



# The Contribution of Private Rangeland Enclosures for Pastoral Production Systems and the Future of Communal Rangelands in Borana Plateau, Southern Ethiopia

EA TIRI Scholar: Yibeltal T. Wassie, Hawassa University

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## Research Brief

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### Abstract

Over the last two decades pastoral and agropastoral communities of the Borana plateau have been increasingly establishing private rangeland enclosures locally known as Kallos as pasture reserves to help them cope with the impacts of climate variability and livestock feed scarcity during dry periods (Desta, et al., 2013). However, these rangeland enclosures have also come created new challenges and problems especially when viewed in the context of maintaining the traditional communal use arrangements, access and equity issues in utilization, and management practices. The main objective of this study was to examine the role of private rangeland enclosures in supporting livestock production and income of pastoral and agro-pastoral households in the face of frequent droughts and climate variability. Conversely it also attempts to explore the impacts of the current trends of privatization of rangelands on the future of the traditional open access communal rangeland use arrangements. 

### The Borana Plateau Study Area

The Borana pastoral plateau (Borana zone) is located in the Southern tip of Ethiopia bordering Northern Kenya between 3°36'– 6°38' N and 3°43'– 39°30' E. The zone is made up of thirteen districts covering 95, 000 km<sup>2</sup> divided into two agro-ecological zones: the semi-arid lowlands to the south and the more humid lands at higher altitudes to the north (Boku, 2003). The climate is arid and semi-arid. Rainfall is bimodal, with the long rainy season in March–May and the short rains in September–November, followed by the long dry season. Rainfall is variable with strong effects on range productivity. Average annual rainfall varies from 353 to 873 mm; droughts occur once every 5–10 years (Coppock, 1994). Traditional transhumance pastoralism is the main stay of household economy followed by thriving agriculture mainly in highlands. The population of Borana zone is estimated 1.1 million (CSA, 2008); 84 percent living in rural areas practicing traditional trans-human pastoralism.

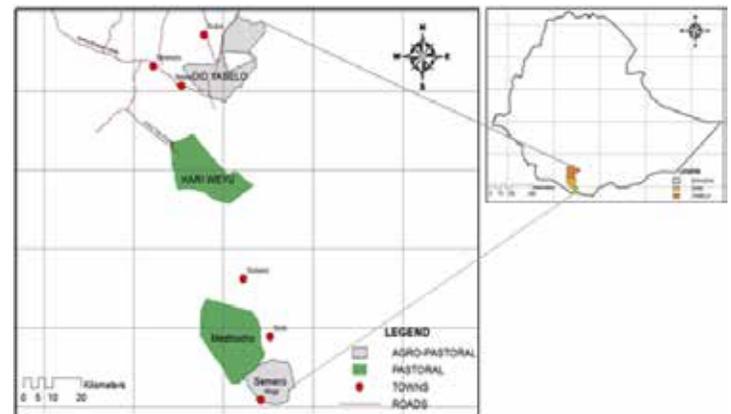


Figure 1: Map of the Study Area (Source: Oromia MoFED, 2010)

The research was conducted in five (two pastoral and three agropastoral) villages (Gendas) from two districts: Yabello and Dirre. A multi-stage systematic random sampling method was used to identify study households for the data collection. As a result, a total of 108 (roughly 5% of total households in each Genda), sample households were selected from the five gendas for the data collection. Quantitative and qualitative data was collected through household survey and key informant discussions supplemented by field observational study of kallos management and use.

### Determinants of Private Kallo Ownership and Use Rights

One of the main research objectives of this study was to explore and examine who in the community are actually increasingly establishing the private kallos and what characterizes these groups of the society. It is important to understand the push factors and future prospects of the privatization.



VARIABLES	Romso (n=21)	Harallo (n=23)	El woya (n= 22)	Harboro (n=25)	Madecho (n=17)	Total (N=108)
Average age of respondents	48.1	39.6	38.7	43.5	52.7	44.52
Average HH size	6.57	6.30	7.5	6.15	6.25	6.53
No. of men-headed HHs	14	17	18	19	12	80
No. of women-headed HHs	7	6	4	6	5	28
No. of rich HHs	2	2	2	1	2	9
No. of medium HHs	7	6	4	6	5	28
No. of poor households	12	15	16	18	10	71
No. of HHs owning private Kallo	12	16	16	10	7	61
No. of HHs not owning private Kallo	9	7	6	15	10	47
Average size of private Kallo	1.14	4.86	1.38	0.57	0.62	1.71
Average HH total landholding in ha	2.88	5.72	2.8	0.65	1.14	2.64
Average HH Livestock Holding	26.11	19.47	16.44	12.37	29.8	20.83

Table 1: Demographic and Socio-economic Characteristics of Study Households. Descriptive statistics of explanatory variables

According to results of the correlation test, the most important sociopolitical and-economic variables determining household's ownership and access to a private kallo in Borana plateau are: Land holding size with coefficient of 0.87; gender (male) with coefficient of 0.71; Socio-political position (membership to government administration or Coree/committee) with correlation coefficient of 0.63 and wealth status (Rich or medium) with correlation coefficient of 0.55. Findings of the correlation test were squarely reflected during the key informant discussion with elders of the community. According to these results on table 3 and data from key informant discussants, those pastoralists and agropastoralists who happen to inherit bigger land size from their family or those that are rich and can buy more land from the poor agropastoralists are the ones that are owning private kallos.

