

A Review on Traditional Livestock Movement Systems (Godantu) in Bale Zone: An Implication to Utilization of Natural Resources

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Abstract

Livestock is a key livelihood component for the majority of inhabitants of the Bale Eco region and should be central to sustainable land and resource use planning and management in the area. In majority of bale zone Livestock management is maintained through high level of seasonal mobility (Godantu) which allows access to vital grazing, water resources and mineral springs as rotational grazing system and risk minimization mechanism of pastoralist. Even though, Godantu system is efficient and effective mechanism of natural resources utilization and management, the system is challenged by factors like Shortages in grazing land, reduced water availability (particularly in the dry season); long distance and time to access grazing area and watering point, resource user conflicts (between livestock and crop farming/forest protection/National Park conservation, animal health problems due to increased vulnerability, lack of support and government policy towards pastoralists.

Keywords: Bale zone; Godantu; livestock; Resource Utilization

Introduction

According to the estimates of the Central Statistical Agency of Ethiopia [1] there are 56.71 million cattle, 29.33 million sheep, 29.11 million goats, 1.16 million camels, and 56.87 million poultry in the country. These estimates exclude livestock populations in the non-sedentary (nomadic) areas of Afar and Somali regions. With regard to altitude, Ethiopia is divided into a highland (>1,500 meter above sea level) and a lowland (<1,500 meter above sea level), which includes pastoral and agro-pastoral areas. Ethiopia can be broadly divided into

highlands (39%) and lowlands (61%) using 1500 meters above sea level elevation as a crude threshold.

Pastoral livestock production remains the principal economic activity in the arid and semi-arid rangelands of Ethiopia. Pastoralism provides a living for about 6 Million Ethiopians, an estimated 10-12% of the country's total human population. Pastoralists keep about 40% of the national cattle, half of the small ruminants and nearly all the dromedaries. Through extensive rangeland management they use about 60% of the total area, mainly peripheral areas where no alternative production exists.

Despite a strong subsistence orientation, pastoralists provide about 90% of the legal livestock exports in live animals, and 20% of the draught animals for the highlands [2].

Pastoralism is an economic and social system well adapted to dry land conditions and characterized by a complex set of practices and knowledge that has permitted the maintenance of a sustainable equilibrium among pastures, livestock and people [3]. The two forms of pastoralism are nomadism and transhumance. Pastoral nomads follow a seasonal migratory pattern that can vary from year to year. The timing and destinations of migrations are determined primarily by the needs of the herd for water and fodder. While, transhumance production system consists of a seasonal displacement of flocks from one area to another by herders who have permanent residences in search of better or suited grassland. The transhumance system of Oromo pastoralists is known as the Godantu system and is a key feature of traditional human use of the Bale Mountains [4]. Movement between dry season and wet season pasture is a traditional form of pasture rotation, deferment (resting of pasture land) and sometimes a means of avoiding disease outbreaks. The rational strategies of pastoralists can be efficient and complex [5].

In recent years pastoralists have become the focus of government attempts at transforming production systems, including shifting to more commercial forms of production associated with greater sedentary of pastoral communities [6]. The core argument is that changes in livestock. The role of policies is very important in this regard. Studies have shown that land degradation often occurs where policies undermine the pastoralist system, but where pastoralism has been supported by appropriate policies, biodiversity and ecosystem integrity has usually been enhanced.

Bale is one of the Zones in the Oromia Regional State, which comprises highland and lowland agro-ecologies. Majority of land cover of the zone were categorized as lowland 69% [7]. The zone have about 2,825,215 cattle, 528,746 sheep, 1,105,715 goat, 300,077 horse, 49657 mule, 170,153 donkey, 244,073 camel and 747,662 chicken [8]. Sedentary (mixed crop–livestock production) and mobile livestock production systems are practiced in the Zone [9]. The Godantu systems were practiced in the zone both in highlands (Bale Mountain, Dinsho, Harena forest) and low lands (majority of low land woredas). The highlanders always moved their cattle to the neighboring lowlands during the rainy season and to the highlands during the dry season (bale mountain park, Harena

forest) [10]. It is important to know characteristics of traditional livestock production system as one of the livestock production systems practiced in the Zone which will help to clearly understand the socio-economic implications and to design appropriate development interventions for the area. This review was undertaken to identify characteristics of Godantu livestock production systems and assess the causes of mobility to the lowland and highland areas, identify the major constraints of the production system and forward appropriate developmental interventions for the future.

