

drawing lines in the sand: drought & privatization in kenyan maasai lands

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abstract: Climate change is predicted to cause drastic and wide-ranging environmental effects in less-industrialized countries of the global south, notably those situated at the equator. This research assesses how pastoral strategies of land use by the Maasai of Kenya respond to conditions of climate change, specifically a severe drought, in the light of legal land tenure changes. Land that was once held collectively has been now demarcated into individual parcels, and this article maintains that land individualization is not a viable policy for the indigenous pastoralist way of life, especially during times of ecological stress. First, this is anchored in the fact that fragmented herbivore grazing is less able to cope with drought, based on studies of environmental cycling in dryland ecosystems. This is corroborated by case studies of Kenyan Maasai of both subdivided and unsubdivided ranches, who find themselves less able to cope with drought in subdivided land because of hindrances and restrictions to movement. Spatially, people are not maintaining herds on their individual parcels, and are devising strategies to make migration possible. This is often done through the use of traditional land entitlements, and I examine the synergy of legal and traditional land entitlements to attempt to overcome the negative repercussions of subdivision in times of ecological stress.

Dominant environmental discourse asserts that the countries and peoples of the world who are the least responsible for creating conditions leading to climate change are, for a variety of reasons, those who are most likely to suffer severe consequences. In Kenya, the indigenous Maasai tribe is no exception, and climate change is expected to increase the frequency and severity of droughts that affect the dryland ecosystems that they call their home. Where rainfall is localized in both space and time, rights of access to land can directly influence the ability of community members to survive. In order to support and increase the resilience of these communities to ecological stress, this article examines the effects of current land policy during a drought, and the ways in which this can be adapted to better empower the landholders to cope with climactic extremes.

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There is a growing consensus within the scientific community about climate change trends expected to occur in the near future, although the dominant discourse does not claim to predict with detail the exact effects of future climate change on the varying ecosystems on this planet. However, the International Panel on Climate Change gathered enough evidence to predict that aggregate rainfall in the horn of Africa will decrease, possibly by 10% by 2050.¹ The general conclusion is that the frequency and magnitude of droughts in Kenya will increase as a result of climate change.² The Maasai are anticipated to be among those hardest hit globally, in that they will be required to cope with new droughts shortly after the occurrence of each previous one.³

The crux of many of these calculations is predicated on the El Nino and North Atlantic Oscillations, and the way in which these large-scale weather patterns will react to the earth's changing climate. The ecosystem in Kenya and Tanzania inhabited by Maasai is characterized by atmospheric patterns, including rainfall and temperature, that vary along with the El Nino Southern Oscillation.⁴ According to predictions about the behaviour of ENSO in models of climate change, scientists believe that the Normalized Difference Vegetation Index for pasture areas in Kenya will be reduced, indicating a decrease in the productivity of the vegetative base of the ecosystem.⁵

In this article, I will explore the interaction between climate change effects and 'development' in the context of the Maasai tribe of Kenya. The Maasai are semi-nomadic pastoralists, who traditionally managed their grazing lands through a system of communal tenure. To 'develop' this tribe, large-scale land reforms were instituted in the last 30 years that attempted to privatize the commons, to prevent the dominant Western land tenure discourse of the time, the 'tragedy of the commons' argument. Subsequently, the environmental discourse has changed course, and, based on research into the ecology of rangelands, has indicated that pastoral land use patterns are likely to be more ecologically sustainable than individual tenure. Specifically, it is of interest whether it is viable for the Maasai to maintain a pastoralist way of life during times of ecological stress, such as drought, when their land is demarcated

1. IPCC. "The Regional Impacts of Climate Change: An Assessment of Vulnerability." Cambridge University Press, 1997.

2. Ibid, 282

3. IRIN. Kenya: Impact of Climate Change on Three Masai Families. Magadi/Nairobi: UN Office for the Coordination of Humanitarian Affairs, 2008.

4. Ogotu, J.O., et al. "El Nino-Southern Oscillation, Rainfall, Temperature and Normalized Difference Vegetation Index Fluctuations in the Mara-Serengeti Ecosystem." African Journal of Ecology 46 (2007): 132-43.

5. Stige, Christian, et al. "The Effect of Climate Variation on Agro-Pastoral Production in Africa." PNAS 103 9 (2006): 3409-053.

into individual parcels. Does individualized land tenure provide the ecological requirements necessary to base one's livelihood on animal husbandry? What patterns emerge in a community that has recently demarcated their lands to individual tenure?

One such Kenyan community was selected as the focus of this study; located several hours south of Nairobi, Oltepesi group ranch was first demarcated in the 1990s. The severe drought of 2008-2009 provided an effective example of ecological stress, and a diverse selection of families, a subset of a larger survey project, was interviewed about their land use and mobility strategies during that time. Using contextual analysis and interviews of case studies in this community and a nearby, non-subdivided group ranch (Olkiramatian), it is possible to discern patterns about the effects of subdivision on pastoralism during a drought period.

This paper will attempt to examine a social understanding of landscapes and pastoral patterns of land use. To begin, it will overview the history and academic discourse of privatization of the commons that emerged from Western society. To determine the potential effects of subdivision on pastoral livelihoods, three courses of examination will be pursued. The first section will focus on the opinions and research of Western ecologists to outline the effects they predict for subdivision on dryland nutrient cycling, and how this will impact the success of pastoralism. The second section will explore the opinions of case study families in Oltepesi and Olkiramatian about subdivision and its potential repercussions for pastoralism. The topic of consultation will focus on whether or not there is a perceived loss of mobility. Thirdly, the geographical movements of both communities during a recent drought (that of 2008-2009) will be examined, based on empirical research with these case study families. This will elicit the current coping strategies employed by these communities, in order to draw a conclusion as to the viability of subdivision.

Because of the change to legal land rights, the Maasai are currently in a position where they are under the influence of changing and conflicting institutional structures, which will be analyzed using the "Environmental Entitlements" approach as explained by Leach et al.,⁶ in which institutions, patterns of common behaviour in a

6. Leach, Melissa, and Robin Mearns. "Environmental Change & Policy: Challenging Received Wisdom in Africa." *The Lie of the Land: Challenging Received Wisdom on the African Environment*. Eds. Leach, Melissa, and Robin Mearns. Portsmouth: Heinemann, 1996.

society, are examined with regards to their effects on the interface between society and the environment. The idea of entitlements is built upon the work of Amartya Sen, and refers to the actual possibilities of what a person 'can' have, based on their rights and opportunities. These entitlements are derived from one's endowments, which are the actual rights and resources one possesses.⁷ The data presented here explains what resources people view as under their control, and which institutions delegate this control to whom. What options are available for use of these resources? Given this context, how are people responding to drought?