These groups of the community are expanding the privatization by either informally acquiring new land from the common or purchasing new land from the poor. Land allocation to privates has been suspended over the last two years at national level. The second group are those who are members of the state administration or affiliates to it as members of the community-government range governing committee known as the Coree. These groups use the advantage of being closer to the regulatory body (Genda administration) to acquire private kallo. The last are the few poor pastoralists or agropastoralists that took not

more than a hectare of land from the state to initially begin crop farming but gradually decided to use the land as a kallo and earn money through renting the kallo to rich pastoralists or livestock traders.

An important implication of Table 3 is that, given the economic and socio-political advantage that the current holders of private kallos have over the ordinary pastoralists, the future of communal rangeland ownership and use arrangement could inevitable be weakened and a more significant size of the communal rangeland will be privatized. Yet, the privatization process remains highly skewed to the rich and powerful, leaving the mainstream pastoralists and the poor in absolute inequity. Though it may require further investigation, preliminary extrapolation of the current private holdings to zone scale showed that at present nearly 26.7 % of the communal rangelands are under private holdings.

### Contribution of Private Kallos on Livestock Productivity and Household Income

Comparisons of average cow milk yield and income from livestock products between households owning different sizes of private rangelands show considerable differences (See Table 3). Interestingly, the average milk yield per milking cows per day is higher for households who own private kallo holdings of 1 to 5 ha followed by those who

	Private enclosure in ha	Gender/ sex	Wealth status	Socio-political position	Cattle holding	TLU	Total land holding in ha
Private enclosure in ha							
Gender/ sex	0.711*						
Wealth status	0.552*	0.687*					
Sociopolitical position	0.631*	0.842*	0.562*				
Cattle holding	0.069	0.337	0.659*	0.294			
TLU	0.078	0.324	0.827*	0.177	0.506*		
Total land holding in ha	*0.87	0.099	0.373	0.513*	-0.414	-0.404	

Table 2: Determinants of Private Kallo Ownership and Use Rights. Results of the correlation analysis between size of private rangeland enclosures and determining socio-economic and institutional variables

hold more than 5 ha, with the lowest yield seen for the typical poor agropastoralists who have less than a hectare of kallo. This suggests that private kallos—especially of considerable size—could help increase milk yield through providing naturally high quality pasture reserve to milking cows. From the socio-economic and social position assessment, groups in the community with more than 1 ha of private kallo were medium and rich pastoralists and agropastoralists that have inherited land from their family, have bought additional private land from the poor, or are affiliated to the government or Coree (range governance committee built from community and state). However, those groups of the community owning less than a hectare and have a lower average milk yield per cow per day than the pure pastoralists (No Kallo) are poor pastoralists or agropastoralists who were given land by the government to begin crop farming but later maintained the land for kallo.

Similarly trends of average income from cow milk and livestock sales per year per household between households owning and not owning private kallos showed comparable differences. Although these income types are subject to livestock holding, the results in table 3 indicate an increasing income from milk sale and livestock sale with increasing size of private kallos until 5 ha. Uniquely, households holding more than 5 ha appear to have lower income from milk and livestock sales compared to those households owning less hectares of kallos. The most probable reason for the latter group—as pointed out during the key informants discussion—was that households owning more than 5 ha of private kallo are often people who rent their rangeland/pasture to livestock traders to keep their livestock until sold. As such, the economic contribution of part of these kallos is not directly related to the livestock the households owns, but rather, incurred directly as monetary from rent.

### Perception of Communities towards private Kallo establishment

Assessment of the perception of local communities in the study area towards current and future establishment and management of private kallos has revealed contrasting results (See Figure 2). While more than 60% of the households do believe that private kallos are beneficial—especially to cope with the disastrous impacts of livestock feed shortage during dry seasons—some significant respondents (18.51%) have also reflected their dissatisfaction with the current ownership and use right arrangement of private kallos. These latter individuals indicate that the kallo system privileges the rich and state affiliated households while marginalizing and dragging the poor down in a poverty spiral. Other notable community perceptions heard were the impact of kallos on

