

COMMERCIALIZATION OF COMMUNAL LIVESTOCK FARMING AND NATURAL RESOURCE USE IN FORMER DAMARALAND, NORTH-WESTERN NAMIBIA

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Koki TESHIROGI

Graduate School of Asian and African Area Studies, Kyoto University

ABSTRACT Commercialization of livestock farming has increased rapidly in recent years among communal farmers in northwestern Namibia. This paper focuses on the rural entrepreneurs who have benefited the most from a livestock auction system, and includes a case study of the influence of these entrepreneurs on the natural environment at a micro-scale. The auction system allows entrepreneurs to make decisions regarding sale of their livestock according to the price offered and their household's demand for cash. The availability of cash income has stabilized their livelihoods and allowed them to purchase luxury items. This situation has been made possible by the introduction of an auction system in the town nearest to the study area. Data about vegetation and goat herding reveal that goat herding patterns in the study area have adapted to the limited availability of natural resources, as suggested by variations in herding routes and foraging patterns. Furthermore, the emergence of entrepreneurs in the study area has stabilized the total number of livestock and could potentially alleviate the vulnerability of natural resources.

Key Words: Livestock farming, Commercialization, Livestock Auction, Arid Environment, Namibia

INTRODUCTION

In arid and semi-arid areas of Africa, pastoralism is an important livelihood activity. However, fluctuations and changes in climate and natural resources have made this living uncertain. African pastoralists have coped with living in a vulnerable environment by adopting nomadic lifestyles and by incorporating other livelihood strategies. However, some studies have suggested that livestock herding by local people has led to overgrazing and degradation of vegetation (Swift, 1996; UNEP, 1999). Northwestern Namibia has been considered particularly at risk of vegetation degradation by overgrazing (Sullivan 1996). While the notion that overgrazing automatically leads to vegetation degradation has been challenged in recent years, human use of the natural environment in arid and semi-arid areas of Africa undoubtedly comes with significant risks.

Namibia has two sectors of livestock farming: commercial farms and communal farms. Commercial farms have developed fallow lands into vast pastures, contributing to the adequate use of natural resources (Tainton, 1999). Communal farms have practiced traditional herding, with livestock herders leading a nomadic lifestyle and allowing land to lie fallow. However, in recent years, commercialized farming has increased rapidly among communal farmers (Werner, 1997). The development of the auction system in communal areas has promoted this change. As a result, natural resource use has also changed dramatically on communal farms, such as with the enclosure of common lands (Werner, 1997). It is

important to examine the impact of the commercialization of communal farms on the vulnerable natural environment of arid and semi-arid Namibia.

This paper focuses on the households that have benefited most from the auction system and have increased their cash incomes as rural entrepreneurs. A case study is presented, examining the influence of these entrepreneurs on the natural environment at a micro-scale.

STUDY AREA

The study area was a settlement in the Khorixas District, Kunene Region, Namibia ($20^{\circ}28'S$, $15^{\circ}16'E$) (Fig. 1). The study area lies 50 km southeast of Khorixas, the main town in the Kunene Region (Fig. 1).