Using a framework of environmental entitlements to examine the observed decisions, it will be possible to perceive the interaction of environmental trends such as climate change with land policy and the resultant societal patterns of resource use. Through these inquiries, the effects of land privatization during a time of ecological stress can be identified, to better inform land management decisions. This has repercussions for the legal institutions for land rights and other aspects of local governance in Maasai-land, as well for other communities engaged in animal husbandry in arid lands.

background

the historical maasai land tenure system

Prior to engagement with colonial regimes, the Maasai organized their territory into sections, and people generally lived and moved within these boundaries.⁸ Although there was not a legal system of land ownership as understood in the West, the land was held under communal tenure, which consisted of highly structured regimes for allocation of user rights. This differs substantially from an open access system because one derived rights of access to the land and water resources through community affiliation and negotiation; having the right to use a piece of land did not exclude others from also holding that right.⁹ Mutual assistance networks within the communities allowed for adaptive management and fostered ecological and social resilience.¹⁰

7. Ibid.

8. Galvin, Kathleen, et al., eds. *Fragmentation in Semi-Arid and Arid Landscapes*. Dordrecht, The Netherlands: Springer, 2008, 37.

9. Galaty, John. "Rangeland Tenure and African Pastoralism." *African Pastoralist Systems: An Integrated Approach*. Eds. Fratkin, Elliot, Kathleen Galvin and Eric Roth: Lynne Rienner Publishers, 1994, 187.

10. Galvin et al. 2008, 373

Maasai are semi-nomadic pastoralists; cattle, sheep and goats are the basis of their livelihoods and provide sustenance and capital to the herders. To sustain their herds, pastoralists continually moved their animals from place to place to exploit grazing land, both within and outside of their proper sections.¹¹ This movement was not a random phenomenon, but was mediated by a variety of environmental and social factors. The most notable is the division of land into dry-season and wet-season grazing land. Rainfall is bimodal in Maasai territory,¹² and dry-season grazing areas were set aside for regeneration during the wet season.¹³ Wet-season grazing land was usually at lower elevations and relied on temporary surface water accumulations, while during the dry season people would migrate vertically upwards into the wetter escarpments.¹⁴ This prevented continual grazing of the pasture, and assured the existence of grazing sources during times of water stress.

It would be a gross oversimplification, however, to predicate movement strategies entirely on ecological dynamics. Social structures are influential in migratory patterns; people can use movement to strengthen and manipulate social ties.¹⁵ Economic and political factors, such as the location of markets, transportation, threats of law enforcement and social conflict, affect migration decisions and can push or pull people in different directions.¹⁶

legal land history

In the early 1900s, European colonialists arrived Kenya, and Maasai territory came under British 'control'. The settlers appropriated a large amount of the most valuable land from the Maasai,¹⁷ and relocated the indigenous people to reserves that were less than one-third of their original landholdings.¹⁸ By the 1960s, the government paired with development agencies to advocate for sedentarization of the Maasai onto delineated sections of land. This scheme was not wholly opposed by the indigenous people themselves, who saw several advantages to the proposal. For them, title deeds were means to gain legal control over their land, and prevent further loss to outsiders; many Maasai supported the initiative even though the proposed "group ranches" did not necessarily include both dry and wet season grazing.¹⁹

11. Galaty 1994, 187

12. Galaty. "The Land Is Yours": Social and Economic Factors in the Privatization, Sub-Division and Sale of Maasai Ranches." *Nomadic Peoples* 30 (1992), 27.

13. Galvin et al. 2008, 57

14. Galaty. "The Indigenization of Pastoral Modernity: Territoriality, Mobility, and Poverty in Dry-land Africa." *African Pastoralism*. Eds. Bollig, Michael and Hans-Peter Wotzka: Berghahn Publishers, In Press.

15. McCabe, Terrence. "Mobility and Land Use among African Pastoralists: Old Conceptual Problems and New Interpretations." *African Pastoralist Systems*. Eds. Fratkin, Elliot, Kathleen Galvin and Eric Roth. Boulder, CO: Lynne Rienner Publishers, 1994, 73

16. Galaty in press.

17. Ibid.

18. Kimani, Kamau, and John Pickard. "Recent Trends and Implications of Group Ranch Sub-Division and Fragmentation in

In 1968, the Land Group Representative Act was passed in Kenya, which provided the legislative basis for the creation of Group Ranches, and divided Maasai territory into slices of land whose formal 'owners' were a group of adult male 'representatives' of the larger collectivity of community members.²⁰ The process of creating Group Ranches was carried out through the "Kenya Livestock Development Project", and supported by international donors.²¹

After several years of group ranches, Maasai began to become disillusioned with the results. The leadership often turned out to be corrupt and inefficient,²² and people began again to fear the loss of their tribal lands through poor governance, while seeing the utility of individual title deeds for securing loans.²³ The alternative option presented was that of individual tenure, or subdivision of the group ranch itself. Kenyan national policy in 1983 encouraged this alternative, with the perspective that it was a necessary condition for economic development of the Maasai people to own land individually.²⁴ The President of Kenya himself expressed this as a 'right' of Kenyans to own land, and supported the demarcation option.²⁵

In 1986 the first group ranches subdivided, and private ownership became a legal reality.²⁶ By 2006, 32 of the 52 group ranches in Kajiado district were subdivided, 15 were in the process of doing so, and only 5 were not subdivided.²⁷ Unfortunately, subdivision was carried out inequitably, and there was much controversy over land claims with regards to age and clan membership.²⁸ Land was allocated in varying dimensions to different people, including outsiders who had no legitimate right to inclusion; corruption was pervasive.

why subdivide?

The foundation of the individual tenure school of thought is based on the well-known argument of the 'tragedy of the commons' by Garret Hardin, in which herdsmen over-populate their shared grazing area with animals because the negative return of shared environmental degradation to one actor is less than the positive advantage he gains by grazing one more animal.²⁹ The rational response to this type of prisoner's dilemma thought experiment

Kajiado District, Kenya." *The Geographical Journal* 164 2 (1998).

19. Ibid.

20. Ibid.

21. Galaty 1992, 27

22. Homewood, Katherine, Patti Kristjanson, and Pippa Chenevix Trench, eds. *Staying Maasai? Livelihoods, Conservation, and Development in East African Rangelands*. New York: Springer Science + Business Media, 2009. 338

23. Kimani & Pickard 1998

24. Galvin et al. 2008, 33

25. Galaty 1992, 28

26. Galvin et al. 2008, 200

27. BurnSilver, S., and E. Mwangi. "Beyond Group Ranch Subdivision: Collective Action for Livestock Mobility, Ecological Viability and Livelihoods." *International Food Policy Research Institute (IFPRI)*, 2007. 2.

