby settlement areas moved in and began practising slash and burn agriculture as well as the extensive destruction of wooded areas for charcoal burning.[18]

It was within this unfavourable context that in 1998, 80% of shares of the insolvent Rukinga Ranch (30,000 ha) were purchased by the founder of Wildlife Works (Phase 3).[19] REDD+ presented an attractive opportunity to generate environmentally-friendly revenues for the now privately owned economically inactive ranch. In 2009, Wildlife Works decided to use this opportunity and developed the Kasigau Phase I Project Design Document. This process entailed a series of agreements and validation processes (arrow 3). Wildlife Works used Voluntary Carbon Standards to certify its carbon accounting methodology. Wildlife Works also engaged the Climate, Community and Biodiversity Alliance which provided the principles of local level decision-making arrangements for the distribution of carbon monies. Collectively, these steps demonstrate the company's attempt to achieve both social and environmental aspects, which earned the project GOLD level certification under the Climate, Community and Biodiversity Alliance. The company also worked with ranch owners and community members to revive 13 neighbouring ranches, that were affected by economic problems (depicted by arrows labelled 3), as without their buy-in, outcomes such as carbon sequestration at a large scale would be compromised (key informant 7).[20]

To establish the three-way benefit sharing arrangement explained above, a series of consultations were held, which resulted in carbon rights agreements that were signed with the ranch owners. For the second phase of the project (depicted by arrows 4), Climate, Community and Biodiversity Alliance facilitated informal agreements with land and non-land owning community members through Free Prior and Informed Consent. The respondents emphasised that community members without formal landownership were excluded from directly receiving carbon funds. Innovative procedural mechanisms were, however, designed to allow for community-level participation of non-landowners (arrow 4). The motivation of this step was to create community buy-in for avoiding emissions, considering that the activities of community members who did not own land, such as charcoal burning, were some of the main drivers of deforestation.

As in the case of the Mara, the historical account provides important insights for the explanation of the current equity outcomes of the Kasigau scheme (see Table 2). Similar to the situation in the Mara, informal institutional factors played an important role in determining present outcomes, because they prevented the community members from acquiring formal land ownership in the group ranches. This allowed local elites to take advantage of the situation. Unlike in the Mara, local elites were able to get formal titles for disproportionally large amounts of land. The origins of this development can be seen in the fact that the land owners responded differently to the opportunities provided by the Land Act of 1968 and established other forms of tenure than the group ranches of the type found in Mara. This led to a significant lack of equity in distribution of carbon benefits. However, this distributional inequity was partly mitigated by the rules that the implementing company had to adopt to be able to participate in REDD+, which require adherence to principles such as prior informed consent. Still, the arrangements made with the community members who did not own land were only informal, which turned this group into a disadvantaged residual claimant of the carbon benefits. In terms of procedural equity, it appears that, again, the international standards applied by REDD+ mitigated against the informal traditional power hierarchies.

DISCUSSION

As shown in the conceptual framework (Figure 1), and illustrated in the results from Section 4, equity outcomes

can be explained by analysing how formal and informal institutions influence the actors involved in PES schemes. Specific attention therefore needs to be paid to the way in which institutions shape power relations within the local community and households which are issues further discussed in the following section.

Varying perceptions of land value: discrepancy between formal and informal land tenure

An important question that arises from the above account is why the communities in the Mara placed emphasis on attaining individual formal land titles while the large majority of the community members in Kasigau made little progress to attain formal land titles, even though both sites were subject to the same land policies. The analysis suggests that the value ascribed to land by the local communities and other actors play an important role in explaining this puzzle. Considering community members as rational actors who respond to economic opportunities based on cost-benefit considerations, one can hypothesise that the formalisation of land tenure, through ranch membership and, subsequently, private land ownership, is more likely to occur when the gains to be achieved under the new formal tenure structures outweigh the costs incurred to establish this structure and becoming part of it (Mwangi 2007b). Studying range subdivision of ranches Kajiado District (which is located adjacent to the Mara), Mwangi (2007a) identified additional factors for subdivision process that were not present in Kasigau. These included access to capital markets as result of having a title and an increased sense of uncertainty of informal land tenure due to population growth, which was aggravated by outsiders without legitimate claims who were allocated parcels by influential individuals. Additional factors include the expansion of crop farming under irrigation, which reduces available grazing land, and political pressure from the government to privatise (Kaelo 2007). In Kasigau, these factors were less present and only a minority of the community members anticipated the potential benefits of formal ranch membership. Their lack of interest created an enabling environment for the consequent capture of land by elites who realised the value of formal landownership early in the subdivision process (Chomba et al. 2016).