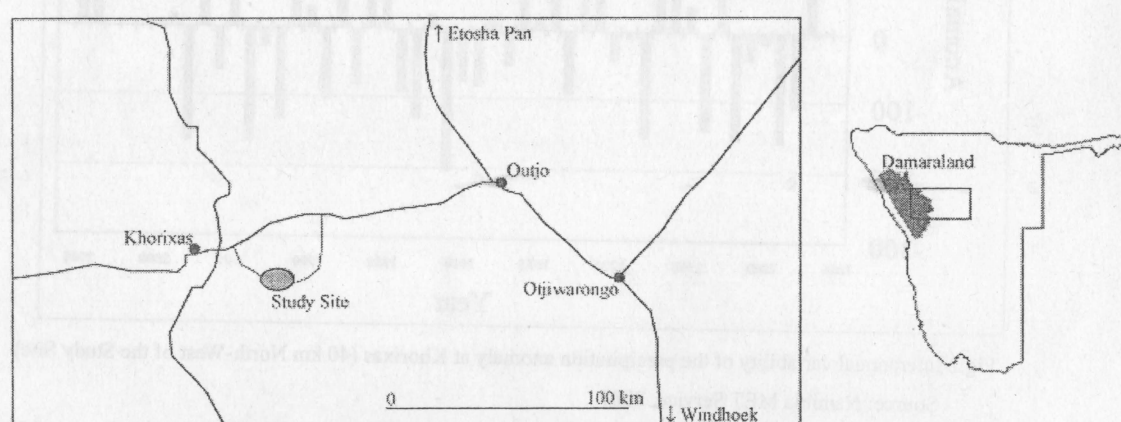


Fig. 1 Location of the study area

To determine the general characteristics of the study area and its auction system, I collected data through interviews and participatory observations. The data used in this study were mainly collected between June and August 2010. I began fieldwork in this area in 2006 and lived with local people in this settlement and the surrounding three settlements for a total of 18 months. Interviews included discussions of the historical and current state of livestock farming in the study area and neighboring areas, use of the auction system in Khorixas, the viewpoints of both villagers and administrators, and the changes in livelihood brought about by the auction system.

I had collected data about livestock herding in the study area both during the rainy season (Dec. 2009 to Jan. 2010: total 38 days) and dry season (Jun. 2009 to Aug. 2009: total 65 days). GPS (SONY GPSCS1) collars were attached to a number of female goats to collect spatial and temporal data. I also observed and recorded the tree species foraged by goats as well as foraging times per 15 minute intervals. Additionally, I conducted vegetation surveys of pasture areas. Research plots were arranged in 250 m mesh patterns. In each plot, I counted the number of species and number of individuals of each species.

An earlier study defined the vegetation around the studied settlement as mopane savanna dominated by *Colophospermum mopane* trees (Giess, 1971; Teshirogi 2010). The area is characterized by high relief, ranging from about 900 to 1,500m above sea level. Data from the Namibia Meteorological Service showed that mean annual precipitation was 220 mm/year for the 46 years from 1958 to 2004 at Khorixas. Rainfall

varies widely from year to year. For example, precipitation totaled only 60 mm in 1995, but reached 359 mm in 2004. These large fluctuations may affect livestock farming by influencing the availability of feed, such as grasses and trees (Fig. 2). The Damara people who live in this mountainous settlement raise goats and some cattle. In June 2010,