28. Galaty 1994, 30

29. Hardin, Garrett. "The Tragedy of the Commons." *Science* 162 3859 (1968): 1243-1248.

does not result in the most successful cooperative alternative. The World Bank therefore argued that communal land management in Kenya would lead to environmental degradation,³⁰ and people believed that privatization would encourage the stewardship of land, and avoid this tragedy of the commons.³¹

The dominant conception of nature at the time included the idea of a 'climax' community of vegetation that existed when the land is undisturbed. This concept is married to an inherent 'carrying capacity' of the land, which represents the largest number of a certain species that it can support.³² It follows that exceeding the carrying capacity will negatively affect the baseline conditions; rhetoric on this issue often cites the overstocking of animals as the root cause of the loss of productivity and biodiversity, sometimes even culminating in desertification.³³ Optimal land policy, therefore, would limit livestock numbers and contain nomadic pastoralists within legal boundaries. Based on this rhetoric, the Kenyan government believed that group ranches failed to meet these objectives, and needed to be subdivided.³⁴

Several cases were also made that private land tenure would increase the range of entitlements Maasai would control for their tracts of land. Private land tenure was expected to increase opportunities for Maasai to integrate their livestock production systems into the market-based economy, and provide animal products for the wider population. Economically, it was assumed that, without private rights to land, there is no incentive for improvement, and stagnation or degradation will ensue.³⁵

The Maasai who supported privatization did not necessarily believe all these arguments,³⁶ but many were in agreement that private land holdings were necessary to protect their territory from further outside encroachment or poor group ranch management.³⁷ The general hope was that revisions to the law would encode the customary rights of the Maasai and prevent others from encroaching on their land; accepting this proposed development from the government seemed to promise the security people were searching for.³⁸ Young men especially, who had not been included in the group ranch register, petitioned for subdivision in order to

30. Thompson, Michael, and Katherine Homewood. "Entrepreneurs, Elites, and Exclusion in Maasailand: Trends in Wildlife Conservation and Pastoralist Development." *Human Ecology* 30 1 (2002): 107-37.

31. Galvin et al. 2008, 26

32. Fairhead, James, and Melissa Leach. *Misreading the African Landscape*. Cambridge, UK: Cambridge University Press, 1996.

33. Homewood et al. 2009, 337

34. Kimani & Pickard 1998

35. Migot-Adholla, Shem, et al. "Indigenous Land Rights Systems in Sub-Saharan Africa: A Constraint on Productivity?" *The World Bank Economic Review* 5 1 (1991): 155-75.

36. BurnSilver & Mwangi 2007, 5

37. Galvin et al. 2008, 233

38. Galaty 1999, 58

gain the entitlements of security of tenure and credit, even if they believed that subdivision would not be ecologically viable in the long term.

ecology of subdivided land

This section consults the current scientific literature about the ecology of semi-arid lands, and the ways in which these cycles affect pastoralism. What are the ecological effects of subdividing land where herbivores used to migrate? The current accumulation of academic studies has formulated a counter-narrative to the story of the tragedy of the commons.³⁹ Based on the nutrient and vegetative cycles of dryland ecosystems, it is currently predicted that subdivision will reduce mobility, and therefore the capacity of the ecosystem to sustain herbivores and biodiversity.

heterogeneous landscape

An appreciation of the diversity of vegetation is key to understanding dryland ecosystems. Different patches of flora develop as rainfall moves throughout the landscape, creating a system in which the forage and water is not homogeneous at any one time.⁴⁰ A 'climax' vegetation community does not develop, because the plant community is in a constant transition between a series of successional states. Change in one factor might cause a regime shift that cannot be reversed if the factor is restored, and there is no inherent baseline to which the system will return after a disturbance.⁴¹ Fluctuating rainfall is understood to create boom/bust patterns in the landscape, which render fixed stocking rates irrelevant based on carrying capacity analysis.⁴²

Based on this conception of ecosystem patchwork dynamics, mobility is understood to be crucial for animal species existing in these environments. Herbivores are physically adapted to be able to travel for hundreds of kilometers in search of water or forage; they graze in one area long enough to deplete the local vegetation before moving on.⁴³ In this way, they are able to sustain relatively even diets in a heterogeneous landscape, and such opportunistic foraging enables them to cope with uncertainty in grazing conditions.⁴⁴ Because the biomass of palatable vegetation is not concentrated spatially for herbivores, they need access to a larger

39. Roe, Emery. *Narrative policy analysis: theory and practice*. Durham NC: Duke University Press, 1994.

40. Galvin et al. 2008, 55

41. Fairhead & Leach 1996, 282

42. Homewood et al. 2009:337

43. Galvin et al. 2008:45

44. *Ibid.*, 56

geographical area to sustain the feeding requirements of a herd.⁴⁵ Mobile animals are also able to search out shade and avoid concentrations of parasites, diseases, or predators.⁴⁶ Scientists using remote sensing data have indicated that privatization will decrease forage options because people are not ensured to receive rainfall on their private plots.⁴⁷

The “connectivity” of the landscape is a defining ecosystem characteristic, describing both the distance between grazing patches and the ability of herbivores to migrate between patches. In contrast to the previous discourse of privatization, the conclusion from this analysis is that a larger degree of connectivity will increase the survival expectation of the species.⁴⁸ Based on this, pastoral mobility is not only a ‘rational’ adaptation to environmental heterogeneity, but is often considered the best use of semi-arid land because the animals are enabled to forage opportunistically and have the largest chance of survival in drought conditions.⁴⁹ In fact, a body of literature holds that indigenous Africans “may have long been practicing ‘opportunistic’ resource management attuned to non-equilibrium ecological conditions”.⁵⁰

The necessity of movement for herbivores is substantiated by arguments for ecosystem resilience based on plant community dynamics. The pattern of intensive grazing in one patch followed by migration to another patch reinforces the heterogeneity of vegetation in which different areas are in different stages of ecological succession and dominated by different species. This patchy regeneration increases the biodiversity of the area, and greater plant diversity also enables greater herbivore diversity.⁵¹

Herbivore movement is also a factor in the spatial distribution of nutrients; animals consume vegetation in one area and excrete high-nutrient waste products in another. Concentrations of these nutrients in areas where animals congregate can create the conditions required for tree growth. In this conception of ecosystem resilience, the biodiversity resulting from herbivore movement creates trophic energy flows that even affect predators, and increase the ability of the whole system to cope with shocks.⁵² It is believed that “opportunistic herd mobility across different ecological zones in a given area allows for a higher total carrying capacity compared with sedentary herds in each zone”.⁵³

45. Ibid., 48

46. Ibid., 62

47. Burnsilver & Mwangi 2007, 13

48. Ibid.

49. Kimani & Pickard 1998

50. Leach & Mearns 1996, 29

51. Galvin et al. 2008, 65

52. Ibid., 68

53. Kimani & Pickard 1998

Therefore, researchers predict that privatization will decrease the ability of animals to find food. It is clear from the juxtaposition of these arguments with tragedy of the commons discourse that the studies put forth by the academic and development community can obscure diverse understandings of a system by framing the problem in a certain light, and can enable development policy that does not address key local realities.⁵⁴ In terms of environmental ‘degradation’, the academic community has drastically reversed its position on land individualization in semi-arid areas, from championing privatization to accusing the same system of such ‘degradation’.⁵⁵ Grazing regimes under subdivision will shift to intensive grazing of smaller tracts of land,⁵⁶ and it is asserted that this does not consider the long-term health of the ecosystem,⁵⁷ notably because the animals will need to be cycled more quickly through a smaller area and prevent the possibility of patchwork regrowth of vegetation.⁵⁸ This is expected to cause soil compaction, reduce infiltration, and hamper root systems.⁵⁹

subdivision reduces entitlements

Given that the ecology of semi-arid land requires mobile herbivores, reducing migration through subdivision makes pastoralism a less viable livelihood strategy. Many researchers have anticipated a change in the entitlements of Maasai ranchers under individualized tenure, including a reduction in mobility, reduced herd numbers, an increase in poverty, and social stratification. Sedentarization of nomadic pastoralists, as exemplified by reducing their land entitlements, will likely eliminate people’s access to adjacent plots of land as sources of pasture or potential homestead locations and constitute a reduction in mobility.