It is not unique for processes of land subdivision to facilitate elite capture, as this has already occurred during Kenya's colonial era, when educated elites were allocated larger land units than ordinary community members (Mwangi et al. 2006). Information asymmetry, which characterises power relations between elites and ordinary community members, thus enabled local elites at the time to have a better understanding of "the colonisers' language and law" (ibid). Elite capture can also occur within PES schemes, as has been illustrated in various other cases (see McAfee and Shapiro 2010; Mahanty et al. 2013). However, in the case analysed here, elite capture occurred prior to the establishment of the PES schemes. The case shows that it is important to understanding how economic opportunities shape formal land ownership and land distribution. This insight helps to explain why distributional equity outcomes were significantly more balanced in the Mara than they were in Kasigau. Our results also show that participation in PES schemes and the associated benefits can be improved if unequal power dynamics are reconciled so as to reduce the potential likelihood of elite capture (Hirsch et al. 2011; Adhikari and Boag 2012; Shapiro-Garza 2013). There has however been progress in the design of safeguards against power imbalances to protect indigenous local communities (McDermott et al. 2012; Den Besten et al. 2014). The Kasigau case shows that such safeguards play a role in mitigating inequitable outcomes, both in terms of distributional and procedural equity. However, some authors have expressed concerns that such guidelines (e.g., mandates for female representation in governing bodies of PES schemes) may be difficult to enforce. Therefore, they insist that equitable processes and outcomes should be a prerequisite for market-based approaches (Phelps et al. 2010; Visseren-Hamakers et al. 2010).

Power and influence through land ownership: benefits and limitations

Land ownership plays a central role for determining distributive equity in PES, not only because payments are often linked to land ownership but also because land ownership increases an actor's bargaining power (Brown and Corbera 2003; Vatn 2010; Wunder 2013). Looking at the Mara case, our results confirm that resource users who have secure land tenure and knowledge of ecosystem service markets have more bargaining power, also if intermediaries are involved. If land is relatively equally distributed, such bargaining power can lead to equitable distributional outcomes. In the Mara, negotiations with intermediaries demonstrated a sound knowledge by community members of the economic potential of the area based on an understanding that tourism generates incomes. This result is in line with the fact that the Board of Governors were identified in the Net-Map exercise as having more influence over the distributional outcomes than the implementing company. This finding reflects the perceptions that the landowners have sufficient leverage to achieve outcomes that are acceptable to them. On the contrary, the lack of formal tenure in Kasigau restricted the bargaining power of the community members.

Our results illustrate that secure land tenure is, however, neither a prerequisite nor a guarantee for procedural equity. Despite relatively evenly distributed land in the Mara, procedural mechanisms were compromised because local elites continued to exercise power within the newly created decision-making structures of the conservancy. The concept of legitimacy can help to understand this finding. To achieve legitimacy in a PES scheme, it is not sufficient that the distributional outcomes are considered legitimate. This finding is in line with previous research that indicates that PES rules need to be designed and implemented in an inclusive process to be considered legitimate (Hand Sikor 2015). Likewise, PES mechanisms should be justified according to social norms and characterised by consent regarding

claims to authority over natural resources and their benefits (Jentoft 2000). Non-inclusive procedures in PES scheme design can undermine the sustainability of PES objectives and potentially lead to increased conflict (Pascual et al. 2010; Luttrell et al. 2013). Some researchers, therefore, argue that striking the balance between efficiency and fairness is critical to achieve meaningful outcomes through PES (Lemiona et al. 2015), while other researchers rightly recognise that competing considerations of fairness make designing equitable PES schemes considerably challenging (Narloch et al. 2013). Had the benefit-sharing rationale in Kasigau been based on legal ownership alone, the scheme would not have succeeded in addressing the underlying drivers of deforestation and may have further marginalized landless resource-users. These findings further highlight the view that legal authority alone does not create legitimacy and that PES rules need to be reflective of the wider informal institutions shaped by moral or ethical rights of a given context (Jentoft 2000; Luttrell et al. 2013).

