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THE TRANSFORMATION OF THE AFAR COMMONS IN ETHIOPIA

State Coercion, Diversification, and Property Rights Change among
Pastoralists

Bekele Hundie, Ethiopian Civil Service College

Martina Padmanabhan, Humboldt University of Berlin

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CGIAR Systemwide Program on Collective Action and Property Rights (CAPri)

C/- International Food Policy Research Institute, 2033 K Street NW, Washington, DC 20006-1002 USA
T +1 202.862.5600 • F +1 202.467.4439 • www.capri.cgiar.org

ABSTRACT

The major economic activity for pastoralists is animal husbandry. The harsh environment in which herders raise their livestock requires constant mobility to regulate resource utilization via a common property regime. In contrast to the mobile way of life characterizing pastoralism, agriculture as a sedentary activity is only marginally present in the lowlands of the Afar regional state in Ethiopia. Nevertheless, this study reveals a situation where the traditional land-use arrangements in Afar are being transformed due to the introduction of farming. In the past, the Imperial and the Socialist governments introduced large-scale agriculture in a coercive manner, thereby instigating massive resistance from the pastoralists. Currently, the recurrence of drought in the study areas has facilitated the subdivision of the communal land on a voluntary basis for the purpose of farming. Qualitative and quantitative analysis highlight the drivers, both coercive and non-coercive, of the transformation of traditional property rights of Afar pastoralists.

Keywords: traditional property rights, pastoralists, introduction of farming, common property, drought

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Bekele Hundie and Martina Padmanabhan¹

1. INTRODUCTION

Change in natural environmental conditions has constantly influenced pastoral livelihoods in the Afar region of Ethiopia, though uncertainty in ecological conditions and insecurity of property rights has increased only relatively recently (Scoones, 1995, McCarthy et al., 1999). As a result of these changes, the reliable flow of life-sustaining goods and services previously wrought from the area's erratic rangeland ecosystems is diminishing, putting pastoral livelihoods at great risk (Gadamu, 1994). The adaptation of these pastoralists is not confined to a simple human-land relationship in an isolated setting, but is rather influenced by demographic change, agricultural expansion, attempts to incorporate them into the national economy, and insecurity arising from conflicts and border instability (Davies and Bennett, 2007). Due to the widespread nature of droughts (Berkele, 2002) and ethnic conflicts (Hagmann, 2005) in several areas of Ethiopia, livestock mobility between alternative water and grazing areas has also been severely constrained (Padmanabhan, forthcoming), weakening livestock and causing a significant increase in livestock mortality. The cumulative effect of these factors has led to the weakening of traditional authority, degradation of natural resources, and growing vulnerability of different pastoral groups to ecological and economic stress, often resulting in poverty (Unruh, 2005; Rettberg, 2006).

In this situation, livestock herders increasingly pursue non-pastoral income strategies to meet consumption needs and prepare against shocks such as drought (Little et al., 2001). Property right changes having to do with the evolving relationship between pastoralists and agriculture are at the center of this analysis, which looks into two cases related to agricultural production systems and Afar pastoralists. One case portrays the conflictive transformation of the traditional land use arrangements of Afar pastoralists, which came about due to the coercive intervention of the state in implementing projects associated with commercial farming, while the other shows the more or less collective adaptation to farming, as induced by recurrent droughts in the presence of small-scale and supportive state intervention. Indeed, the two cases show that pastoralism is under pressure arising from both policy-related and natural challenges.

¹ Corresponding author: martina.padmanabhan@agrar.hu-berlin.de

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Ethiopia's national poverty reduction program recognizes that there is a rising threat to pastoral livelihoods as a result of biased policies and environmental change. The changes in economic policy that came about following political changes in 1991 gave development priority to neglected regions and groups, like pastoral and agro-pastoral group in the lowlands. Consequently, the present constitution recognizes pastoral land as specified in Article 40 and shows the step-wise constitutional and legal recognition of a common property regime for rangeland resources. Nevertheless, the government is still facilitating the gradual conversion of pastoralists into more sedentary livelihoods, reflected in the majority of its strategies for change (UN OCHA-PCI, 2007).

Historically, Ethiopian pastoralists have been the most marginalized groups in the policy arena (Helland, 2002; Yemane, 2003). During the Imperial regime (1930 to 1974), pastoralists were considered to be aimless wanderers who led a primitive way of life (Abdulahi, 2004; Getachew, 2001); moreover, they were considered to have been using natural resources wastefully (Gebre, 2001). Hence, during this time the main ambition of government officials, who were entirely from peasant or urban backgrounds, was to convert these 'primitive' societies into sedentary farmers who would utilize resources more efficiently. Different government policies emphasized that efficient resource utilization was possible if the vast and 'inefficiently used' resources in pastoral areas came under the control of the state, legitimizing government intervention (ibid).

This modernist discourse, viewing pastoralism as a stage for gradual development towards agro-pastoralism and finally sedentary agriculture, had been the basis for most policy formulation under the socialist regime (1974 to 1991) until the nineties, and still causes great grievance and irritation in the public policy debates on pastoralists today. Chatty (2007) stresses the simultaneity of pastoralists' cultural persistence and resistance to sedentarization and farming, while also compromising and adjusting to modernization efforts and a globalizing world. Modernist thinking, characterized by a linear development path, has influenced the pastoral situation in the past through forced diversification, while today we observe voluntary farming activities.

On the one hand, with its increasing involvement in land-use politics since the 1960s, the state as a powerful external force has inflicted severe changes upon the property right regimes that govern pastoralist life. The influence of the state-farms established in the Awash valley on dry-season pastures has forced the institutional arrangements of the commons into diversification. On the other hand, the current endeavors of development intervention to promote farming are opening up other opportunities.

In this chapter, we discuss two cases of pastoralist involvement in agriculture and investigate the challenges and opportunities of this transition. We focus on the drivers of crop production from a dual perspective: first, as an outcome of state coercion and, second, as a voluntary response to natural calamities. One case portrays the conflictive transformation of the traditional land use arrangements of Afar pastoralists, which came about due to the coercive intervention of the state in implementing projects associated with commercial farming, while the other shows the more or less collective action to adapt farming, as induced by recurrent droughts in the presence of small-scale and supportive state intervention. Property right changes are at the center of this analysis of diversification. As we will

demonstrate, there is considerable difference within pastoral communities in motivations for diversification, predominantly along lines of wealth and gender. In addition, the question of whether this recent option of small-scale farming is taken up by pastoralists depends on factors such as per capita livestock assets, suitability of the land for farming in general, access to wage employment as an alternative income source, and external support in regards to farming activities. The contradictory impact of these processes on property rights and collective action regarding poverty is also to be discussed.

The remainder of the paper is structured as follows: Section 2 briefly discusses the theory of transformation of property rights; the next section places the study at hand in the wider theoretical debate on property right changes. Section 3 describes the study sites and methods; Section 4 describes the current institutional arrangements of Afar pastoralists; Sections 5 and 6 discuss the transformation of the traditional land use arrangements of Afar due to coercive state intervention and natural challenges, respectively. The final section summarizes the main findings and provides policy suggestions.