Some Maasai have fenced their “individual” land; in the Kitengela area, studies have shown that 60% of residents have erected a property fence.⁶⁰ Fences increase the travel costs of migrating, because animals are required to walk a meandering path to reach their destination. Herding cattle a set distance took twice as much time in 2004 as it did in the 1980s before subdivision was introduced. In addition, cattle are limited in the number and diversity of plants they consume.⁶¹ Another study showed that previous migratory ranges could be 5000km² seasonally, while today they are

54. Fairhead & Leach 1996, 3

55. Burnsilver & Mwangi 2007, 1

56. Ibid., 2

57. Ntiati, Paul. “Group Ranches Subdivision Study in Loitokitok Division of Kajiado District, Kenya.” Nairobi, Kenya: International Livestock Research Institute, 2002.

58. Galvin et al. 2008, 72

59. Kimani & Pickard 1998

60. Homewood et al. 2009, 128

61. Galvin et al. 2008, 211

sometimes even reduced to 80km².⁶² Researchers are concerned that this limited mobility will reduce the capability of Maasai to deal with drought conditions during which they would not be able to migrate to distant pastures.⁶³

In general, it is currently expected that subdivided land will be able to support fewer numbers of livestock in the long term. This notably reduces the entitlements, in terms of the ability to raise livestock, of the Maasai in Kenya.⁶⁴ According to the predictions of a savannah ecosystem model, numbers of livestock supported on the land decreased as subdivided parcels dropped below 196km².⁶⁵ Households rely on the sale of animals for cash, and therefore a shrinking herd would reduce available monetary capital, and have negative repercussions on food security.⁶⁶

It follows that many researchers expect poverty to increase in Maasai communities. In these areas, wealth is measured by the size of one's herd, and in the Kitengela ecosystem, herd size still represents the largest explanatory factor for variations in household income.⁶⁷ Splitting families onto different parcels of land makes it more difficult for people to share workloads, such as pooling animals together for herding, and therefore decreases the leisure time available to each family.⁶⁸ Poor Maasai are also very vulnerable to selling their landholdings, and there is a widespread perception that people who have sold their land turned out to have become even more destitute.⁶⁹

A large body of research has also indicated an expectation that land subdivision will increase social stratification. Land that formerly belonged to all members of the community is now an economic resource that is marketable and considered "natural capital"; it can potentially enable those community members who are already well off to accumulate capital more quickly.⁷⁰ People run the risk of succumbing to a drought, during which they can be excluded from necessary resources.⁷¹ The literature expects that there will emerge distinct winners and losers from this situation, and the gap between the richest and poorest Maasai will grow.⁷²

62. Nriati, Paul. "Group Ranches Subdivision Study in Loitokitok Division of Kajiado District, Kenya." Nairobi, Kenya: International Livestock Research Institute, 2002.

63. Homewood et al. 2009, 399

64. Galvin et al. 2008, 54

65. Thornton et al. 2006, 350

66. Ibid.

67. Homewood et al. 2009, 136

68. Ibid., 213

69. Galvin et al. 2008, 214

70. Homewood et al. 2009, 25

71. Ibid., 388

72. Campbell, David, et al. "Land Use Conflict in Kajiado District, Kenya." Land Use Policy 17 (2000): 337-48.

There is a general consensus that if the Maasai suffer from reduced entitlements from their land resources, they will need to look elsewhere to derive entitlements that will allow them to continue raising livestock.⁷³ Unable to deal with temporal variation by using spatial migration, people become dependent on aid from outside, such as food aid and livestock feed.⁷⁴ When there is a high variability in the climate, fragmentation will necessitate reliance on outside resources to sustain the herbivore population, rendering a pastoralist way of life less possible based on the land.⁷⁵

Communal land tenure can offer the necessary migration to sustain animal herds, and the concept of the tragedy of the commons has even been reconsidered as the 'tragedy of enclosure'.⁷⁶ In fact, traditional systems might be most appropriate because of their capacity to address the large scale of land holdings required for pastoralism, in allowing for cooperation and coordinated management based on local ecological conditions of aridity.⁷⁷ The first way in which this has been reconceptualized has been the acknowledgement that pastoral societies did not consist of open-access regimes, but rather developed communal tenure systems that were governed by complex systems of social rules, such as migration patterns for livestock and limits on dry-season grazing areas.⁷⁸ Researchers characterize pastoralist systems as resilient in their flexibility⁷⁹ and also viable economically,⁸⁰ and Westerners recognized that communal tenure does provide communal control, which can sustain pastoralist use as it did in the past.⁸¹ Common land tenure is governed by social networks that have the potential to mediate conservation and investment for long-term viability.

context of empirical research

Given that the ecological arguments predict that pastoralism will not be a viable strategy during drought if the land is subdivided, this article now turns to the situation on the ground. The next two sections deal with empirical research on case studies of Maasai who articulate their views on subdivision and explain how they have been coping with a recent drought.

73. Galvin et al. 2008, 13

74. Ibid., 26

75. Ibid., 38

76. Galvin et al. 2008, 17

77. Galaty 1994, 199

78. Galvin et al. 2008, 370

79. Homewood et al. 2009:401

80. Migot-Adholla et al. 1991, 157

81. Homewood et al. 2009, 337

drought of 2008-2009

Drought is a normal, cyclical characteristic of ecosystem functioning in Kenyan rangelands. However, considering that it might increase in frequency and severity in the future, the imperative to understand coping mechanisms to deal with such ecosystem stress is even more salient. It is not possible to attribute any specific drought to the workings of climate change, so a recent drought will here be considered as a proxy to assess the situation of pastoralists.