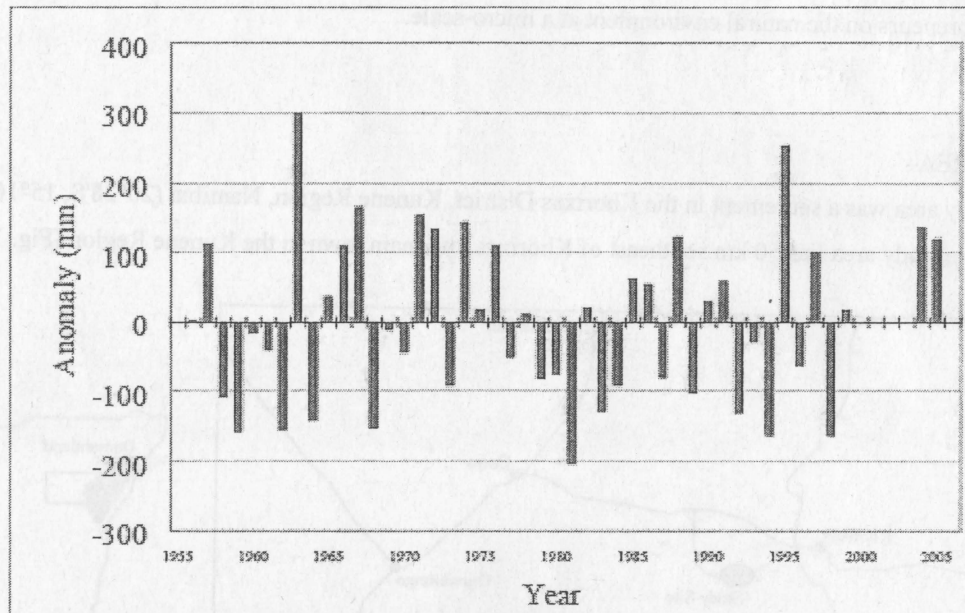


Fig.2 Interannual variability of the precipitation anomaly at Khorixas (40 km North-West of the Study Site)

Source: Namibia MET Service, 2007

the studied settlement had a population of about 20 people in 6 households. The population and livestock densities are lower than the national averages for Namibia. For example, the population density of $0.6/\text{km}^2$ in the settlement is substantially lower than the $2.1/\text{km}^2$ average for Namibia (Republic of Namibia, 2005). The main livelihood of the residents is livestock farming, which is the most important activity for obtaining both food and cash. In addition, some people engage in labor in town. Pension and remittance money are also important. Domestic animals in the settlement include goats, cattle, and a few donkeys. Every household has goats, which are a source of meat and milk and can be used as gifts, exchanged for resources, or sold. The number of goats varies by household, with some households having more than 100 goats and others holding only around ten. Only two households kept cattle for milk, meat, and sale. Some people owned donkeys for transport.

THE EMERGENCE OF ENTREPRENEURS AND IMPACT ON NATURAL RESOURCE USE

I. Introduction of the auction system and emergence of entrepreneurs

In the study area, the introduction of the auction system is considered the most important factor in the emergence of rural entrepreneurs. This section provides an overview of the auction system and describes the entrepreneurs who have made the most from the new opportunities.

In Outjo, located 150 km from the study area, an auction system was established during the colonial period to serve the commercial farmers residing in the district. Although rural residents living in communal

areas could also have used the Outjo auction system, my informants reported that almost no one in the settlement used it. In 2006, an auction was introduced in Khorixas, the nearest town to the study area. This significantly changed the situation for the farmers as they could now access the auction within an hour. Some people began aggressively using the auction system.

At the auction in Outjo, farmers from the study area had little flexibility with regard to selling, even if a buyer offered a low price, because of the cost of moving their livestock. However, after the auction was introduced in Khorixas, the farmers could choose whether they would sell or not according to the price and the demand for cash within their household. Information about each auction is broadcast on local radio. Additionally, farmers wanting to sell their livestock can contact an extension officer by cell phone to obtain information about the auction.

The development of the auction system in Khorixas is related to the policies of the Namibian government. In the past, only large-scale commercial farmers played a major role in the livestock industry. However, since independence and the accompanying democratization, the government has tried to broaden the livestock industrial base to include farmers in communal areas. Therefore, the auction system has been introduced in each regional town and city.

In Outjo, the sellers are predominantly commercial farmers and the buyers are mainly companies that export to foreign countries such as South Africa. Conversely, in Khorixas, although the majority of buyers are commercial farmers, the buyers are mainly individuals who buy at high prices. Some buyers are urban dwellers who buy the livestock to take to their own farms, while others take the livestock to Swakopmund for resale. People involved in the auction at Khorixas told me that goats sold there for the highest prices in Namibia because so many buyers attended and the auction performance has been better than in other regions.

Given the auction's success, some people in the study area began selling livestock more frequently at the auction. The results of the interviews revealed that 9 out of 23 households in the study area were continually involved in the auction system.