2. THEORETICAL PERSPECTIVES ON PROPERTY RIGHT CHANGES, DIVERSIFICATION AND COLLECTIVE ACTION

The notion of property rights refers to a “bundle” of rights that individuals or groups have on a certain material or intellectual resource (Schlager and Ostrom, 1992; Alchian and Demsetz, 1973). Bromley (1991) defines these bundles of rights as including the right to derive benefits from the resource, the right to exclude others, the right to manage the resource, and the right to transfer the resource to others through various arrangements, backed up and enforced by the collective. Rights may be time-bounded or intermittent. Right holders are claimants over a resource – including individuals, communities, or legal entities – who may enjoy all rights in a bundle or be limited to only some of them. In most cases, conflicts take place among different individuals or communities regarding who should have command over a resource, how to use it, when to use it, and so on (Mwangi, 2005). There are a great number of cases in which different people or communities bear overlapping claims over resources, such as in the case of the riverine pastures of Afar. In pastoral areas, grazing land is a common-pool resource to which a great number of herders have *de facto* rights (Kirk, 1999; Swallow and Bromley, 1995). For a detailed discussion of the linkage between land rights and access to water, see Beyene and Korf (2008).

While rights imply the access of right holders to benefit streams, they do not *guarantee* the realization of benefits. All members of a clan in Afar hold rights to the common rangeland that belongs to their clan, but have different capabilities to utilize it. Households with little livestock have less means with which to actually access the resources. Ribot and Peluso sharpen this distinction by providing a broader framework for property right analysis. The basic idea underlying their framework is the distinction between *property* and *access*. Accordingly, ‘access is about all possible means by which a person is able to benefit from things’, while ‘property generally evokes some kind of socially acknowledged and supported claims or rights’ (2003:155). With this re-conceptualization, they show how

capability differences arising from access to different resources influence the quantity and quality of benefits that can be generated from them.

Studies in diversification strategies (such as Holtzman, 1996; Kituyi, 1990; Little, 1992; Zaal and Dietz, 1999) show that distinct change and diversification is still discussed as a two-sided coin, which may either allow herders to better cope with high levels of risk or may exaggerate their problems. Cultivation is a major avenue of diversification and is seen by some as a viable risk management strategy (Campbell, 1984; Smith, 1998), while others view it as an unsustainable or even destructive option that accentuates the risks pastoralists face (Hogg, 1988; Little et al., 2007). Fratkin (1991) and Nathan et al. (1996) show the potentially negative ecological and social effects of pastoral sedentarization and diversification. Yet, for Holtzmann (1996), diversification is seen as a cyclical rather than a linear process, whereby herders combine different income strategies at different points in their life-cycle. Equally, income diversification strategies such as farming among pastoralists do not necessarily lead to a diminished interest in livestock investments and production (Little et al., 2001).

One driving factor of property rights changes is diversification through the adoption of non-pastoral livelihood strategies. Berhanu et al. (2007) describes for the Borana pastoralists in southern Ethiopia the importance of human capital investment and related support services for improving the pastoralist capacity to manage risk through a diversified income portfolio. The increasing privatization of rangelands for crop production and private grazing along this diversification is explained by Kamara et al. (2004): certain national policies have resulted in conflicts of authority between traditional and formal systems, creating an avenue for spontaneous enclosures, associated conflicts and decreasing human welfare. Lesorogol (2005) finds that in Kenya households' gains from privatization depend on the particular ways of how the process of land tenure change and the pattern of diversification were integrated into the pastoral livelihood. In this case local level norms reinforced the value of land ownership for residents, thus preserving the pastoral way of life.

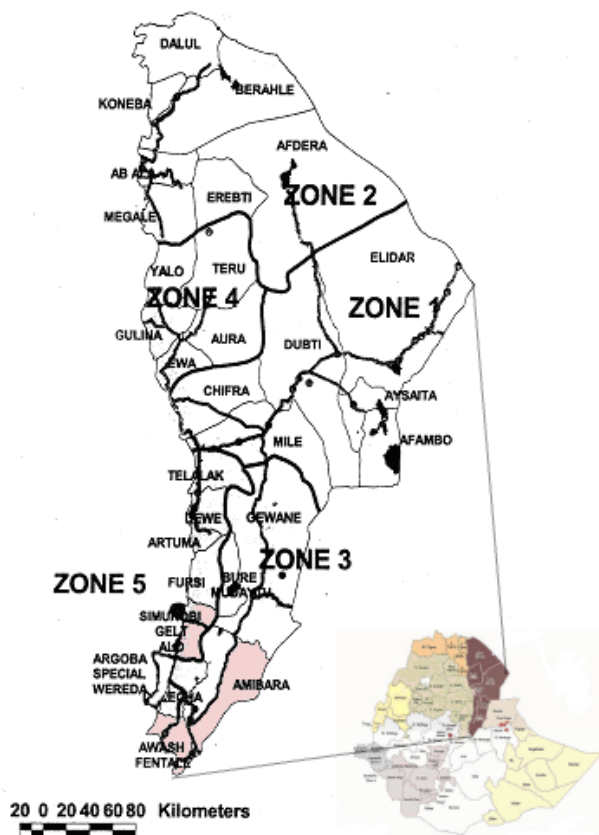
Collective action is a central feature structuring the utilization of rangelands by herders. In this paper, two different applications of collective action are examined. On the one hand, collective ownership and differentiated use patterns in herd management are the precondition for pastoralist's existence in marginal environment. On the other hand, the mobile people react to changes in property rights by venturing into crop production as a mean of livelihood diversification. If collective action is the voluntary action taken by a group to achieve a common interest (Meinzen-Dick and Di Gregorio, 2004), herding as well as commonly adopted agriculture are aiming at improving the welfare of the members. Collective action and cooperation may also exist at various levels within an institutional framework (Schmid, 2004; Ostrom, 1990) for purposes such as defense and attack or peaceful exchanges (Hundie, 2008). Institutions create stable expectations among people (Knight, 1992), and, hence, well-functioning institutions facilitate cooperation (Schmid, 2004). In some societies, the rules that govern human behavior are more formalized than in others. In such cases, institutions are built intentionally to reduce the incentives for non-cooperation vis-à-vis cooperation (Olson, 1965). In other societies, informal social relationships and the institutions embedded in those relationships shape behavior and the decisions of actors to

cooperate or not (Grant, 2001). State coercion and diversification into agriculture are met with collective strategies and result in the transformation of the commons in Afar.

3. STUDY SITES AND METHODS

The Afar region extends from central to northeastern Ethiopia, following the East African Rift Valley. The study districts – namely Amibara, Awash–Fentale and Semu–Robi–Gele’alo – are found in the southern part of the Afar region (Figure 1). Amibara and Awash–Fentale are located in the middle Awash valley, within the Rift Valley, whereas Semu–Robi is found across the lowland–highland interface, towards the western border of the Rift Valley. All study areas are characterized by a semi-arid climate, with average annual temperatures ranging from 21 to 38 °C, the lowest temperatures being between December and February, and the highest between April and June. The average annual rainfall is about 697 mm, coming primarily in two rainy seasons, namely *karma* (July to September) and *gilel* (March to April).

Figure 1: Location of Afar Region and Study Districts



Source: Afar Region Administration (2005)

The dominant source of livelihoods in the study areas is pastoralism, with limited levels of crop cultivation and other activities (Table 1). Afar pastoralists raise mixed species of primary livestock, including camels and cattle, and keep supplementary herds of goats and sheep, usually for commercial purposes. They manage their livestock under an extensive mobile system, with natural pasturage being the main source of livestock feed.