The gendered outcomes identified in the study are also the consequence of the informal institutional setting. The findings raise the question as to why women were disadvantaged regarding procedural equity in Mara and distributive equity in Kasigau. The observed gender imbalances regarding land ownership are not restricted to the Mara but instead echo Kenya's colonial land tenure policies (compare, for example, the Swynnerton Plan of 1954). Under these policies, gender relations of power were skewed because only one single registered owner of land—the male household head—was officially recognised and inadvertently mirrored the patriarchal gender relations prevailing in England at the time (Verma 2014). Being excluded from formal land ownership, the extent that women from in the Mara, could benefit from PES depended on intra-household distributional dynamics, which were not directly investigated in this study. However, other research has shown that the subdivision process which was tied to group ranch membership and later to scheme membership reinforced existing gender inequities (Mwangi 2007b).

Exploring gender equity in PES may call for an additional analytical category, that of 'franchise' equity. Franchise equity relates to an assessment of whether 'everybody wants pie', and of fairness regarding access to "the process of defining which services are to be conserved" and how (Farrell 2014: 138). This concept may offer a useful approach to examining intra-household decision-making processes and gendered participation at the community level. The underlying principle of franchise equity in PES is that local resource users "should not be expected to incur unremunerated costs in the course of maintaining a marketable ecosystem service" (Farrell 2014: 139). The main reason is that rules and regulations may impose or reinforce gendered power relations that weaken overall equity outcomes in PES. Adopting concepts that exhaustively capture the multidimensionality of equity is encouraged because men and women are resource users in their own right, which influences their preferences within conservation schemes (Kariuki and Birner 2016; Keane et al. 2016). Ultimately, a major challenge for PES is enabling significant and sustainable equity outcomes, without inflicting harm (Da Motta et al. 1999; Wunder 2013; Hendrickson and Corbera 2015). The "do no harm" rule poses considerable difficulties, especially if provisions to accommodate and reconcile tensions between formal and informal institutions are lacking (Pahl-Wostl 2009: 357). Given the rigid socio-cultural gender norms prevailing in the study area, PES schemes that actively address gendered power imbalances, as in the case of Kasigau, will reduce the likelihood of triggering negative equity outcomes.

CONCLUSION

Overall, this study contributes to a growing body of literature which advocates for an alternative understanding of PES by diverting focus away from purely neoclassical thinking towards an emphasis on equity dimensions and institutional dynamics. The two cases illustrate the institutional challenges associated with achieving multiple dimensions of equity simultaneously. Contrary to other studies, our results indicate that procedural equity delivered through PES institutional mechanisms is neither a precondition nor a guarantee for distributive equity. Distributive equity also does not necessarily facilitate procedural equity—at least in the Kenyan context. The study findings further highlight the need to pay special attention to gender equity. Equitable land distribution, as in the Mara, does not guarantee equitable gender outcomes. The Kasigau case shows, however, that provisions to meaningfully integrate men and women in decision-making can improve procedural equity outcomes, even if such provisions were only in place because of international standards on gender mainstreaming that are associated with REDD+ projects.

The study further suggests that the underlying reasons for the different equity outcomes can, to a considerable extent, be explained by variations in the ways in which formal institutions emerged, and were enabled or hindered by informal institutions. Shifting land tenure arrangements, coupled with different perceptions of land value, were identified in the study as important factors that explain the land distribution in place when the implementation of the two PES schemes started. Cultural norms that influence the 'rules of the game' were identified as equally important, especially with regard to achieving gender equity.