A.H is one of the residents using the auction in Khorixas. He had lived on another farm in the Khorixas District before independence, but in 1995 he relocated to the study area because of drought. Until 2000, he sold his livestock to commercial farmers residing near the study area and had never used the auction system. He started to sell at the auction in Outjo in 2000 and had done so every year, mostly selling cattle. However, he explained that the Outjo auction was not convenient because it was too costly to transport the livestock there and if the price was low, he had no choice but to bring the livestock back. Therefore, when he urgently needed cash, he sold to commercial farmers or other Damara, even if the price was low. However, since 2006, he has used the auction system and sold a small number of livestock once or twice a month. While he had sold only cattle in Outjo, at the Khorixas auction he has sold cattle and goats. ⁽¹⁾ In 2006, he earned approximately 20,000 N\$ by selling seven cattle and used the earnings to buy a car. In 2010, he bought an electric generator by selling goats. He has also used his profits to pay fees to send his children to school in town.

The auctions in Outjo were not popular, even though they were available to people in the study area both before and after independence. However, with the introduction of auctions in the neighboring town, Khorixas, some people have started to sell periodically, once or twice a month. For people earning the most, such as A.H, the auction has stabilized their livelihood and even improved their cash income. Goat sales through the auction have been particularly pronounced in the study area.

II. Impact on natural resource use

Figure 3 illustrates the herding routes of goats kept by A.H. for 38 days in the early rainy season and for 65 days of the dry season. Goats are mainly grazed in the northern part of the settlement both in the rainy and dry seasons, and it is unlikely that herders will randomly choose any area within an entire farm for grazing. As shown in the figure, the areas where grazing occurred most frequently varied according to the season.

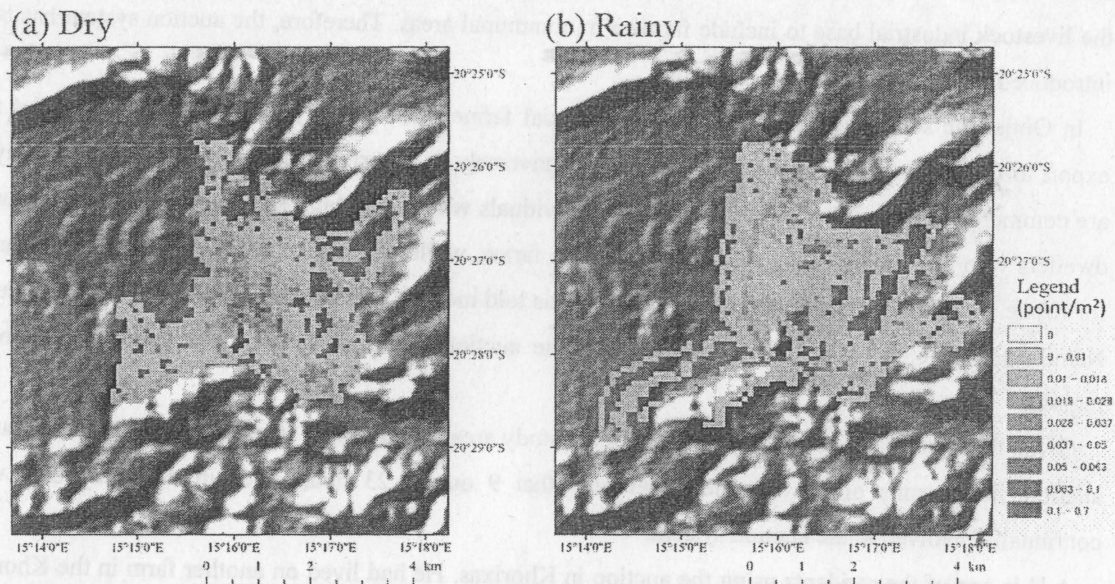


Fig. 3 The Density of GPS tracks of (a) Dry season and (b) Rainy season.