Table 1: Background of the three study sites

Location	Amibara	Awash Fentale	Semu Robi
Household economy	Pastoralism, farming	Pastoralism, farming (recently begun)	Pastoralism, farming (recently begun)
Ethnic and clan groups	Afar clans: Sidhabura, Rakbadermella Non-Afars: Amhara, Oromo and others	Afar clans: Rakbadermella, Mafay, Ayraso	Afar clan: Sidhabura
Kebeles studied	Ambash, Qurqura	Doho, Dudub	Harihamo, Daleti
No. of households interviewed	60	60	60
Location	Southern part of Afar region (in the middle Awash valley)	Southern part of Afar region (in the middle Awash valley)	Southwest part of Afar region (across the lowland-highland interface)

To investigate both historical and recent changes in the traditional property rights of Afar pastoralists, we pursued primary and secondary data sources and employed various procedures for data collection. Section five is based mainly on secondary data, including several unpublished documents accessed from the Middle Awash Agricultural Development Enterprise (MAADE), the Melka Werer Agricultural Research Center, and the Afar Region Administration. The information obtained from these and other documents was augmented with data generated through key informant interviews and discussions with groups of pastoralists.

Section 6 is based mainly on the data collected from 180 pastoral households dwelling in six purposively selected sites namely: Ambash and Qurqura in Amibara district, Doho and Dudub in Awash-Fentale district, and Harihamo and Daleti in Semu-Robi district (Table 1). A two-stage procedure was used to select the sample households. First, using lists of household heads in each site (generated for the purposes of this study), with the help of the local elders pastoral households were stratified into three groups: poor, medium income, and better-off. Thereafter, ten households were selected from each stratum using systematic random sampling technique. In most cases, household heads (usually male) were interviewed, though in a few cases responses were taken from an adult family member who was not the head. A group of trained enumerators conducted the interviews with

individual sample households, guided by a structured questionnaire prepared for this purpose.

The overall data collection process encompassed two phases. The first phase (December 2004 to May 2005) involved several tasks, including implementation of the household survey, collection of secondary data, and collection of detailed qualitative data through group and key-informant interviews. The second phase (October 2006) was organized for a short period in order to strengthen the evidence gathered from the first phase by reviewing secondary sources and conducting expert interviews.

4. TRADITIONAL INSTITUTIONAL ARRANGEMENTS

The clan is the lowest and *de facto* unit of traditional administration in Afar, although there are also smaller social units, such as the *dahla* or sub-clan. As Getachew notes, each clan comprises “a group of people related to each other by decent, living within shared territory and sharing common rituals and political leadership” (2001:54). Each clan has a well-established gerontocracy, whereby decision-making power regarding land and other natural resources resides within the clan council, consisting of the clan leader, elders, the *feima*,² and local wise men.

Each clan manages its resources collectively, based on customary principles. Accordingly, herd management follows rotational grazing patterns. When rainfall is normal for successive seasons, clan members are instructed not to use reserved pasture areas. These areas are made accessible to the members only after other areas have been exhaustively used. Although each clan member has an inalienable use right over the resources, intra-clan customary laws (or operational rules) regulate these use rights.

The traditional institutions of the Afar allow two types of resource users. The first category includes clan members who use the rangeland permanently. They are primary right-holders (*waamo*) who not only have the right to use the resources on the rangeland but also to exclude others and to transfer to their heirs. The second type of resource users comprises groups of neighboring pastoralists whose demands for pastoral resources go beyond their own endowments, particularly during drought years. These groups are secondary right-holders. They can be termed “right-holders” because they have frequent access to clan resources that is generally recognized and accepted by clan members and traditional leaders. However, certain obligations are operational on secondary right-holders in order to obtain access to the resources. *Ex ante* negotiation is required with *waamo* right-holders, the success of which depends upon the relationship between the two groups and resource conditions. If they are allowed access, secondary right-holders are required to honor the customary rules of the host group. For instance, they should refrain from actions such as cutting trees, allowing other herders to use the resources, and rushing their livestock into reserved areas.

² *Feima* is a rule-enforcing authority in Afar traditional administration. It consists of a principal leader (*feima-abba*), a deputy leader (*erenna-abba*), and ordinary members.

5. COERCIVE WAYS OF PROPERTY RIGHTS CHANGE: THE STATE SUBVERTING THE COMMONS

Triggers and Processes of Coercive Change

The intervention of the state in Afar was very limited prior to the 1960s. Farming was limited to the lower Awash flood-fed plains, where some pastoralists in the Asahimarra section of Afar had been practicing mixed crop-livestock farming for generations (Getachew, 2001). However, following the 1960s state interventions in these areas have increased, mainly for two reasons. First, the Afar plains – specifically areas in the middle Awash valley – were found to have great potential for wide-scale irrigated farming. The most attractive feature of these areas was their suitability for cotton production, which was critically important for expanding the country's textile industries: a primary focus of the first and the second five-year national development plans (IGE, 1957; 1962). Second, pastoralism was not accepted as a livelihood strategy within the reigning national political mindset of the time. Rather, pastoralism was considered to be a primitive and nonviable way of life – to be avoided rather than preserved (Abdulahi, 2004; Getachew, 2001). Thus, the intention of the policy makers was to change this mobile mode of life towards sedentary farming. However, the pastoralists neither participated in the decision-making process nor were they convinced about the goal of change.

In 1962, the Awash Valley Authority (AVA) was established by decree as an agent of institutional change. AVA was responsible for undertaking several activities, such as the founding and management of state farms, coordination and financing of pastoral settlements and other schemes, and monitoring the overall transformation process, for which some 70,000 ha of dry-season rangeland was targeted (Getachew, 2001). AVA had direct military and financial support from the government to implement the planned changes, using its military power, for example, to threaten the pastoralists. The Middle Awash Agricultural Development Enterprise (MAADE) began operations on the expropriated rangeland with the main objective of satisfying the demand of domestic textile industries for cotton. Initially, it had an operating area of 300 ha, which was increased to 13,116 ha in 1985. In addition to MAADE, several pastoral development schemes were implemented with directives coming from AVA. These included collective settlement farms and irrigated pastures.³ The costs to cultivate the settlement farms were covered by the state while the pastoralists contributed nothing except their labor. The output of the settlement farms was distributed among registered households.

The implementation of the state-driven projects resulted in a mixture of property rights in the area. Firstly, by using its coercive power the state became the *de facto* owner of part of the land over which the pastoralists had had inalienable rights for generations. Secondly, the introduction of the collective

³ The irrigated pasture scheme was envisaged to plant a variety of improved grass seeds through the participation of the settler pastoralists, so that the latter would appreciate the improved techniques and thereafter manage the irrigated pasture independently. However, this did not take place, and the irrigated pastureland served the dairy farm that had been established to fulfill the milk consumption of the staff of the state farms.

settlement farms brought a new variant of common property, apart from the traditional communal ownership of the rangeland. Indeed, the non-riverine parts of the area remained under the control of the pastoralists and were entirely allocated for livestock grazing, whereas traditional rights were nullified by order from the state in the riverine sites. This implies that the intervention of the state created a "legal dualism": claims over the riverine sites were governed and protected by statutory laws, whereas the non-riverine sites remained outside of direct state protection and legitimacy.

Because the state, by the power vested in it, redefined the land use rules without consulting the pastoralists, the process of change was not smooth, with the pastoralists resisting every action of the state. Indeed, throughout the 1980s and 1990s Afar pastoralists put great pressure on the administration of the state farms.