2008-2009 represented a severe drought for many areas in Kenya; in July, the Kenya Food Security Steering group determined that the population affected by drought that was in need of “urgent humanitarian assistance” totaled 3.8 million people.⁸² Three rainy seasons were characterized by abnormally poor rainfall; the Maasai area in question received approximately 10-20% of normal rainfall.⁸³ By May 2009, the area was in the throes of a very severe drought, and suffering from local food insecurity.⁸⁴

site context: oltepesi group ranch, kenya

To analyze the effects of this drought, a Maasai group ranch was selected as a study area. Oltepesi Group Ranch is located in Western Kajiado district, approximately 50km south-west of Nairobi. The geology of western Kajiado district is mostly quaternary volcanics, and the terrain is broken and rocky. In this area, approximately 71% of the land is characterized as ‘semi-arid’ and 23% as ‘arid’, and the bi-annual rainfall ranges from 300 to 800mm as a yearly average.⁸⁵ Forest is rare, covering at most 1% of the area, and vegetation is dominated (74%) by wooded and bushed grassland.⁸⁶ Wild herbivores coexist in the landscape with their domesticated counterparts, and water is available for animals and humans from either boreholes or surface water sources, such as seasonal rivers and dams.

Within Kajiado district, Oltepesi group ranch is located in the Keekonyokie central location, which refers to a Maasai territorial distinction. It encompasses several hills, from approximately 3000 to 5000 feet above sea level. Most of the residents are engaged in husbandry of cattle, sheep, and goats, and agriculture is not prac-

82. (KFSSG), Kenya Food Security Steering Group. “The 2009 Long Rains Season Assessment Report”. 2009. Government of Kenya. <http://www.kenyafoodsecurity.org/longrains09/LRA_09_report.pdf>.

83. Ibid.

84. (KFSSG), Kenya Food Security Steering Group. “Kajiado District Long Rains Assessment Report”. 2008. Government of Kenya. <http://www.kenyafoodsecurity.org/longrains08/district_reports/kajiado.pdf>.

85. De Leeuw, P. N., B. E. Grandin, and Solomon Bekure. “Chapter 2: Introduction to the Kenyan rangelands and Kajiado district.” *The Borana Plateau of Southern Ethiopia: Synthesis of Pastoral Research, Development and Change, 1980-91* (1993). <<http://www.fao.org/Wairdocs/ILRI/x5552E/x5552e04.htm>>

86. Ibid.

ticed because of the variable climate and water scarcity. The group ranch itself was subdivided in the early 1990s, and the adjudication section was closed in 1996. There is currently a case in court in which the subdivision is contested due to fraud and “dubious acquisition of title deeds by outsiders”.

research objectives

In examining the consequences of subdivision and drought for Kenyan Maasai, this research aims to emphasize depth rather than breadth in data collection. In *African Pastoralist Systems*, McCabe points out that there is a “surprising lack of detailed information on specific patterns of mobility for specific pastoral peoples”, and that a focus on the individual family unit can reveal the variety of decision-making factors at work.⁸⁷ The fieldwork carried out for this project attempts an analysis at this level, in order to thoroughly map out the diversity of factors influencing mobility decisions, and understand the perceptions of different Maasai as to what their endowments consist of, and what entitlements they are able to derive.

To do this, in-depth anthropological interviews were conducted on selected community members, under the umbrella of a larger-scale survey project at McGill University. The interviewees were selected to provide a cross-section of the society, and represent a variety of families from different walks of life and differing opinions about subdivision and the environment. A research assistant from Oltepesi, Parteroi Ntekeet Ole Nchoki, identified seven case study families that include: the chairman of the group ranch subdivision committee, a local community official, someone who had sold his parcel of land, someone who was swindled out of his land, someone who did not receive land, an outsider who did receive land within the ranch, and a member of the subdivision committee who later withdrew.

A formal interview was conducted with at least one member of each family, and focused on the mobility of their livestock during the drought from May 2008 to May 2009. Details of livestock movements were mapped out, and then questions were posed as to the rationale behind every move of the herd. People were asked to identify a previous drought and compare their current situation

to that time, and also to present their views about and understandings of subdivision. The interviews were fluid and non-scripted, so that a wealth of case-specific information and anecdotes could be drawn out, and the interviewees responded enthusiastically at the opportunity to share their experiences and opinions. Narrative analysis was performed on these transcripts, to draw out the congruencies and overarching points. To contextualize these interview sets, I lived in the same community as Parteroi, and we observed and analyzed events, social dynamics, and customs to add depth and perspective to the information gathered.

In addition, several interviews were also conducted in another group ranch, Olkiramatian, which is located approximately 70km southwest of Oltepesi, near lake Magadi. This group ranch was chosen because it is not wholly subdivided; the greater part of the ranch is protected under communal tenure and retains the historical grazing pattern between dry-season and wet-season areas. In this group ranch, four similarly in-depth interviews were conducted to gain a framework for comparison. People were asked to provide their views on subdivision and predict the ways in which it would affect their situation, to compare it to the reality in Oltepesi.

maasai understanding of subdivision: restricted mobility

Using these case studies, this section explores how Kenyan Maasai perceive subdivision and its effects on their ability to deal with drought. In essence, how do people understand subdivision, and have the pastoralists suffered a loss of endowments to maintain their way of life? Livestock mobility, as understood in this context, refers to the ability of pastoralists to move their animals from place to place, and is a strategy to deal with environmental variability. In terms of environmental entitlements, this is predicated on the right, or endowment, of land; the grazing access through livestock mobility is the entitlement derived from this endowment. The entitlements of the tribe have therefore changed; mobility is restricted due to subdivision. Privatizing the commons allocates land as an environmental endowment to individual people; in the case of the Maasai, that represents a restriction on the endowments of community members. Instead of a traditional system in which all Maasai had rights to the entire area, now each family is endowed only with a small tract of land and can be excluded from all others.

exclusion

In Olkiramatian, the group ranch with intact grazing lands, the respondents emphatically asserted that they would exclude others from their land if it were subdivided. A former chief explained that if he owned a parcel of land, he would fence it and control the number of people who enter and leave, such that he can refuse requests of other people to use his parcel. Maasai living in a subdivided ranch offered numerous examples of exclusion they faced or participated in when trying to migrate their livestock. These examples include fencing, permission-seeking, and reduced access to water compared to previous communal tenure regimes, and they culminate in the ultimate dissatisfaction with subdivision felt throughout the community.

In Oltepesi, people shared a variety of stories highlighting how the boundaries of subdivision restricted their mobility. First, fences had been erected around certain property boundaries, and this hindered the movement of migratory animals, both livestock and wildlife. In one case, a young man wished to move his sheep to the land of his grandparents. In pondering the migratory route, he realized that he was completely unable to devise a path because of all the fences in the way, and ended up hiring a vehicle to transport the sheep by road. Another woman brought up the point a lost cow chased by a wild animal can be run up against a fence and be killed easily, and this physical subdivision of the rangelands can change the predator/prey dynamics.