Table 1. The main tree species in study area and its rate of appearance

Shrub species	Number of individuals (/ha)	Rate of appearance (<i>Colophospermum mopane</i> =1)
<i>Colophospermum mopane</i> (Cm)	302.3	1
<i>Terminalia prunioides</i> (Tp)	62.9	0.21
<i>Acacia reficiens</i> (Ar)	80.5	0.27
<i>Combretum collinum</i> (Cc)	102.5	0.34
<i>Catophractes alexandri</i> (Ca)	106.9	0.35
Others	-	<0.1

This seasonal variation in herding routes is related to the distribution of plant species and foraging patterns. The vegetation survey showed that *C. mopane* dominated most of the study area (See Table 1). However, the foraging time for *C. mopane* accounted for just 15 to 30% of total foraging time in both

seasons, as shown in Figure 4. Thus, although widely available, *C. mopane* was not the most foraged species. Conversely, some species that appeared in smaller percentages were foraged at high rates during the rainy season. Therefore, the amount of edible species and the species actually foraged were not positively correlated. The goats tended to selectively forage their preferred species.

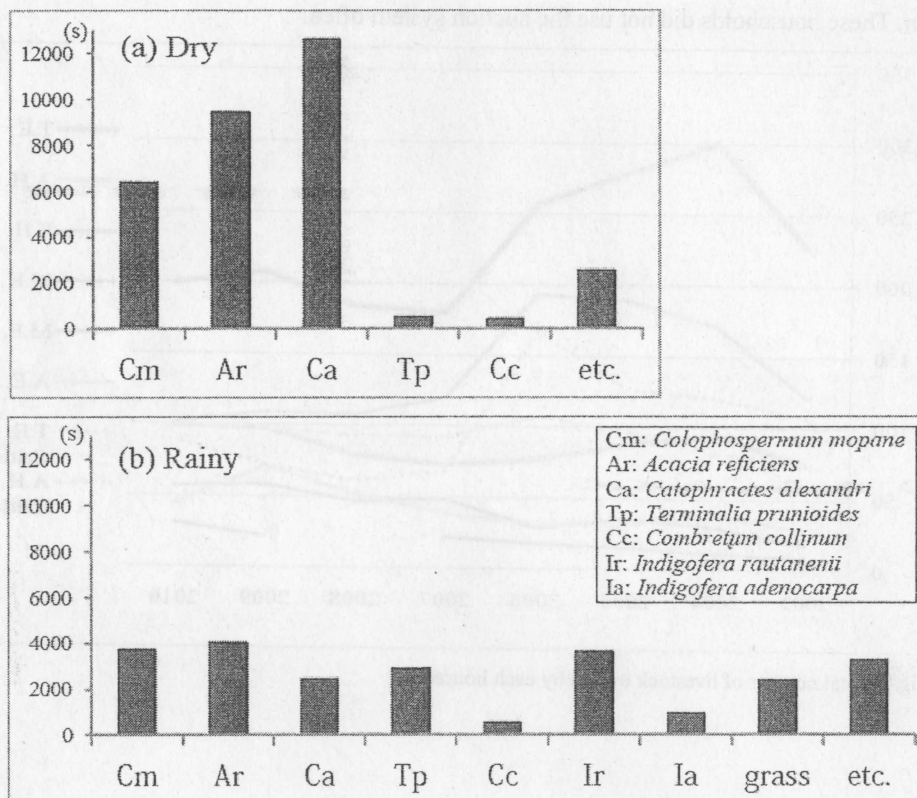


Fig. 4 Total foraging time by plant species in the study area

The relative foraging time of grass species was less than 3% of the total foraging time in the studied intervals, and the goats mostly foraged tree species. The tree species foraged by goats varied seasonally. In June, the early part of the dry season, goats tended to forage a limited number of species: *Catophractes alexandri*, *Acacia reficiens*, and *C. mopane*. The foraging for these three species accounted for 90% of the total foraging time. In August and September, the late dry season, goats foraged *C. mopane*, a semi-deciduous tree, and the fallen leaves of *C. alexandri* at a high rate. On the other hand, in January, during the rainy season, the number of edible species increased, and goats foraged various types of plant species and their fruits.

Therefore, the distribution of edible plant species greatly influenced the herding route during the studied interval. In the dry season, the animals foraged the limited number of available plant species, and in the rainy season they foraged the wider variety of plants and fruits including their preferred species. The goats herded in the study area adapted to the limited natural resources when necessary.