⁴ The pastoralists expressed their dissatisfaction with and opposition to the implementation of the commercial farm schemes mainly by damaging mature crops in the field, a typical example being the recurrent damage caused by local people on banana plantations, which eventually forced the state farms to abandon banana production. Initially, the state farms allocated compensatory funds to be paid to clan leaders and elders in the form of employment benefits which would, it was hoped, ameliorate the dissatisfied pastoralists. This reward system did not put an end to the grievances, however, as the power of the pastoralists emanate from their great number, which was increasing over time.

In the course of time, the relative power of the two actors has changed in favor of the pastoralists. At the beginning, AVA had the power of mobilizing resources to constrain the choices of the pastoralists and was capable of controlling their actions. However, it couldn't maintain this power to continuously influence the choices and actions of its counterparts. This is partly attributable to the decline of attention paid by the government towards state farms after 1989. Especially after the economic reform of 1991, the stake of the state in business ventures dramatically declined. As a result, AVA did not receive enough financial, political, and other support from the government to maintain its power. In addition, the shift in the national political structure towards ethnic-based federalism and the concomitant establishment of the Afar National Regional State re-calibrated the power balance in favor of the pastoralists.

These changes had effects on the existing property rights and land use arrangements. With the efforts of the Afar regional government and the decision of the Transitional Government of Ethiopia, MAADE handed over a significant part of its land, including irrigation infrastructure and facilities, to the Afar⁵ in 1993. This, in turn, resulted in the existence of two distinct forms of property relations, consequently increasing the number of actors involved. First, the pastoralists subdivided part of the returned farmland and started private farming in collaboration with highlanders, implying the individualization of the traditional communal rangeland. Second, the pastoralists leased-out part of the returned land

⁴ The resistance was also supported by Afar Liberation Front (ALF), which declared armed struggle against the government on June 3, 1975, following the dramatic expansion of the commercial farms by the military government. (<http://www.arhotabba.com/alf.html>).

⁵ The state farms handed over about 6547 ha, with the entire irrigation infrastructure intact (MAADE, unpublished document, 2005).

to local investors, whereby the latter annually transfer cash payments to the pastoralists,⁶ implying the introduction of a lease contract regime into the area.

In general, this sub-section shows that the state is the major source of property right changes in the middle Awash valley of Afar region. Empirical evidence from other areas in East Africa also confirms the significant role of the state with regard to property rights changes in pastoral areas. In some East African countries, such as Kenya and Uganda, the intervention of the state in forming modern ranches subverted traditional property rights arrangements and the existing ways of life (Fratkin, 1997; Mwangi, 2005; Rutten, 1992; Muhereza, 2001; Helland, 1977). Similarly, the pro-conservation policies of many East African governments resulted in the transfer of large areas of rangelands from pastoralists to the state (Fratkin, 1997; Markakis, 2004; Lane, 1998; Kisamba-Mugerwa, 2001), as did the pro-farming policies that facilitated the rapid expansion of large-scale commercial farms in pastoral areas of these countries (Rutten, 1992; Lesorogol, 2005; Shazali and Ahmed, 1999; Fratkin, 1997). None of these state-led transformations of traditional common property regimes were characterized by peaceful interaction between the state and the local people, and all took coercive lines.

Impacts of coercive change on the livelihoods of pastoralists

Direct intervention of the state has, step by step, changed the traditional property regime of the pastoralists and brought about new forms of land use arrangements that have direct implications for their livelihoods. Four distinct forms of land use arrangements have been implemented since the initial interventions of the state: state farms, settlement farms, individual small farms, and private large-scale farms. These new variants of property rights have one main feature in common: they are all related to the production of crops. However, each of them is unique in terms of the types of actors interacting with pastoralists and the impacts on rights and capabilities of pastoralists to secure livelihoods that they entail. The existence of state farms implies *de facto* state ownership as well as the nullification of customary rights, which pastoralists had had over land for generations. Indeed, the contemporary rights that pastoralists have over this portion of the former commons have been limited to use rights over crop residues, and only with the consent of officials from the state farms. On the other hand, the expropriation of large tracts of dry season rangeland, without compensation, has resulted in the reduction of the capability of pastoralists to secure livelihoods through the traditional means of livestock production. In this respect, the present vulnerability of Afar pastoralists to recurrent droughts is at least partly associated with such expropriatory measures of the state (Sen, 1981; Getachew, 2001; Yemane, 2003).

The settlement farms, established for compensatory reasons, reflect a kind of interaction between the state and the pastoralists. In this case, the new resources

⁶ As realized from group discussions, investors pay 30 percent of their annual profit to pastoralists in the form of rent. In addition to financial payments to the pastoralists, the investors have promised to improve local infrastructure, including schools, watering trenches, and health stations. However, the pastoralists complain that none of the investors have honored their word regarding infrastructural development.

necessary to produce crops were entirely supplied by the state. The existing irrigation infrastructure and the road networks were built by the state through a large outlay. Similarly, farm machinery and facilities were purchased by the state. The technical personnel and the management staff had also been installed through the efforts of the state. While these resources defined capabilities to exercise rights within the parameters of the new land use system, pastoralists already had well-recognized rights to the benefit streams from the land. In other words, they had the rights⁷ as well as the capabilities to generate benefits from the settlement farms. However, the state was not “benevolent” forever, but rather stopped its support in the mid-1980s. The termination of state support and the concomitant transfer of all machinery and facilities to the state farms have debilitated the capability of the pastoralists to extract benefits from their land, although their rights to the land have remained intact. Lacking the knowledge and physical resources needed for farming, the pastoralists have not been able to continue crop production on the former settlement farms, despite their rights to do so. As a result, the entire settlement farm has been out of production and is covered, at present, by an inedible exotic weed (*Prosopis juliflora*). In fact, this part of the former rangeland is neither cultivated nor is it efficiently used for livestock production, which has direct implications for the livelihoods of the pastoralists.

The return of the confiscated land in 1993 was an important action that reduced the influence of the state on the traditional lands of the pastoralists. Actually, the pastoralists were free to decide on what to do with the returned land. Accordingly, the land was partly allocated to clan members and was partly leased out to local investors. In regard to individual parcels of land, the Afar have established partnerships with agriculturalists from the highlands. Individual landowners have the right to choose their partners, define and redefine the land use contracts, and terminate contracts if required. In the lease arrangements, the new partners of the pastoralists are local investors. Under this form of contract, the pastoralists collectively earn 30 percent of the investors’ profits in return for the use of their land, which they distribute among themselves based on predefined criteria. They have formed a standing committee, including an accountant, to monitor all transactions of the investors. The committee has been entrusted to defend the rights of its principals and, hence, to take action when errors or other problems arise.

While the current situation shows the restoration of the rights of the pastoralists over their traditional land, capability limitations are apparent in terms of maximally exploiting the new venture. First, pastoralists have poor knowledge of farming techniques and lack resources (such as farm implements) necessary to cultivate crops. As a result, the highlanders are responsible for all farm operations in return of larger shares of the net farm proceeds (up to 70 percent), whereas the contributions and earnings of the pastoralists are minimal. Actually, the share of the highlanders reflects the costs to be paid by the pastoralists due to their limited capabilities to produce crops on their own. Second, the capacity of the committee to actually carry out their responsibilities concerning the lease arrangements is

⁷ In fact, pastoralists were restricted to using the land consistent with formal regulations for the area. For instance, they couldn’t use it as rangeland.

questionable. The members have no accounting knowledge, and some of them do not even know how to read and write. Hence, everything is done based on trust, implying the possibility that the pastoralists could be cheated if the investors desire to do so. Again, this implies the weak position of the pastoralists under such arrangements.