In addition to physical barriers, subdivision manifested itself in the assertion of ownership over land by one person towards others. Owning land as property implies the ability to prohibit others from this land, and the Maasai of Oltepesi engaged with this exclusionary concept in relations with each other. The most common discussion centered on the necessity of 'begging permission' in order to graze on the land that belonged to another person. One family explained that they remained on 'their' parcel at one point when it did not have grass; "we could not go elsewhere because those were...lands who belonged to other people who might refuse us to go there". One woman complained that if you want to ask permission to use someone's land, you have to ask permission of every man in that family, and you might receive differing responses. She

was frustrated in that she did not know who to pay attention to. Another respondent explained that it takes a considerable amount of time to ask permission of the landowners, and starving cattle might die because of that delay.

Mobility reduction caused by constrained access to grazing land is not the only entitlement reduced by subdivision, but also access to water; there were numerous instances in which people of Oltepesi asserted property rights over water sources that were found on or near their parcel. If one's parcel does not contain a permanent water source, retaining range-fed livestock within its boundaries can be an impossibility. One family negotiated with the landowner of the path to a water source, and paid money to him for the use of the path. In another case, the owner of land through which a seasonal river passed established regulations in which others were only allowed to water their livestock after his animals had finished drinking; a different land-owner exacted money and labour for the upkeep of his waterhole. In response to shortages, an outside organization tried to make water more accessible throughout the Oltepesi community several years ago. A pipeline was installed that transported water from a distant escarpment to a storage tank in the village, but, after subdivision, those people who were allocated land through which the pipe ran began to grumble about letting water pass through 'their' property for the use of others. Over time, many of them installed taps into this water pipe, and water no longer reaches the storage tank for the use of the local people. Each of these situations constitutes a reduction in the entitlements of Maasai pastoralists to water their animals and of families to use the water found in their community.

dissatisfaction with subdivision

An historical comparison is most indicative of these changes. Throughout conversations and interviews, Maasai would attempt to explain the entitlements they controlled in the past, and how these differ from subdivision today. Some recalled experiences as a child, describing a drought when people were free to move. "Before, when there is rain you just see where the rain is and go there, but now you have to see where is that rain, whose land is that. So yes, subdivision has brought a very negative impact and has made the coping strategy very difficult." People articulate that they

previously possessed the ability to graze their animals where grass was growing and deal with temporal heterogeneity by spatially re-locating, as is discussed in the anthropological literature on the Maasai.

This is also highlighted in a comparison with the situation in Olkiramatian. In this group ranch, people moved throughout the common grazing land with no hindrance, and felt grateful for this ability, or entitlement. One respondent anticipated that if the ranch had been subdivided "we could have lost all the livestock that we had". She pointed out that they moved "to all corners" and exhausted the grass everywhere, asking rhetorically "what if you had depended on your small plot?" People anticipated that there would be a loss of mobility if the land was subdivided, and locating grass would become a cash transaction.

Olkiramatian community members often migrated into a neighbouring, unsubdivided group ranch, the members of which were also allowed to enter into Olkiramatian. However, these Maasai expressed a vehement dissatisfaction with the subdivided ranches, and asserted that they would not enter into reciprocal grazing agreements with people who had demarcated their land. The rationale behind this is that they would be able to welcome visitors onto their ranch, but the visitor would not be able to return the favour because his land is privatized and does not allow for free migration. This constitutes a clear reduction in entitlements of the Maasai in Oltepesi, who are no longer welcome to share land with Maasai of unsubdivided ranches.

In general, Maasai of Oltepesi wish they could have migrated more than they did. They have the perception that there is still grass available for consumption within the ranch, and that they are being excluded from it by formal property rights. "If the land was not subdivided, we could have just migrated to other places where there is grass...I am very sure that there is still grass on cliffs right now but you are not allowed to cut the grass because this is individual land. If this land was not subdivided we could have just cut the grass where it is available." People explain that they would have migrated to take advantage of the landscape heterogeneity, and they express the same perception as those in Olkiramatian that fewer animals would have died from the drought if the land had not been subdivided.

The general sentiment in the group ranch is that subdivision was a terrible decision, and most community members are very dissatisfied. This is exemplified in the case study of the chairman of the land subdivision committee and his family:

At the time of demarcation, this chairman was reputed to have divided the land unfairly; he assigned parcels to outsiders, including several of his mistresses from the Kikuyu tribe. After subdivision, the community came together and put a curse on this man, and he was killed several days later in a motor vehicle accident in Nairobi. It was notable that a Kikuyu woman was the one driving the car.

Even after his death, this man's fourth wife (out of five) was an ardent supporter of subdivision, and she held this opinion up until the time of this drought. In May 2009, it became clear that her opinion has radically changed; "Subdivision has done a lot of damage in fact for migration...I remember well when I was a child, when there was a drought, people were free to move where the grass was available...If the land was not subdivided, we could just be free, because whenever there is a drop of rain we could go there and this could make the people to survive." She even goes so far as to assert that this drought "is a punishment from God to try to punish people for subdividing the land".

This woman was able to explain that drought is the situation in which people are most in need of freedom of movement to sustain livestock on large tracts of land, and it is obvious during drought that subdivision does not provide this entitlement. This leads her to the conclusion that the drought will teach a lesson to the Maasai in terms of land rights and boundaries. She even goes so far as to advise that the subdivision decision be reversed, even though her family gained four tracts of land from the decision. "Because of drought, and the lessons we have learned, probably if it was ok, or if it was possible, the land would be managed the same as in the past. I think it would be advisable to revert the land if possible. There has been talk of over-grazing and people having a lot of animals, but I think that the problem is not over-grazing here but the long drought. I think that [now] is a time of penalty that people are receiving for making the land individualized."

Clearly, the demarcation process has had a large effect on the mobility of Maasai in Oltepesi. They are unable to migrate as much as they would like, and there are a variety of barriers in place that restrict people's movement. The reduction in their entitlements is evident.

maasai coping strategies: traditional land rights

What is very clear, however, from the empirical study, is that Maasai are not raising their animals solely within a single plot. To investigate the viability of subdivision, this section explores the strategies used by the study respondents to migrate their animals. In instituting subdivision, individual ownership defined and reduced the entitlements of Maasai to land. Yet, people recognized that the amount of vegetation growing within these parcel boundaries would not provide adequate forage for their livestock during the drought. Because of the heterogeneity of the landscape, any one parcel was not guaranteed a share of the limited rainfall, and therefore people called on entitlements through other institutions for the use of pasture.