Traditional Livestock Production System (Godantu) in Bale Zone

In Ethiopia about 60-70% of the population's livelihoods dependent on livestock in one way or another, which are in the success of the livestock sector and in the environmental systems that support livestock production [11,12]. The two groups who were more reliant on livestock are those living in the rural highland areas and those in the pastoral lowland communities. While the majority of people and livestock live in the rural highlands and pastoralists rely more on livestock than any other population category [13,11]. The vast majority of land users and managers in Ethiopia, whether in the highlands or pasturelands, also have a stake in any land management practices that affect livestock. The farmers and local communities are the direct beneficiaries, and ultimately the enforcers of the environmental policies seeking to mitigate the environmental impacts of livestock management in Ethiopia.

Ethiopia is a tropical African country in which mobile pastoralism is dominant in the arid and semi-arid areas in the eastern, northeastern and southeastern parts of the country, while agro-pastoralism represents an increasing practice in the semi-arid areas in the northwestern, southern and eastern parts of the country. In general, they represent the major pastoral constituency in the Horn of Africa [14]. Dry season movement is the most important due to lack of forage or water or both.

Livestock production systems all over the world can be divided into four major categories: transhumant, agro-pastoralist, intensive crops and livestock, and urban and peri-urban intensive systems and ranching [15]. There are essentially two forms of pastoralism namely, nomadism and transhumance. Transhumance production system consists of a seasonal displacement of flocks from one area to another by herders who have permanent residences in search of better or suited grassland. It can

be considered either as the next phase from the nomadism system towards a complete settlement or as an elementary form of the seasonal suitability or seasonal grazing system involving partitioning a rangeland into separate units on the basis of vegetation types. In general, mechanisms of transhumance are simple, in search of pasture and water [16].

There are essentially two forms of pastoralism namely, nomadism and transhumance. Pastoral nomads follow a seasonal migratory pattern that can vary from year to year. The timing and destinations of migrations are determined primarily by the needs of the herd for water and fodder. These nomadic societies do not create permanent settlements, but rather they live in tents or other relatively easily constructed dwellings the year round and mobility is irregular. On the other hand, transhumance pastoralists follow a cyclical pattern of migrations that usually take them to cool highland valleys in the summer and warmer lowland valleys in the winter which is back and forth movement [16,17]. Again the report of Teshome A [18] in Guji zone indicate that Communities categorized the grazing landscapes into two main landscapes, such as the *Badaa* and the *Gamojii*, using a combination of climate (rainfall and temperature), soil, topography, and vegetation for dry and wet season, respectively. Both nomadism and transhumans production system were characterized by mobility as a survival strategy.

The transhumance system of Oromo pastoralists is known as the *godantu* system and is a key feature of traditional human use of the Bale Mountains. In this system, livestock, particularly cattle are sent to higher grazing grounds during the months when crops are growing in lower altitude areas or into the forest for shade during the dry season. The report of Fiona F, et al. [4] state that in different parts of bale highland the traditional *godantu* system is used by livestock keepers to utilize resources on a seasonal basis, making rational decisions about optimal use of resources as part of a natural resource management strategy. The extent and direction of movements depended on the availability of rainfall, water, feed and security. In the dry season (December– February), livestock, mostly cows, bulls, heifers, goats, sheep and camels, were moved to a remote location where water and feed were abundant and stayed as *godantu* [19]. Pastoralists have experience and knowledge about seasonal calendar to detect season of feed availability. The following Figure 1 shows grazing system of cattle during dry season in Bale Mountain.



Figure 1: Photo taken from Bale Eco-Region Sustainable Management Programme [20].

The Bale Mountains Eco Region has a rich history of livestock production. Despite a number of challenges livestock remains the mainstay of the majority of livelihoods in both highland and lowland areas. Though movement across the altitudes still exist particularly amongst communities in the southern parts of the region and who take livestock up to forest areas in the dry season from drier lower parts, the movement of livestock today in most areas is more Opportunistic and in response to available resources than the more predictable *godantu* movements of the past [10].



Figure 2: Livestock grazing on the high Sanetti Plateau[10].

Godantu System During Wet Season

The Oromo pastoralists and their livestock have been an integral part of the Bale landscape for many centuries. A system of seasonal movements known as *godantu* was the traditional method of livestock management in Bale [21,22]. Mineral supplement to livestock is an integral

component of herd and grazing land management strategies of pastoralists. The types of natural minerals utilized by animals during wet season and found in low land is locally called 'Haya' Communities identified *haya* as grey, black and red colour soil from which the minerals are derived. *Haya* is the most frequently used natural mineral as it can be found in dry and wet muddy form and is suitable for all kinds of animals. Individuals travel far and wide to reach mineral licks (*haya*). However, access to *haya* is being severely curtailed through access routes being blocked by settlement or agriculture (with some *haya* themselves being cultivated) and poor management. The report of Fiona F et al. [4] indicate that majority of the routes in Delomen (Berak) and Harena bulluk were blocked and in some cases it took long time to access and difficult to access due to narrowing of the route and surrounded by individual enclosures.