It is also worthwhile to pinpoint the distributional effects of the changes in property rights that have taken place. Traditional property rights allowed multitudes of users to share a resource system in accordance with certain predefined rules. Under the traditional arrangements, all clan members had equal rights to grazing resources and, hence, could extract benefits, provided that they had livestock. However, equality in rights to the communal heritage has not been ensured following the state-induced changes of property rights. During the initial period of the transformation, elites and their allies abandoned the customary rules and facilitated their own entitlement to the benefits from the settlement farms. Others used their physical fitness and connections with project leaders to secure their own benefits, while those households lacking such resources were denied access to them (Getachew, 2001). The procedures following the subdivision of the newly returned land has also not been immune to discrimination. Contrary to the traditional land law, about 31 percent of the sample households were left out of consideration during the subdivision. A closer look at the assets of the sample pastoralists chosen for this study shows that those who have not been benefiting from the subdivided land are poorer (average 0.89 TLU of per capita livestock asset) as compared to those who have been benefiting (2.91TLU). This inequity and mistreatment is even more visible with regard to the women. Female-headed households were neither considered when the returned land was distributed among clan members nor have they been beneficiaries from the leased-out land because of tradition-based criteria: women are *de facto* minors in Afar customary laws.⁸

6. NON-COERCIVE WAYS OF PROPERTY RIGHTS CHANGES: VOLUNTARY ADOPTION OF FARMING

Triggers of voluntary change

Afar pastoralists in the study areas have been highly threatened not only by the coercive actions of the state, but also by recurrent droughts. Two major droughts have hit the areas since the mid-1990s, and short dry spells are common as well. The prevalence of drought has adversely affected the pastoral economy in two ways. First, it has reduced the total livestock assets and productive capacities of the area, thereby increasing mortality and morbidity rates. Sanford and Habtu (2000, cited in Mesfin 2003:44) have estimated that a 5 to 15 percent reduction in livestock assets occurred in Afar due to the drought of 1999–2000. In fact, this

⁸ Women have no ownership rights to land as well as other resources, including livestock. They hold conditional rights and, thus, are only entitled to benefit streams via their husbands. When a woman's husband dies, all jointly owned assets, including livestock, are transferred to her husband's family, and the widow loses control rights over 'her' former resources. As a small compensation, she can indeed maintain control over the livestock given to her as presents by her husband during their marriage.

estimation corresponds to the best-case scenario. Under the worst-case scenario, livestock loss has been estimated to range from 15 to 45 percent. Emergency assessment reports of various development organizations and relief agencies indicate that the prolonged drought of 2002-2003 had even more serious consequences for the Afar pastoralists (FEWS NET, 2002; UN-EUE, 2002a; UN-EUE, 2002b).

Second, the successive droughts have re-calibrated the terms of trade against the pastoralists. Although no systematic records have been found yet, assessment reports of aid agencies indicate a sharp decline of livestock prices during the droughts. A UN assessment mission in the area indicated that pastoralists faced more than 50 percent reduction in livestock prices following the drought of 1999-2000 (UN-EUE, 2000). Similarly, livestock prices fell by 50 to 60 percent due to the drought of 2002, while maize prices simultaneously rose by about 235 percent (Davies and Bennett, 2007). The adverse effects of the droughts on the terms of trade were compounded by other factors, such as export restrictions imposed by Saudi Arabia in September 2000 following a Rift Valley fever outbreak and insecurity around the northern border of the Afar region in the aftermath of the war between Ethiopia and Eritrea in 1998.

These livestock losses coupled with the deteriorating terms of trade against pastoralists worsened food insecurity in the study areas, with the degree of food insecurity reaching its climax in 2002-2003 due to the intensified drought. A serious famine hit the area, during which a large number of pastoralists had nothing to eat. On 12 July 2002, the Disaster Prevention and Preparedness Commission issued a Special Alert that publicized the deterioration of food security in several parts of the country, particularly in the Afar region and the neighboring East Shewa zone of Oromia. According to the Special Alert, 448,500 people in the Afar region needed emergency aid, out of which 45.3 percent were located in Zone 3 (constituting Amibara and Awash-Fentale) and Zone 5 (constituting Semu-Robi).

The deterioration of food security in pastoral areas in general and Afar in particular necessitated an intensified intervention of external agents (governmental and non-governmental organizations, NGOs) into pastoral livelihoods. While the most immediate external intervention was provision of food aid to save human lives, a number of programs and projects financed by the government and NGOs, such as FAO, Farm-Africa, CARE-Ethiopia, and Oxfam GB, were designed to improve the livelihoods of pastoralists. One intervention was focused on designing projects and programs to facilitate the expansion of crop cultivation in these areas. Both traditional authorities and external agents were important facilitators of collective action to begin farming. In this respect, external agents (local government and NGOs) sponsored meetings at the kebele level. While there exist no formal records of the number of local meetings in the study sites, the average number of meetings reported by the sample households ranges between 7.2 (for Dudub site) and 18.6 (for Daleti site) for the year preceding the survey. During the meetings, the external agents explained their vision and commitment toward improving the livelihoods of pastoralists, mainly through programs focused on farming. The interventions of the external actors were even more direct in three of the study sites, namely Harihamo, Daleti, and Doho. In Harihamo and Daleti, the government directly supported collective activities in relation to farming through its food security program. Assistance included provision of farm tools, covering initial

costs of farm operations (such as costs of tractor for tillage), provision of oxen, and other logistic and advisory support. At the Doho site, support was mainly provided by an FAO livestock recovery project office at Awash–Fentale, which provided financial support for initial development of irrigation infrastructure and farm inputs, mainly seeds. Moreover, district level experts on agriculture were responsible for providing advisory support to the “agro–pastoralists.”

Similarly, the role of traditional authorities was substantial. Specifically, activities such as mobilizing clan members for meetings, organizing and supervising all activities such as bush clearing and land leveling, and imposing sanctions on free riders required the active participation of the feima members. Traditional sanctions were to be applied, including asset penalties, like slaughtering the breeding cows of free riders, and corporal punishment, such as beating free riders in public to shame them.

The pastoralists were required to be involved in all activities to prepare the communal land for cultivation, following which it was allocated to the participants. The preparatory activities were done intermittently for about 4 months in Semu–Robi and for 2 months in Awash–Fentale. For Amibara, the exact duration is not clear, but, according to sample respondents, it ranged between 30 and 180 days. The overall participation rates across districts in these cooperative activities were 39.1 percent (n=70) with 13.3 percent (n=8) in Amibara, 23.3 percent (n=14) in Awash–Fentale, and 81.4 percent (n=48) in Semu–Robi.