If all Maasai obeyed the letter of the law of subdivision, the results of land ownership might be very different, and potentially catastrophic. But the Maasai did not stay within the boundaries of subdivision, and every community member I spoke with had migrated at least some of their livestock out of 'their' parcel over the course of the last year. How were people able to do so? To understand how Kenyan Maasai coped with the 2008-2009 drought, it is imperative to view society as a complex adaptive system that is engaging with multi-scalar factors. Traditional land entitlements were at work, coinciding with the legal type, and these institutions at different scales overlapped in their spheres of influence to create a hybrid result in the community. Innovative solutions were worked out between people, in terms of the way in which they integrated both legal and traditional forms of land tenure. Specifically, people engaged in novel land-sharing agreements that were predicated on the system of general reciprocity, and depended highly on networks of social capital; in many cases, just being Maasai allowed one right of passage through other peoples' 'property'.

reciprocity

The most concrete example of such a hybrid system of entitlements is the importance of reciprocal land-sharing that was cited by most respondents. In this type of solution, land boundaries were nominally recognized, and an agreement was made between the owner of the land and the migratory herder in which the visitor would allow the landowner to use his/her parcel in the future if needed. People were able to extend their entitlements to grazing pasture while still recognizing land ownership. This was clearly a method of providing insurance in the future against ecological heterogeneity, in case the small parcel of land for which one has 'ownership' does not receive rainfall. Three specific cases of this type of agreement illustrate the variety of forms in which it might be carried out.

In the first case, a man named Ikote explained how he shares his land reciprocally with his neighbours. There are two parcels abutting his father's land, and the three properties are used by the residents as communal grazing land. Each family looks after its own livestock, but is allowed to graze them anywhere on these three agglomerated tracts. Ikote also explained that he grazed his animals in search of grass in the hills outside the boundary of these parcels; he used the land of four different people, and three of them allowed him to graze with the stipulation that they would be able to use his land in the future. In fact, some of these people actually migrated at a later date to his parcel and remained until it rained in their area.

Ikote's mother explained the ideology of this system of reciprocity, based on an understanding of heterogeneous rainfall, with the indication that the appropriate coping strategy for this ecological condition is to gain entitlements to a larger area of land. These entitlements are a form of security of access to grass. She noted that the increasing use of fences poses a problem to this concept of reciprocity; she is contemplating fencing her land, but is wary of the consequences. "We fear fencing our land because you know you can fence your land but you cannot control rain. Maybe you fence, you restrict/block people; those people who did not fence, the rain might fall on their parcel and yours did not get rain so what do you feed on, stones? For example, I mentioned that on the 18th I had rain on this parcel but it did not cross to the other side of the road [which is the boundary of the parcel]; what about if the owner of

that land had refused people to enter his land, what would he have done now?"

In another situation, family members living in different locations used each other's land reciprocally. A woman migrated her sheep and goats (shoats) to the land belonging to her brothers, without even asking for their permission. When her land seemed more viable, she migrated her shoats back and her brothers followed her with their shoats, which then grazed on her property. This happened at least three times over the course of the drought year 2008-2009.

Complex types of hereditary affinities (ie: lineages or clans) were traditionally very important in determining which area one resided in, and are still used as connections for migratory purposes to broaden the area of land on which one is entitled to graze. This same woman was also approached by two families, one was a clansmate and one was her in-laws, who requested to migrate their animals to her land. She recognized that there was not very much grass available, and that having so many animals in the same space might finish off what little forage was edible. However, she agreed to let them come, explaining, "we fear that if we refuse, the other day when we are also being chased by the drought they might also refuse us. The Maasai used to say "mimiraki mirat entim", which means "when someone is running for his life, you are not supposed to chase him away".

The third case is less a similar instance of more general reciprocity. A family in Oltepesi was approached one day by a man whom they had never met, from the neighboring section of Matapato. He requested to migrate his herd of cattle to their land because he could see that there was grass in the area, and the family graciously acquiesced to his request without asking him for any type of monetary payment. It is notable that the man migrated with 300 cattle to their land, and the head of this household had only 150 cattle at the beginning of the drought. The rationale behind allowing him to come was predicated on this understanding of reciprocity. "We didn't ask anything [of him] because we knew that maybe, today the drought is occurring in that area, and we might be the next victims. Maybe, sometimes, here might be affected by drought and we might migrate to Matapato." The woman relating this story finished with the proverb: "Oota taata, oota taisere", which means, "Today you have, and tomorrow I might have".

Reciprocity is an ingrained value in the traditional land management system of the Maasai, and many families were able to integrate this concept into the framework of individual property rights. This enabled Oltepesi's residents to expand their entitlements to include grazing rights in parcels other than their own. The endowment of private property combined with the traditional sense of Maasai community enabled them to derive the entitlement to graze on others' land, which was crucial to gain enough forage for the subsistence of their livestock.

social capital

The importance of social capital cannot be stressed enough in an explanation of how Maasai were able to migrate out of their 'legal' parcel boundaries. 'Social capital' networks can be understood as a form of endowments that have enabled Maasai to increase their entitlements for the use of grazing land. When looking to migrate animals, herders needed to take into consideration not only where the rain had fallen, but the owner of the land itself. At that point, the herder would need to decide if the land owner was likely to refuse if he asked to graze on that parcel; the strength of one's social relations became the arbitrating factor to mediate the entitlements one controlled to grazing rights on different parcels of land. One woman complained that she might see that it rained in an area, but then be refused permission to graze on that land if the person had ever 'collided' with her and was holding a grudge. Most migratory movements involved land belonging to relatives.

Maintaining positive relationships with other community members expands the entitlements one controls for grazing rights throughout the community. One family interviewed were migrants to Oltepesi; they were Maasai from another area, and their lack of positive relationships with the locals impacted their migratory strategies. The husband had bribed the land subdivision committee to gain a plot of land, and his family is resented by most Oltepesi community members. When they wanted to migrate their herd of animals, they did not look for options within the group ranch, but instead identified a white settler near Nairobi whose employees they could pay to graze their cattle on the land at night. They were the only family I spoke with who did this.

being maasai

In many cases, this same understanding of 'family ties' extended to apply to all people from the Maasai tribe. Often, just being Maasai endowed herders with the ability to migrate and graze wherever they wished, and the traditional concepts of land entitlement prevailed over legal rights of access. It is notable that many people mentioned the drought as a factor that made this possible. Communal land use happened in several contexts: when passing through the land of other Maasai, a culturally-informed inability to refuse migratory herders access to one's land, and grazing on the land that had been purchased by outsiders.

Every interviewee identified at least one situation in which they migrated from one place to another, through private parcels, and did not meet any resistance from the owners. The rationale given in every case was similar, in that people identified that tribal membership entitled them to this ability. One family migrated their cattle at least 10 times over the course of the year 2008-2009, and never met resistance.

Several respondents cited both Maasai heritage and drought conditions for allowing them to migrate through private land without encountering problems. One woman explained that "we walked through different lands, because whenever there is a drought the drought always overrules the boundaries, so we just go through without even begging permission". Another interviewee explained that "during drought seasons, during extreme drought, the fence/ boundaries are overruled by the drought because people will be crazy. They will not respect the boundaries because this is a survival tactic". When pressed as to whether the boundaries are actually meaningful at all, she explained that "the impact is there because people realize this is your land; it is a hide and seek game so if they realize that you're not around they might take livestock there, and enter without your consent... The impact of subdivision is recognition; it is not totally practiced".