The lower altitudes provided grazing during the wet season, but during the dry season livestock were trekked to the higher altitudes, in particular to high altitude forests, which provided fodder, browse and also shade. The report of Dereje T [23] state that Berak which is one of gammoojji (low land) area of delomena is used as grazing area during rainy season. The report of Abule E [24] indicate that pastoral communities found south of Harena Forest moving into the forest with their livestock during the dry season (January to March) in search of shade and livestock fodder. Pastoralists traditionally also use mineral springs in Harena Forest to provide mineral nutrients to their livestock at particular times of the year [24]. The report of Girma A [25] indicates that pastoralist in low land parts of bale zone (Rayitu district) supplement all classes of livestock with mineral soil called Haya, usually during the wet season. The supplement was considered to make livestock fat, to induce rapid weight gain in livestock, increase milk yield, stimulate cows for reproduction and serves as medicinal value [25, 18].

Godantu System During Dry Season

It appears that one of the main reasons for livestock entering the BMNP were for access to graze, browse and shade and natural mineral springs known as *hora* [4]. *Hora* is found in the diluted form and is consumed by drinking which is found in highlands and consumed during Dry season. *Bojji'* has a dull whitish color, fine salt grains and is mainly used by camel *Hora* is important for livestock as nutrition in terms of their chemical properties like sodium, potassium, calcium, manganese, zinc [21]. During the dry season livestock are trekked to the higher altitudes (*badda* and *badda dare*) and in particular to high altitude forests. Forests provided a rich

source of fodder, browse and also shade [26,21]. The report of Million B [27] indicates that pastoralist from low land inter Harena forest from January to March for search of shade, fodder and mineral spring (*hora*) for their livestock. The report of Oba G et al. [28] also indicates that peoples of *hora soba kebele* of Dinsho took their cattle to forest as *godantu* where there is grass under canopy. The report of [23] indicates that some of the *haya* (*haya Jage*, *haya sadeta*, *haya libe haya sora*) were destroyed or encroached by cultivation.

Indigenous Knowledge of Oromo Transhumance (Godantu) in Rangeland Management

The traditional rangeland and livestock management practices noted in this study split livestock herds based on species, type and productivity. Herd diversification and free ranging of communal land were similar to those reported from other East-African countries [29]. Herd diversification of pastoralists' in response to changing environmental conditions, which corresponded to responses by other pastoral areas. The diversification of herd composition is a response to changing environmental conditions and enhances climate resilience. The adoption of camel and goat herding requires the acquisition of new knowledge regarding different patterns of grazing and water use and animal husbandry.

Mobility is used for a wide range of purposes, and the practice relies on pastoralists' knowledge and local institutions for making decisions [30]. According to informants, herd mobility was a community survival and risk mitigation strategy. Despite the benefit of mobility for pastoralists and the environment, government policies to date have not promoted its sustainability. Pastoral development policy in Ethiopia emphasizes sedentary as a way out of poverty, and this policy direction fails to recognize mobility as a means of production in the arid lands. The extent and direction of herd movement, trend of mobility and the problems facing pastoralists in the current study were similar to those reported by Niamir FM, Roeder P [31,32]. In the study area, pastoralists linked the spatial diversity and abundance of bush and shrub vegetation with free movement of livestock in the communal grazing land, resulting in the dispersal of seeds of different plant species.

Livestock mobility is one of the major ways in which African pastoralists have historically managed uncertainty and risk in arid lands. The literature evidence

on other adaptive mechanisms includes herd diversification, stratification and drought buffering mechanisms. According to Amsalu A [33], mobility can address socio-economic objectives, such as access to a diverse range of markets, symbiotic interactions with farming communities (for example, exchanging manure for feed) and adaptive tool that serves several aspects of livestock production simultaneously. One benefit is the provision of fodder to livestock at minimal labour and lower economic cost. Extensive livestock production, taking livestock to feed and water, is less costly than bringing feed and water to livestock, because of lower labour demand, and lower inputs (for example, housing and troughs).

Mobility (and the other side of the coin, dispersion) have been correlated with increasing the resistance of animals to diseases, and decreasing their vulnerability to outbreaks [34]. Since the productivity of arid ecosystems is spatially and temporally variable and to a large degree unpredictable, mobility enables the opportunistic use of resources. This includes moving to minimize the effects and impacts of droughts, and being able to use underused pastures distant from settlements, or those that are only seasonally available. Various studies have shown that mobile production systems in Africa appear to be more economically efficient than sedentary systems, even more than commercial ranching.