The results draw attention to the role of local historical processes, which need to be understood to explain contemporary equity outcomes. We show that the extent to which PES can succeed in achieving equity outcomes is largely influenced by an interplay between formal institutions—such as legal frameworks—and informal institutions—such as traditional norms and customs. This finding leads to the conclusion that the design of future PES schemes should be based on an analysis of historical factors with particular attention to the interplay of formal and informal institutional dynamics. Innovative tools applied as part of a case study, such as Process Net-Map

can facilitate such an analysis. Novel theoretical concepts, such as franchise equity, may also have a potential to better understand and address the equity outcomes of PES schemes. The empirical findings presented in this case study therefore enrich the emerging literature that calls for transcending conventional PES thinking by recognising the need to understand the historically determined institutional context of a PES scheme and to create designs that reduce rather than exaggerate existing inequities and imbalances of power.

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NOTES

1. Given the challenges in developing nations regarding reconciling local resource-users' needs with those of national/global conservation, PES have received tremendous support for overcoming fundamental flaws of state and community-based approaches (Ferraro and Kiss 2002)—at least conceptually.
2. In most PES schemes, payments are rarely made through the ideal-type market exchange scenario (Fletcher and Breitling 2012; McElwee 2012), rendering the majority of these schemes, especially in developing countries 'market-like' at best (Wunder 2007: 50), or 'hybrid' (Muradian and Gómez-Baggethun 2013; Van Hecken et al. 2015).
3. The Land (Group Representative) and Land Adjudication Act was enacted in 1968 by the Government of Kenya.
4. Mara North Conservancy is located on the western side of the Masai Mara National Reserve, extending the protected area for wildlife and tourism. Kasigau is located between Tsavo East and Tsavo West National Parks, forming a connecting corridor for wildlife between the two parks.
5. Tenure arrangements in Kasigau are multiple and include ranch ownership by individuals (one or two persons), private companies (maximum 50 shareholders), and Directed Agricultural Companies (with no legal limit on membership, but such a limit can be imposed through internal regulations) (Njogu and Dietz 2006; Chomba et al. 2016).
6. For a better understanding of the different business models, refer to the Mara Conservancy (https://www.maratriangle.org/), and for Kasigau, Chomba et al. (2016) and http://www.wildlifeworks.com/saveforests/community_kasigau.php. Accessed on 09, 25, 2017.
7. https://Net-Map.wordpress.com/process-net-map/. Accessed on 12, 01, 2017.
8. The results displayed in Figure 6 represent the perceptions of male respondents. We were unable to solicit sufficient information to complete a Net-Map with women because of cultural norms that prevent women from access to information regarding the PES scheme (GDs; KIIs 5, 2, 3).
9. Members of the Landowners Committee and Board of Governors were never directly named, however, they were often alluded to as coming from 'wealthy' families and wielding local political powers (household interviewees 6, 8, 11 and 15).
10. Participant observation from the authors confirms that women who attended community meetings did indeed actively participate.
11. However, study respondents recognised and admitted to the occurrence of a considerable degree of charcoaling activities outside project areas (men and women group discussions; key informant 7; household respondents 19, 21, 29 and 30).
12. Local communities did not differentiate the different entities and subsidiaries of Wildlife Works. For example, Wildlife Works Sanctuary (who traded the carbon credits) and Wildlife Carbon Trust (who did direct engagement with local communities) but were collectively known as Wildlife Works.
13. Respondents recalled cases of self-selection (male group discussants; household interviewees 6, 9, 11 and 17) where a minority elite manipulated the subdivision process to secure large tracts of land located in fertile areas or hosting tourist lodges often through bribery (key informants 1, 2 and 4).
14. The Trust was the institution responsible for distributing tourism benefits under the ranch structure.
15. This was, according to interview information, a very unstable and fluctuant process of collective action. The associations replaced the benefit-distribution role of the Trust as land was no longer owned under the 'group' status, but transitioning to individual status; the Trust therefore was disbanded as a redundant institution.
16. See Chomba et al. (2016).
17. Ranch ownership was secured by trustees (mainly local politicians and senior district and county council officials) on behalf of the local community who signed lease agreements.
18. In fact, during this period Taita became countrywide known for its charcoal production (key informants 6, 7; household interviewees 19, 26 and 29).
19. One share was on offer for the equivalent of under USD 5 per acre (key informant 7).
20. Economic revival was enabled by money from the sale of 1 million tonnes of carbon at approximately USD 4.5 per tonne.

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