Analytical model and variables

Section 6.1 indicates that farming is an enterprise that has been induced because of natural shock to the area. Understanding the movement of pastoralists towards farming entails comparison between the situation under farming and pastoralism. Thus, assuming that individuals make decisions by comparing their expected utilities associated with the two enterprises, this binary choice can be modeled following the utility function approach. Let U_{i1} and U_{i0} be the utilities of individual i associated with farming and pastoralism, respectively. We expected that community members would be heterogeneous in terms of the level of utilities generated from farming. We also expected that community members would vary in terms of the level of utilities they generate from pastoralism. Thus, U_{i1} and U_{i0} can be formulated as a function of other variables such that $U_{i1} = \alpha_{i1} + \beta_{i1}X_i + \varepsilon_{i1}$ and $U_{i0} = \alpha_{i0} + \beta_{i0}X_i + \varepsilon_{i0}$, where α and β are parameter estimates and X is a vector of exogenous variables that cause heterogeneity among community members. As a utility maximizer, individual i decides in favor of farming if $U_{i1} - U_{i0} > 0$, and otherwise if $U_{i1} - U_{i0} < 0$.⁹ Accordingly, participation in collective activities to start farming reveals that $\varepsilon_{i0} - \varepsilon_{i1} < (\alpha_{i1} - \alpha_{i0}) + (\beta_{i1} - \beta_{i0})X_i$. If we replace $\varepsilon_{i0} - \varepsilon_{i1}$ by ε_i ,

⁹ There could be indecision if $U_{i1} - U_{i0} = 0$, but this happens with zero probability if $U_{i1} - U_{i0}$ is a continuous random variable.

$\alpha_{i1} - \alpha_{i0}$ by α_i and $(\beta_{i1} - \beta_{i0})X_i$ by $\beta_i X_i$ for brevity, then the probability that individual i will participate in collective action to start farming can be specified as: $P(C_i = 1) = P(\varepsilon_i < \alpha_i + \beta_i X_i)$. If a normal distribution function is assumed for ε_i , then the model turns out to be a probit model (Amemiya, 1981). Alternatively, if a logistic distribution is assumed, the model becomes the logit one (ibid). The two alternative models produce similar outputs, except in rare cases when the data concentrates around the tails of the distributions (Amemya, 1981; Greene, 2000). Here, the logit model is used since it lends itself to easier interpretation.

Table 2 shows the description of the independent variables considered for logistic regression analysis and their hypothesized signs. The dependent variable takes on a value of 1 if a pastoralist participated in collective action to start farming, and 0 otherwise. The explanatory variables had been tested for their importance by using descriptive statistics before they were subjected to regression analysis. The results show that participants are significantly different from non-participants with respect to all but one variable.¹⁰

¹⁰ The exception was EDUCATE.

Table 2: Description of variables and working hypothesis

Variable code (X_j)	Description	Mean of X_j or Percent of $X_j = 1$	Hypothesis
AGEHH	Age of household head in years	40.1	–
EDUCATE	A dummy variable which takes on 1 if the household head is literate; and 0 otherwise	25.7	+/-
ACTIVLB	The number of household members within the age range between 10 and 60 years ¹¹	4.9	+
SUITAGR	A dummy variable which takes on 1 if the area is either suitable for rain-fed agriculture or can be irrigated given existing water resources and capacity to irrigate; and 0 otherwise.	66.5	+
PERCPLS	Per capita livestock holding of household (TLU)	3.1	–
EMPOPP	A dummy variable which takes on 1 if the household generates income from wage employment; and 0 otherwise.	10.6	–
SUPPORT	A dummy variable which takes on 1 if external agents provided direct support ¹² before and during collective activities; and 0 otherwise.	49.7	+

Source: Own survey data

¹¹Classification was made based on local information.

¹² External support includes financial, material, and advisory services. Moreover, the role of external agents in organizing local meetings has been taken into account to define the variable.

Regression results and discussion

The outputs of the regression are shown in Table 3. The signs of the coefficients in the regression are all in agreement with prior expectations. The chi-square statistic is significant, implying that the explanatory variables (taken together) are important in explaining the variability in the dependent variable (cooperation to start farming). The model was able to correctly predict 86 percent of the cases vis-à-vis participation in collective activities. Since the standard coefficients in the logistic regression equation are not directly interpretable, the marginal effects of explanatory variables were computed by using an additional algorithm in the LIMDEP statistical software version 7.

Table 3: Determinants of Cooperation among Pastoralists to Start Farming

	Coefficients	SE	Marginal Effects
Constant	-3.6695**	1.2439	-0.6348
AGE	-0.0143	0.01523	-0.0024
EDUCATE	0.5477	0.5483	0.0947
ACTIVLAB	0.0561	0.0776	0.0097
SUITAGR	3.8085**	1.1561	0.6588
PERCPLS	-0.1681**	0.0623	-0.0291
EMPOPP	-2.0585*	0.8831	-0.3561
SUPPORT	1.5636**	0.6195	0.2705
Chi-square	108.7822**		
Log likelihood function	-65.39940		
Percent of correct prediction	86		
Number of cases	179		

Source: Own survey data

* and ** significant at 5% and 1% levels, respectively

Four variables are important for explaining cooperation of pastoralists in collective activities geared towards the decision to start farming: suitability of the area for agriculture, per capita livestock holding of a household, access to wage employment, and external support. Each of them will be discussed in some detail in the following.

The proxy variable for suitability for farming (SUITAGR) is positively related to the level of cooperation. This variable is supposed to capture the variability among the study sites with respect to their potential for crop cultivation. In this respect, the study areas were classified into two groups, based on the perceptions

of the pastoralists. Ambash, Doho, Harihamo, and Daleti were classified as potential sites for agriculture, either because of the presence of irrigation infrastructure (Ambash and Doho) or because of better rainfall distribution (Harihamo and Daleti). On the contrary, Qurqura and Dudub were classified as non-potential areas. The heterogeneity of the study sites with respect to their potential for agriculture implies the existence of spatial variation regarding the costs of running a new enterprise (i.e. crop production). In areas where shifting to farming is easier, either because of better rainfall or the possibility of irrigation, mobilizing people for collective action is easier because people anticipate that they would incur relatively low costs in order to realize benefits that would be reasonably higher than the alternative engagements. The regression results indicate that the probability of cooperation in collectively organized action to start farming increases by about 66 percent in areas where people perceive the possible benefits of farming. The perceptions of the pastoralists on the potential of their localities vis-à-vis farming influence their decisions because expectations about the benefits of cooperation arise from individual perceptions.

The second influential factor is the level of wealth of pastoral households, as implied by per capita livestock ownership (PERCPLS). The expectation was that households with low livestock assets would have a relatively high incentive to go into cultivation as compared to their better-off counterparts for the simple reason that livestock are not dependable sources of livelihood for the former. This expectation holds true, as confirmed by the regression analysis results. More specifically, the probability that a household will cooperate in farm-preparing activities increases by about 2.9 percent for each total livestock unit (TLU¹³) reduction in per capita livestock holding, implying that households with lower livestock assets are more likely to cooperate. In this regard, the variation among the pastoral households can be explained from a number of different perspectives. First, the possible differences in labor demands between those with low livestock assets (≤ 4.5 TLU¹⁴) – hereafter considered as “poor households” – and those with larger livestock assets (> 4.5 TLU) – hereafter considered as “better-off households” – can be associated with differences in cooperative behavior between the two groups. Actually, the better-off households own significantly larger quantities of livestock (67.3 TLU) than poor households (11.2 TLU), whereas, in terms of active labor force potential, the former are in a slightly lower position (4.4 persons) as compared to the latter (5.0 persons). Given the fact that those with larger livestock assets require more labor to properly manage their animals, the output reveals that labor is scarcer among households with better livestock assets. Thus, it can be deduced from the results that the introduction of crop production into the existing system would lead to greater pressure on better-off households in regards to labor allocation. When competition occurs between crop cultivation and livestock husbandry, it is less likely that better-off pastoralists would prefer to shift their labor to the “imported” enterprise (i.e. crop cultivation).