Figure 5 shows changes in the total number of goats and cattle owned by each household in the study area. In the household with the largest number of goats, the number of goats decreased from 2006 to 2007 and thereafter remained steady. The households with the largest number of goats also owned cattle. The number of cattle also decreased in 2007 or at least did not increase to a large extent. In interviews, members

of these households explained that their herd numbers had dropped because they had started to sell at the auction. The increasing opportunities to sell livestock at auction in neighboring Khorixas had led to the active sale of livestock. In contrast to these households, those with small numbers of livestock to begin with gradually increased their total livestock numbers, but tended to keep the animals for household consumption. These households did not use the auction system often.

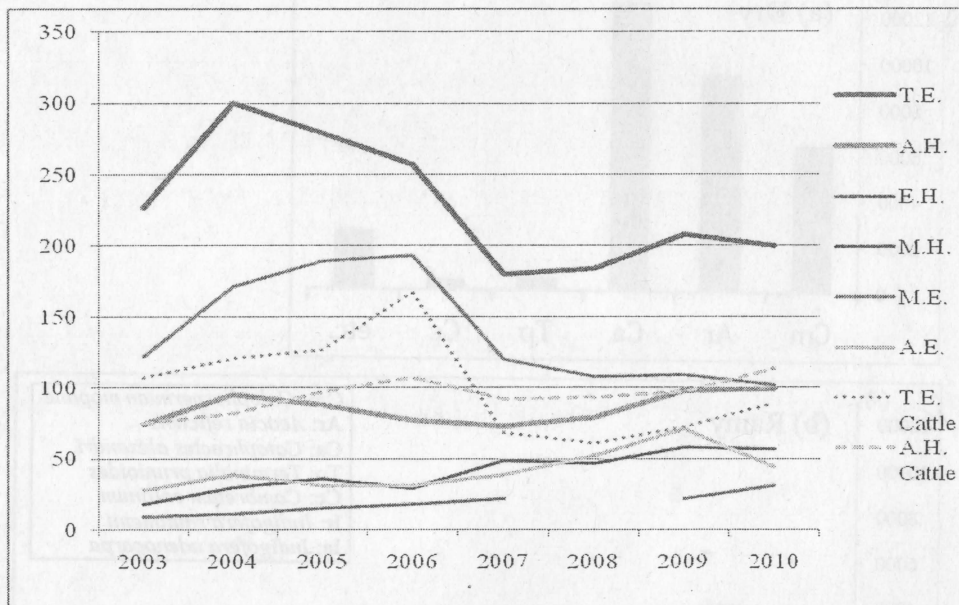


Fig. 5 Total number of livestock owned by each household

DISCUSSION AND CONCLUSION

In the study area, the entrepreneurs using the auction system the most have been able to sell their livestock on an ongoing basis, according to the price and their household demands for cash. As a result, their livelihoods have become more stable and have even improved as a result of increasing income and the ability to purchase luxury items. This situation arose with the introduction in 2006 of an auction system in Khorixas, the town nearest to the study area. Residents of the study area can easily access the auction and have more opportunities for easy sales at high profits. The newly introduced auction system, because it enables easier sale of livestock, has meant that goats, which were previously kept for household consumption and sold individually, have become a stable source of cash income. Ongoing sales of livestock have also meant that livestock numbers have stabilized in the study area.

This situation is important from the perspective of natural resource use in the study area. Mainly cattle were sold at the auction in Outjo. However, goats are now also sold at the auction in Khorixas. Although cattle often sell for high prices, keeping only cattle is difficult and risky because grass is scarce in the mopane vegetation (White, 1983). In contrast, goats can forage tree species as well as grass (Hofmann, 1989). As described above, through variations in herding routes and foraging patterns, goats have adapted to the limited natural resources in the study area.

