Collective Actions and the Management of Collectively Provided Rangeland Resources and Activities in Awbere District of Somali Regional State, Ethiopia

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ABSTRACT

The main purpose of this research was to explore collective activities in rangeland management and utilization, and the management of collectively provided resources and activities. Key informant interviews and focus group discussions were conducted to collect data. In each of the ten *Kebeles* (villages), three to four focus group discussions were held with seven members in each group at a time. The collected data were analyzed through qualitative data analysis techniques such as narrative and ethnographic analyses. The results revealed that four kinds of collective actions with distinct rules for managing the collective activities existed in the Awbere district. These activities were: constructing ponds and water wells, collective herding, labor sharing for agricultural and social activities, and *Diya* paying groups. Each of these activities was conducted through the provision of labor and contributions depending on the type of operation, and non-contributors had restricted access to the water resources and benefits obtained from the collective activities. The results confirmed that community collective actions contribute to more sustainable use of the resource and social capital to improve community livelihoods. It was considered unlikely that rangeland resource problems could be solved by the community alone. Therefore, collective actions that improve rangeland resources need to be enforced with the support of development agencies, and development intervention strategies for managing rangeland resources need to be identified and introduced.

Keywords: collective action, rangeland management

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาการร่วมกิจกรรมในการจัดการและการใช้พื้นที่ในการเลี้ยงสัตว์และการร่วมกันจัดหาทรัพยากรและทำกิจกรรม โดยเก็บข้อมูลจากการสัมภาษณ์ผู้นำชุมชน และการสนทนากลุ่มกับคนในชุมชน จำนวน 4 กลุ่ม กลุ่มละ 7 คน ใช้การวิเคราะห์ข้อมูลเชิงคุณภาพด้วยการพรรณนา และเชิงมานุษยวิทยา

ผลการวิจัยพบว่า ในชุมชนที่ศึกษามีการปฏิบัติกิจกรรมร่วมอยู่4ประเภทซึ่งมีความแตกต่างจากที่อื่นโดยประกอบด้วย การสร้างสระน้ำและน้ำใช้ การต้อนฝูงสัตว์ การลงแขกในการทำการเกษตรและกิจกรรมสังคมและกลุ่มการเงินซึ่งในแต่ละกิจกรรมมี

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การช่วยเหลือกันด้านแรงงานและการมีส่วนร่วมโดยขึ้นอยู่กับประเภทของกิจกรรม สำหรับผู้ที่ไม่มีส่วนเข้าร่วมกิจกรรมก็ถูกจำกัดสิทธิ์ในการใช้แหล่งน้ำและประโยชน์ที่ได้รับจากการเข้าทำกิจกรรมร่วมของชุมชน จากผลการวิจัยยังชี้ให้เห็นว่าการปฏิบัติกิจกรรมร่วมของชุมชนส่งผลให้เกิดความยั่งยืนในการใช้ทรัพยากรและทุนทางสังคมในการดำรงชีวิตให้ดีขึ้น ส่วนปัญหาด้านทรัพยากรพื้นที่เลี้ยงสัตว์บางอย่างก็ไม่สามารถแก้ไขได้ด้วยตัวชุมชนเอง ดังนั้นการร่วมทำกิจกรรมเพื่อทำให้ทรัพยากรพื้นที่เลี้ยงสัตว์ดีขึ้นจึงต้องอาศัยหน่วยงานด้านการพัฒนาเข้ามาช่วย และที่ยิ่งไปกว่านั้นต้องมีการเข้ามาแทรกแซงการพัฒนาด้านการจัดการทรัพยากรพื้นที่เลี้ยงสัตว์และการให้ข้อมูลอย่างชัดเจน

คำสำคัญ: การร่วมปฏิบัติ การจัดการทรัพยากร

INTRODUCTION

Agriculture is the mainstay of the Ethiopian economy contributing 45 percent of the gross national product (GNP), making up more than 80 percent of export earnings, and employing over 85 percent of the population (MoFED, 2002). Livestock and livestock products provide about 10 percent of Ethiopia's foreign exchange earnings, with hides and skins constituting about 90 percent of this amount (Sandford and Habtu, 2000).