¹³ TLU refers to Tropical Livestock Unit. 1 Camel = 1 TLU; 1 cattle = 0.7 TLU; 1 donkey = 0.5 TLU; 1 sheep = 0.1 TLU (ILCA 1992).

¹⁴ In this region, 4.5 TLU per capita (or about 5 cows) is the minimum threshold level to sustain family members without requiring additional income from other sources (McPeak and Barrett, 2001).

Second, the decisions of the pastoralists concerning farming activities reflect their ways of reacting to natural hazards, mainly drought. Pastoralists exercise several traditional portfolio management techniques to mitigate risk. Livestock accumulation is one way to mitigate risk (Herren, 1991; McPeak and Barrett, 2001). McPeak (2005) shows that a larger herd size pre-crisis implies a larger herd post-crisis. Diversification of livestock ownership is another *ex ante* risk management strategy, in which pastoralists adjust the composition of their livestock in a direction that could minimize asset loss due to disaster. Pastoral households also spread their livestock spatially throughout their personal networks to reduce risk.

While these *ex ante* risk management strategies (although not exhaustive) may exist in many pastoral areas, the poor and better-off households do not have equal capability to exercise them. The poor appear to have lower capability to exercise any of the indicated options, simply because livestock are large investments to them. In this regard, the poor occupy lower positions, not only in terms of total amount of livestock, but also in terms of the diversity of these assets. A comparison made between the two groups vis-à-vis diversification (within pastoralism) shows that better-off households keep more livestock types (3.6 species) than poor ones do (3.3 species). Moreover, better-off households own more camels (about 30 head) than poor households (about 3 head), which shows that the former are in a better position to withstand recurrent droughts.¹⁵ Keeping livestock at different locations across personal networks seems to be a rational way of mitigating risks, especially those arising from localized, not region-wide shocks. This strategy is also less likely to be feasible for poor households, because there is not enough livestock to distribute spatially.

Differences in *ex-ante* risk management strategies and capabilities between the poor and the better-off also affect their *ex-post* risk management strategies and capabilities to cope. In this respect, better-off households possess better resources to meet basic needs without resorting to other occupations, whereas poor households need to find opportunities outside of pastoralism to sustain their families. Therefore, the differences in cooperative behavior observed between the poor and better-off pastoralists with regard to farming are also attributable to their differences with respect to *ex-post* risk management strategies.

Third, the difference observed between the two groups with regard to cooperative preparations to start farming can also be seen from the perspective of property rights. Common property regimes allow multitudes of users to share a resource system in accordance with certain predefined rules (Ostrom, 1990; 1992). Nevertheless, this doesn't mean that all rights-holders derive equal benefits from the resource system. Rather, benefits are a function of rights and capabilities of individual actors to utilize a resource system (Ribot and Peluso, 2003). A pastoralist who has limited financial ability to purchase additional stock obviously derives less benefit from the communal pasturage than his livestock-rich neighbor, given that the rate of livestock ownership is below the optimum. In other words, the former

¹⁵ Camels are best suited to arid areas like Afar. In times of water scarcity, they can endure without water for more than two weeks, while cattle need water at least once in three days. Moreover, camels feed on the foliage of trees and bushes, which are better in resisting drought than the grasses on which cattle are dependent.

exploits only a small portion of his rights as compared to the latter although, in principle, he has the right to derive as much benefit as his neighbor. Indeed, not only rights but also capabilities determine the actual benefit structure among a group of people. This is particularly apparent in common-pool resources, especially with this case in rangelands, where there is *de facto* open access for all group members.

Capability differences among right holders to realize benefits from a communal resource system may result in differences in their reactions to new challenges or opportunities that may affect benefit streams. For the near-stockless Afar households, the incentive to cooperate in farming activities would be high, because in such a way they can better exercise their rights over the resource system. The current literature indicates that traditionally pastoral communities do provide opportunities for poor members with a little or no livestock to make grazing contracts with better-off community members or outsiders so that they can build their own herds (Ngaido, 1999). However, our evidence shows that, with regard to contractual arrangements, there is no special institutional treatment for poor households, implying that their only feasible available option for exercising rights is to take up crop production, provided that entry is made possible for them. Pastoral areas are generally marginal as far as intensive crop production goes. Consequently, livestock production appears to be the best and, in some areas, the only option under the existing technologies (Ahmed et al., 2002). However, as a result of challenges (mainly drought) which have caused rapid deterioration of pastoral livelihoods, these days pastoralists usually seek out alternative means of survival, at least on temporary basis. Since opportunities are lacking in most pastoral areas, resorting to agriculture is the main option that pastoralists pursue. Indeed, a growing trend toward crop cultivation is now observable in many pastoral areas of Ethiopia in general and Afar in particular (Yemane, 2003). In areas where alternatives are available, it is expected that pastoralists will make choices from the “bundle” of non-pastoral activities to sustain themselves, at least until the conditions for their main occupation improve. In such situations, alternative activities compete for pastoralists’ resources, and, hence, the decision to cooperate in farming activities is a matter of evaluating the existing opportunities from the perspective of each pastoral household, differentiated as they are in terms of existing assets and capabilities. In this vein, our results indicate that wage employment opportunities (EMPOPP) tend to have a negative influence on the decision to cooperate in farming activities. The probability of opting for cooperation declines by about 36 percent if a household earns income from wage employment.

State farms are a major source of wage employment for pastoralists in the study areas, particularly in some locations of middle Awash valley. Although Afars are recruited only for lower level positions, those who get the chance do not hesitate to join state farms. All in all, about 11 percent of the sample pastoralists were employed in commercial farms. There are reasons why pastoralists prefer employment in state farms to farming by themselves. First, they can generate a more stable (and perhaps higher) income by being wage laborers, whereas farming is a risky business. Second, in most cases, pastoralists are employed as guards to

protect crops (mainly cotton) from livestock,¹⁶ which is less tiresome than farm work and is preferable to pastoralists, who are quite used to tending animals. Finally, support from external actors (SUPPORT) has been found to be positively and significantly related to participation in collective action to start farming. The probability that a household will participate in collective action increases at the mean level by 27.1 percent in the presence of external support. There are two possible explanations for this result. First, participation of external actors in organizing meetings facilitates discussions and information exchange among pastoralists. Some pastoralists may not participate because they are completely unaware of the intervention. Some others may be ambivalent because of incomplete information with regard to the intended activities. Thus, the existence of external support increases the likelihood of participation of those households that either unwittingly or due to ambivalence fail to cooperate, thereby improving their awareness regarding what has been intended for their locality, the costs and benefits of cooperation and non-cooperation, the commitment of external supporters, the reactions of other members of the community, and the “rules of the game.”¹⁷

Second, financial and material support provided by external actors could increase the likelihood of participation. Such support, which augments the capacity of households to invest in the new venture, can particularly increase the participation of the poor, who may otherwise refrain from participation due to financial and material limitations. The positive effect of this variable is not, however, exclusively associated with poor households. Even the participation of better-off households can be enhanced in the presence of financial and material support as a result of possible reductions in costs of participation vis-à-vis the anticipated benefits. Moreover, better-off households may become persuaded to have their “share” from the resources externally injected into the system.