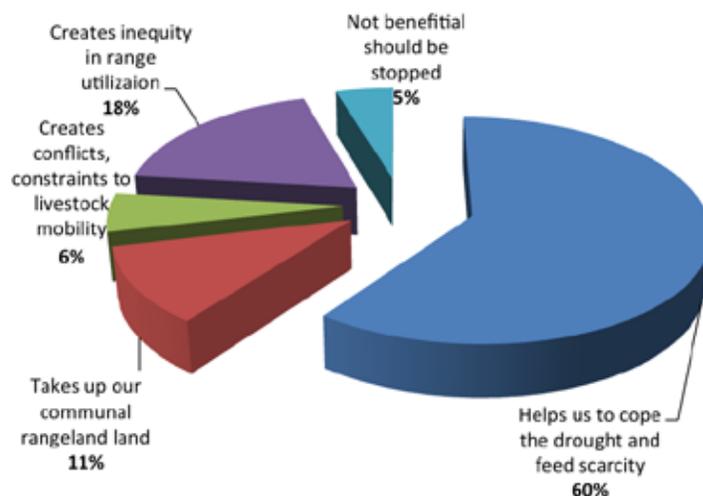


Figure 2: Perception of study households towards private Kallo establishment and Management

shrinking and fragmentation of the communal rangeland. Kallos can result in distribution of all of the relatively productive rangelands into the hands of private owners, according to 11.11% of the respondents. Additionally, some 5.6 % of respondents perceive that private kallos are bringing conflict and other problems to the communities—especially over trespassing and resource access.

### Conclusion

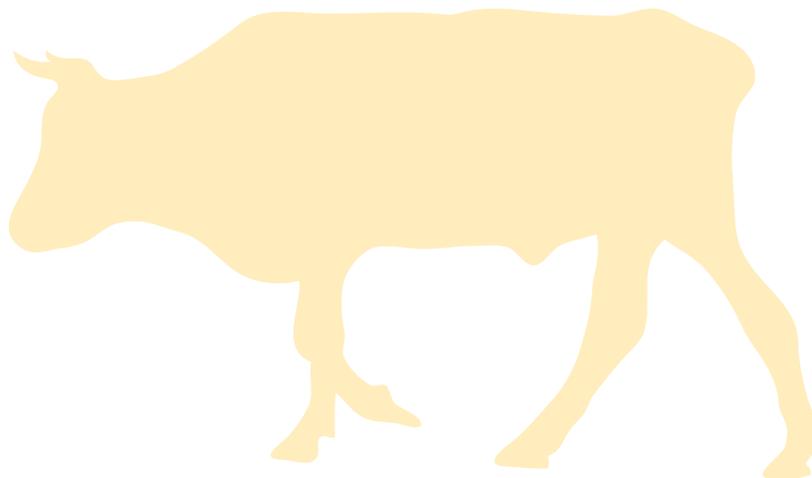
This study has revealed that pastoralists and agropastoralists in the Borana plateau are establishing more and more private rangeland enclosures than before. The most important groups of the community owning and establishing these private enclosures are men-headed households with higher wealth status, land holding, and affiliation to the formal government administration. Assessment of the contribution of private kallo ownership on livestock productivity indicated that those groups of the community who own private kallo of greater than 1 ha have better milk yield per cow per day than those who do not have private kallo or who have less than a hectare. Similarly, income from livestock sales also increased with increases in private enclosure holding sizes. However, the perception of studied households on private rangeland enclosures is divided. While 60% of the households support establishment of private enclosures, nearly 39 % are either opposed to the way the rangelands are given to privates or the privatization of rangelands itself. The main reasons are loss and shrinkage of the communal rangelands, inequitable process, and conflicts over access to rangelands between kallo owners and non-owners. 🐄

Size of private kallo in ha	Average No of milking cows	Average milk yield/ cow/ day in Lt	Average cow milk sold in Lt/day	Average income from cow milk sale/yr	Average income from livestock sale/yr
No. Private Kallo	3.32	4.52	5.01	3607.2	7186.22
< 1 ha	1.92	2.61	1.67	1202.40	7041.67
1 to 3 ha	4.91	5.58	11.28	8121.65	16167.06
3 to 5 ha	9.31	5.86	18.18	13089.67	11383.85
>5	4.67	4.72	8.90	6408.00	5600.00

Table 3: Contribution of Private Kallos on Livestock Productivity and Household Income. Comparison of average cow milk yield per head and livestock income under different private kallo holdings

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*TIRI, Targeted Investment for Research Impact, identifies early-career researchers who are interested in tackling livestock production problems through innovative approaches and fresh perspectives. This small-grant program is open to early-career researchers (five or fewer years into research career) in any discipline, from student to professor, and from any organization that is engaged in applied research on livestock production in South Asia and East Africa — colleges and universities, government research centers or laboratories, or non-profit organizations.*

*Proposals are selected based on their potential to make livestock production systems more resilient to increasing climate variability and severity. At the end of one year, TIRI scholars are expected to demonstrate concrete outcomes and real potential for future impact. The 10 selected East Africa TIRI scholars and the 18 selected Nepal TIRI scholars are addressing research problems on various livestock and climate research themes.*



**Feed the Future Innovation Lab for Collaborative Research on Adapting Livestock Systems to Climate Change is dedicated to catalyzing and coordinating research that improves the livelihoods of livestock producers affected by climate change by reducing vulnerability and increasing adaptive capacity.**

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