In addition, climate change has forced the pastoralists to shift the species of livestock from grazers (cattle and sheep) to browsers (camels and goats) [35]. Pastoralists of low lands of bale zone uses different adaptation strategies which include herd splitting, herd diversification, livestock mobility, use sheep and goat rather than cattle, change migration route. The pastoralist of rayitu district in dry season (December to February) moved to distant place where water and feed were abundant and stay as Godaantu (migrant) [34]. Temporal migration is fundamental to pastoralists' strategies for coping with unpredictable rainfall, livestock diseases, and the sustainable use of scarce natural resources.

Challenges of Oromo Transshumance (Godantu) in Bale Zone

The report of Teshome A [18] indicate that as result of increment human population and government policy frequency of livestock migration decreased over time resulting settlement, and declines in livestock ownership per household, Mobility is fundamental to pastoralists'

strategies for coping with unpredictable rainfall, livestock diseases, and the sustainable use of scarce natural resources. However, pastoralists in bale zone face a number of challenges that threaten the sustainability of their traditional practices. The combination of diminishing grazing areas and population growth (both human and animal) has contributed to land degradation, competition for pasture and water and interethnic and intra-ethnic conflict. The report of Fiona F [10] indicates that with more land being allocated to crop cultivation and reduction in the size of available open grassland over the years as well as woodland browse, the time taken to access to wet and dry land season grazing lands has increased significantly.

The report of Bale eco region sustainable management program [20] also indicate that livestock herders receive little helpful support from development agents or extension services, whose priorities tend to be focused on improving crop agricultural production and agricultural inputs. Livestock stock mobility in bale eco region were challenged by Shortages in grazing land, reduced water availability (particularly in the dry season); long distance and time to access grazing area and watering point, resource user conflicts (between livestock and crop farming/forest protection / National Park conservation, animal health problems due to increased vulnerability [4,20,10].

Conversion of grazing lands to agricultural lands in the highlands of Bale Eco Region (BER) is increasing livestock pressure on the remaining grazing lands and affecting the traditional transhumance practice. Degradation of grassland and forest resources as well as land conversion has resulted in soil erosion, flooding, drought, and depletion of ground water. This in turn has led to chronic food insecurity and vulnerability to increased land degradation and recurring drought [35]. According to pastoralist leaders, the loss of traditional lands and the constraints on mobility resulting from administrative boundaries have disrupted and disarticulated social coping mechanisms and made traditional means of dispute resolution more difficult. Trends indicative of climate change, such as increasingly recurrent drought, floods, erratic rainfall patterns, and high temperatures are adding significantly to these stresses. Drought and climate variability are part of the natural cycle in lowland Ethiopia, and pastoralist communities do have an array of traditional coping mechanisms and resiliencies. However, the increased frequency of extreme weather and droughts threatens to overwhelm these economic and social coping mechanisms and resiliencies [35].

Bale's rural communities are seeking to meet their livelihood needs by expanding exploitation of local natural resources. Resource exploitation mechanisms are opportunistic and unregulated. Agricultural land started expanding rapidly, as grazing areas are heavily degraded pushing pastoralists towards new pastures. Forest areas are being cut and cleared and water systems disrupted. There were no land use management plans. Land use rights and ownership was confused and there was no control of resource use. Rapid immigration with unplanned and unrestricted settlement is a significant and mounting problem. Existing settlements are growing, and new settlements are appearing in previously unsettled and environmentally sensitive areas [20].

However, negative pressures on natural resources in the Bale Mountains are rapidly growing. Unsustainable natural resource exploitation and degradation throughout the area is increasingly threatening the sustainability of the environment, food security and sustainable livelihoods. As a result, the survival of the unique and globally significant fauna and flora of the area is threatened. In the lowlands of the zone, pastoralist production system with no or little farming is practiced and cattle and camels are kept to provide mainly milk. The climate in these areas is characterized by low, unreliable and unevenly distributed rainfall and by year round high temperatures. Animal production often concentrates around water points and herd size per family is usually large. The report of Girma A [25] in Rayitu districts of bale zone show that all house-holds experienced a critical feed shortage during both short and long dry seasons and pastoralist use migration (December to February) as coping Strategies of feed shortages.

Rangeland degradation is less understood by policy maker's development planners and researchers, confused with desertification, influenced by biases of western intellectuals. As a result, pastoral perceptions are overlooked, and the production system considered as ecologically unfriendly and unsustainable [36]. By considering herders' knowledge and involving them in the decision-making process for development, a more sustainable use of the local resources and a better future for pastoralists could be promoted [36].

Conclusion

The review indicate that Godantu livestock production system in bale eco region counts many years through utilization of natural resources found in remote areas through making seasonal movement to highland and low land without causing land degradation. Now days the

movement of livestock were diminished due to Socio-Economics, Ownership and use rights and Land categorization for conservation which result land degradation and over use of natural resources. Therefore, integrated land use planning system that addresses these issues and including herders/stakeholders in decision involving livestock movement is mandatory.

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