7. SUMMARY AND POLICY IMPLICATIONS

Traditional communal landholding has been prevalent in Afar, accommodating the interests of different user groups for many generations. This is attributable to the ecological conditions of Afar which entail the use of pastoral resources scattered over a wide area of land to produce livestock. However, this traditional land use system is changing because of pressures from both governmental policy and natural events. This study has examined both political and natural forces that have induced the transformation of the traditional land use arrangements in selected

¹⁶ Information obtained from MAADE indicates that there is great pressure coming from the surrounding areas to feed livestock on cotton stocks. While cotton harvesting normally comprises three rounds, pastoralists have been rushing their animals into the cotton fields immediately after first-round picking. In order to reduce this pressure from the local herders, guards are recruited from members of different clans. This is done to use social capital as a means of mitigating the problem. Quite large amount of money is allocated by MAADE to mitigate the problem. For instance, a total of 294,335 Birr (~USD 34,000) was allocated in 2004–2005 for this purpose (personal communication with MAADE administrative officer).

¹⁷ There is also a possibility that external agents may romanticize the outcomes of forthcoming cooperative efforts to persuade those who have not yet decided to join them.

areas of Afar. State intervention, which has been imposed mainly since the early 1960s, brought about detrimental effects on the livelihoods of pastoralists. First, through employment of coercive ways, the state expropriated large areas of dry-season rangeland, resulting in the exacerbation of feed scarcity in the area. Second, the state had been enforcing the transformation of pastoralism into sedentary farming without taking into account pastoral households' capacities to produce crops. More specifically, the development schemes initiated and financed by the state couldn't enhance the capabilities of pastoral households in a way that would enable them to derive full benefits from their land. Being devoid of public participation, these schemes paradoxically fostered a dependency syndrome among pastoralists, which remained even after their termination. Third, state intervention created a window of opportunity for some pastoralists, while others such as women and the poor were deprived of obtaining benefits from the new arrangements.

When faced with challenges, pastoral households employ coping strategies which may involve different ways of using the available resources, even looking beyond pastoralism. The situation of recurrent drought, which was intensified in 2002 and 2003, has imposed difficulties on pastoral livelihoods in Afar. On the one hand, the emergence of this natural challenge triggered the intervention of external actors to facilitate cooperation among pastoralists, providing a catalyst for the motivation of the pastoralists to take up farming. On the other hand, this natural challenge has increased the expectations of people that they will be able generate greater levels of utility by participating in such collective efforts, given the existence of external assistance. The expectations, whether realized or not, have produced cooperative decisions towards engaging in organized activities. However, individual households are heterogeneous in their capability to withstand the natural challenge. In case studied, our results show that poor households are more interested in farming and, hence, promote the transformation process. Whether this demand on the part of the poor could lead to permanent individualization of the previously communal land remains to be seen.

Overall, the study indicates that communal land ownership, which forms the basis for pastoralism, is under pressure as a result of state intervention and natural challenges, as also depicted by several other studies in pastoral areas (Blench, 2001; Markakis, 2004; Ensminger and Rutten, 1991; Helland, 2002). Though the same collective property rights might be shared, the individual capability of the right holder to utilize the resource varies to a great extent. This explains why the diversification into agriculture with the means of external intervention is more attractive to poor households with less livestock. Nevertheless, the transformation of the property rights regime is an effect of coercive and voluntary collective action. With regard to the present study, the following two points are worthy of policy attention:

1. *Averting possible continuation of state coercion*: The coercive expropriation of pastoral land has been slowed down since 1991, and Afar pastoralists have regained some of the lost rights over their traditional land. However, the current national policies are not immune from anti-pastoral ethos. For instance, the 2005 national land use proclamation declares the possibility that *communal rural land holdings will be converted to private holdings* if the government finds such transformation necessary (Article 5 No. 3). There is

also a clear plan to expand the existing irrigated land in the Awash basin (about 66 percent in Afar region) from 68,800 hectares to 151,400 hectares (Flintan and Tamirat, 2002). The implementation of such a plan would be impossible without evicting pastoralists, and the costs of eviction are usually underestimated. Moreover, it is usually assumed that simply providing financial compensation would be sufficient for those who lose their land. However, for pastoralists who do not have enough skills to engage in other occupations, providing financial compensation without further assistance is akin to facilitating their movement towards destitution. The failure of past 'compensation' schemes in Afar (as discussed in this paper) indicates that investment expansion through compensation schemes may not lead to a situation in which all stakeholders benefit. Current experiences in non-pastoral areas of the country also show that undervaluation of land, large variance between what investors pay and what evictees receive in compensation, and ultimate failure of evictees to start new livelihoods are critical problems associated with the expansion of investments in rural areas of Ethiopia (Bekure et al., 2006). These problems are attributable to the lack of effective institutions and appropriate governance structures, including (1) lack of clear guidelines on land valuation; (2) marginalization of landholders in the process of land transfers; and (3) a weak organizational setup to administer the transformation process. Indeed, such experiences provide good lessons that should be taken seriously in the national and regional policy arena before promoting investments in rural areas of Afar.

2. *Harmonizing policy emphasis with the potentials of pastoral areas:* The transformation of property rights due to natural challenges has had important implications for the livelihoods of pastoralists. In this regard, this paper has shown that the poor households (in terms of livestock assets) are more interested in farming as compared to the better-off ones. The decisions of pastoralists towards the commencement of farming activities could reflect their reactions towards recurring natural hazards: farming is considered as being a post-shock source of livelihood by those households that cannot call upon their pastoral assets in seasons following a drought period.

Despite this fact, two points can be made about the potential of farming in the study areas in general. First, efforts to produce food crops under rain-fed conditions may not provide any substantial remedy to the decline of food security when drought occurs; during a prolonged spell it presumably will not. This is because crops are also biological products (like livestock) and, hence, can be negatively affected by drought. Livestock appear to be even somewhat more tolerant of drought conditions than crops, since they are mobile. The existence of mobile pastoralism in dry regions of the world also implies the relative viability of livestock production as compared to rain-fed agriculture in these regions. Second, although crops can be produced using irrigation in some ecological niches (for example, nearby major rivers); an irrigation-based production system is less appealing in many parts of Afar, given the scarcity of water. Consequently, livestock production appears to be the best, and in some areas the only, option under the existing technologies. The relatively low participation level of better-off pastoralists in collective action to start farming also implies that crop production is

not a substitute for, but rather is a subsidiary to, livestock production in such dry areas. Therefore, instead of overrating the sustainability and impact of farming on poverty reduction, it would be worthwhile to focus on livestock production (i.e. the core enterprise in pastoral areas). In this regard, improving key services, such as the livestock–market information system, veterinary and financial services; investing in infrastructure (roads and other facilities); and enhancing feed management are key to turning the silent transformation of the commons into a viable development path for the Afar. Livestock remains to be the best, if not the only, sustainable livelihood option under these ecological conditions. This implies the need for policies to introduce some form of drought insurance system, especially if cultivation remains transitory and generally not viable. The current investigations and experiments into livestock insurance schemes such as in northern Kenya (Orindi et al., 2007) are a promising new institutional mechanism to enable pastoralists to restock after drought and in order to save the value represented by male surplus animals in pastoral systems.

The two cases of collective action in herding and farming are reactions to changing property rights. Diversification is an outcome of induced change, while the consequences of farming plots remain to be seen in the long run. Collective action plays a central role in managing the commons in Afar, as it also is an entry point in disassembling the joint holdings as in the case of farming.

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