From these understandings, it is clear that Maasai strategies of land use are not rigid; in traditional forms of land tenure, the acceptable grazing patterns would change during times of drought. For example, during most of the year, it is unacceptable for people to graze on grass that is very young, such as shoots that sprout immediately after a rainfall. This maintains the ecological integrity of

the system, and allows the vegetation community to establish mature, resilient, specimens before they are consumed. In contrast, this rule is not applicable during times of drought, during which people are allowed to graze on young grass, in order to ensure the immediate survival of the livestock. The legal land tenure system does not make any allowances for changing regimes during times of ecological stress, but the Maasai of Oltepesi have integrated this concept into their current land-use practices. During drought, membership in the Maasai tribe entitles one with the right to migrate through Maasai territory; one interviewee maintained “I know that when there is grass in these parcels we could not have passed [through] because the owners would not allow it”. The reality of land rights is much more complex than that encoded in formal law, and integrates both traditional understandings of land rights and also the historically grounded ability to vary these rights according to ecological conditions.

In these situations, Maasai feel that they are unable to refuse someone who migrates to their land for grass. In one case, the son of the sister of a landholder arrived at his parcel with 50 cattle; the landholder only owned 10. The nephew had not asked permission before arriving; “after he came, he said just ‘here I am because there was no rain in our area and so I see that you got a little rain and I am going to graze here’”. The family correctly predicted that this would tax the grass on their parcel; “I think we are not comfortable about that because we knew that when cattle increase the grass will be finished but you know in Maasai culture you can’t just chase away someone if he comes”.

In another case, the young man called Ikote decided to bring his sheep to the land of his grandparents, but was afraid to ask their permission beforehand. “I thought they might refuse if I had asked, but if I just bring them they cannot turn me back.” His mother explained a similar sentiment from a Maasai framework. “To Maasai, livestock are very difficult to control because, one, we are not supposed to chase people who have been running away from the drought, and, two, they don’t even seek permission first to come here you just see them and there is no way you can tell them not to come...I don’t know who will have rain tomorrow, maybe me or them. ‘Naailookino mootiok kima’, (meaning, this is your turn today; the next turn will be mine).” Because of this cultural understanding of hospitality, people were not willing to refuse access to their land during times of drought.

Legal rights to land are not only interpreted differently during different time periods, but Maasai have extended their entitlements by refusing to heed parcel boundaries fraudulently allocated to outsiders. There are sections of Oltepesi group ranch which were given to non-Maasai, even though land subdivision had been advocated for on the basis that it would protect Maasai land from intrusion. The community is adamantly in opposition this, and no outsider has been able to set up residence on his or her plot, for fear of the physical retribution of the Maasai. In this case, the property boundaries are not recognized at all, but are treated as communal grazing land by the community. They are an instance of an entitlement to graze on land by virtue of one’s membership in this community, as was the case before land privatization.

From these examples, it is clear that, although legal land endowments per person have decreased, the law is not the only institution that governs the entitlements to grazing land. People have recognized that demarcated land plots are not viable for the pastoralist way of life, and have therefore adapted this system. An entitlements analysis of the mobility patterns of the Maasai of Oltepesi indicate a hybridization of influences on land rights that are variable across space and time to more adequately equip pastoralists with access to grazing land. Maasai share land reciprocally in varying degrees, including communal grazing agreements, reciprocal negotiations, and general sharing with an understanding of potential future reciprocity. Social capital enables these transactions, notably through family networks, and being Maasai enables people during a drought to migrate without resistance. People similarly will welcome any Maasai who shows up unexpectedly, and will claim access to land that has been allocated to outsiders. In all of these situations, it is clear that people use traditional institutions to extend their entitlements during a drought, to better cope with the ecological heterogeneity of the region.

conclusion

On the largest scale, international theories of privatization of land affected the people living in Oltepesi when their traditional landholdings came under pressure for subdivision. Demarcated land has restricted the mobility of pastoralists, as explained in this case study, who comprehend that the entitlements derived from each plot of land are inadequate to subsist their livestock, which are simultaneously their investments and foodstuffs. The ecological

counter-narrative to privatization of rangelands currently supports this conclusion, and this has repercussions for environmental management systems around the world in semi-arid areas. Animal husbandry contributes to ecological heterogeneity through the mobility of herbivores, which allows for grazing strategies that are adjustable to the movement of rainfall and the diversity of vegetation. This in turn maintains the landscape itself. The Maasai have recognized the need for temporal and spatial variability in regulation, and have adjusted the contemporary boundaries of subdivision to account for this; they become more permeable in times of drought, and are not necessarily exclusionary. This case is not unique; theory suggests that there are a large number of highly varied and unpredictable environmental systems, and this study has repercussions for strategies to work within those systems as well.⁸⁸

Over time, drought is expected to increase in frequency and magnitude due to climate change, and Maasai will need to adjust in order to continue their pastoral livelihoods. Discussion of climate change is dominated by ideas regarding mitigation, and how anthropogenic climate change can be reduced. However, given evidence that the climate of many geographical areas is already affected, many scholars are calling for attention to be paid to the ability of people to adapt to a changing climate.⁸⁹ This is especially important in the case of indigenous people and developing nations, who might not have the infrastructure to quickly adapt to variable conditions.⁹⁰

Quite the opposite of supporting, the ability of the Maasai to adapt to climate change is clearly hindered by subdivided land, and this should be addressed in a timely manner to increase the resilience of the community in such a variable system. Communal land tenure systems are preferred by the people themselves, and are more ecologically viable in semi-arid environments. However, reverting back to pre-subdivision landholdings is not necessarily the best solution. Innovative alternatives to subdivided land should be explored in Maasai-land, to best approach the ecological viability of communal landholdings while still retaining security of tenure. For example, future changes to land policy could incorporate levels of strict zoning laws that would ensure the availability of pasture in areas that are secured with legal ownership. Creative, legal re-aggregation schemes that work towards promoting a viable pastoralist lifestyle could be possible in a number of forms, and build on the current coping system of reciprocal grazing arrangements by coding them and establishing legal access to greater tracts of land. •

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life lines

svea vikander

I am a Montréal-based visual artist and intern psychotherapist, working with issues of bodily self-determination and body image. The project I presented at Study in Action 2010 is called Life Lines and can be found online at www.onlinelifelines.blogspot.com. In this project, I am interested in creating alternative visual representations of traditionally 'unsightly' places. I photograph people's scars and document their narratives – about how they acquired their scars and about what meaning they find the outside world attributes to them.

Since I began to exhibit the project in 2006, I have received submissions from around the world – people who have photographed themselves and who wish to share their own stories/images. While my work explicitly focuses on a 'taboo' or 'unsightly' subject area, it is a body-positive, anti-ableist project. In essence, it aims to address the oppression felt by people whose physical appearance marks them as 'other', to encourage a safe (and anonymous) exchange of stories and images about personal struggles to overcome illness, disease, accident, violent attack, surgical procedures, etc.; and finally, to encourage viewers to reconsider their ideas about their own bodies, as well as the bodies of others.