Some studies have argued that the commercialization of livestock farming has led to vegetation

degradation in Africa (Behnke, 1987). However, in the study area, the entrepreneurs who are making the most from the auction system have stabilized the total number of livestock they keep. This situation may help alleviate pressure on the area's vulnerable natural resources. Some households were not using the auction frequently. Furthermore, while there was little sign that the entrepreneurs had altered their use of natural resources by the use of enclosures or through excessive utilization, more long-term observations and detailed surveys are required to assess natural resource use at the community level.

NOTE

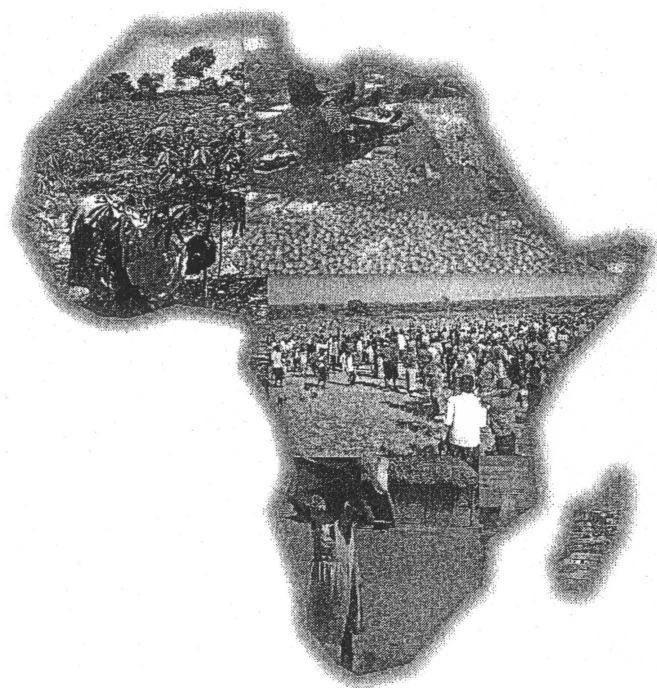
- (1) 1 US dollar was equivalent to 7 Namibian dollars in early 2010. A goat typically sold for 300 N\$ during informal transactions but for 500 N\$ at auction. In some cases of cattle sale, the difference in price reached 1,000 N\$.

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Author's Name and Address: Koki TESHIROGI, Graduate School of Asian and African Area Studies, Kyoto University,
46 Yoshida Shimoadachi-cho, Sakyo-ku, Kyoto 606-8501, JAPAN.

E-mail: teshirogi@jambo.africa.kyoto-u.ac.jp



International Symposium

THE DYNAMICS OF SOCIOECONOMIC CHANGES IN LOCAL SOCIETIES IN SOUTHERN AFRICA: THE CHALLENGES OF AREA STUDIES

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Session1 A Reconsideration of the Relationship between Policies and the Responses of Local People in Politically Regulated Areas

Presenter: Yumi NAKAYAMA (Kyoto University), Chisato YAMASHINA (Kyoto University), Takehiro IDO (Kyoto University)
Commentator: Dr. Scarlett Cornelissen (University of Stellenbosch)

Session2 Marginalisation, Autonomy, and Livelihood from the Perspectives of Displacement and Gender in Rural Zambia

Presenter: Rumiko MURAO (Kyoto University), Noriko NARISAWA (Kyoto University)
Commentator: Dr. Oleosi Ntshebe (University of Botswana)

Session3 The Emergence of Small-Scale Entrepreneurs in Rural Areas and the Impact on Local Societies

Presenter: Chihiro ITO (Kyoto University), Yuichiro FUJIOKA (Kyoto University), Koki TESHIROGI (Kyoto University)
Commentator: Mr. Yohei MIYAUCHI (Embassy of Japan in South Africa)

Discussant: Dr. Pempelani Mufune (University of Namibia), Dr. Isaac Nyamongo (University of Nairobi)

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Contact: sympo2010windhoek@gmail.com

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