Pastoralists in Ethiopia are mainly found in the four lowland regions of Afar, Oromiya, Somali, and the Southern Nations, Nationalities and People's (SNNP) regional states. Pastoral groups are also found in the Gambella and Benishangul areas. The Ministry of Agriculture estimates that pastoralists use 60 percent of the country's total land area (MoARD, 2005) and own 73 percent of its goats, 25 percent of its sheep, 20 percent of its cattle and all of its camels. Livestock in pastoral regions accounts for an estimated 40 percent of the country's total livestock population (Aklilu, 2002).

Most of the people in the Somali region are pastoralists and agro-pastoralists and livestock is the main source of livelihood (Ayele, 2004; Devereux, 2006). The major livestock species they raise include cattle, sheep, goats, and camels. Livestock is the backbone of the economy in the region and about 85 percent of the Somali population depends on livestock products for their livelihood (Ayele, 2004).

Rangelands comprise the areas with low rainfall and variable climate in the arid and semi-arid zones and provide pasture and forage for the livestock in the region (IPS, 2001). Most of the common rangeland resources are used and managed by the immediate users — namely the pastoralists and agro-pastoralists. The rangeland resource is managed through collective actions involving the pooling of the capital, labor, and other resources of the users, to carry out beneficial or profitable activities. Collective action can help to overcome common problems and connect individuals to overcome risks collectively (Scoones and Thompson 1994). Furthermore, pastoralists establish customary institutions (*xeer)* which include kin networks, local cultural administrative structures, customary land tenure rules, as well as conventions about marriage or inheritance to resolve conflicts over resources. Customary rule arrangements allow pastoralists to make good use of rangeland resources, overcoming resource degradation and maintaining common property (Scoones, 1995). However, in the study area in the Awbere district, little is known about the importance of collective action in the management of common-pool resources and the use of institutions at the community and individual levels. Therefore, the aim of this study was to explore collective activities in rangeland management and utilization, and the management of collectively provided resources and activities.

LITERATURE REVIEW

Rangelands are a type of land, mostly unfenced, on which the natural vegetation is dominated by grasses, forbs and shrubs efficient at

water and nutrient utilization and suitable for grazing and browsing by animals. The land is managed as a natural ecosystem, where vegetation is always dominated by natural plant communities rather than by sown pasture. Rangelands are typically characterized by low precipitation, shallow soils, and slow nutrient cycling (Grice and Hodgkinson, 2002; Walker and Janssen, 2002; Niamir-Fuller, 2005; Rinehart, 2006).

Rangelands are home to significant concentrations of both large mammals and plants with a high value, and to human populations (Blench and Sommer, 1999). In particular, the pastoralists' adaptation to a marginal and unpredictable environment has made living in the rangelands possible (Kebebew *et al.,* 2001). Rangeland resources provide food, fodder, herbs, fuel, construction materials, income (Williams, 1998; Oumer, 2007), medicinal plants, recreational activities (Heady and Child, 1994; Grice and Hodgkinson, 2002) and hunting grounds (Weddell, 2002) for the pastoralists.

Effective management of rangeland resources requires collective action among the resource users. Collective action occurs when more than one individual is required to contribute to an effort in order to achieve an outcome. People living in rangeland areas and using natural resources engage in collective action on a daily basis and occasionally meet to decide on rules related to rangeland management (Ostrom, 2004). Collective action can be defined as the voluntary action taken by a group to achieve common interests. Members can act directly on their own (internally initiated) or through an organization (externally initiated) (Marshall, 1998 cited in Ostrom, 2004; Pandolfelli *et al.*, 2007; Beyene and Korf, 2008; DiGregorio *et al.,* 2008). Moreover, collective action requires the involvement of a group of people, shared interest within the group and it involves some kind of common action which works in pursuit of that shared interest. Further, the action should be voluntary which distinguishes collective action from hired labor. Collective action is organized when greater benefits are expected through joining a group than acting individually. This implies a conscious working together, such as in investing in a resource or excluding "outsiders" from using it. Collective action might differ depending on the specific objective of the collective action (Meinzen-Dick *et al.,* 2004).

In the literature, collective action has been described as taking various forms including the development of institutions, resource mobilization, coordination activities and information sharing, collective decision-making, setting rules of conduct of a group and designing management rules, implementing decision, and monitoring adherence to rules (Meinzen-Dick *et al.,* 2004). More specifically, collective actions function in a diversity of ways including organizing labor resources for production such as planting or harvesting crops together, collective herding, patrolling a local forest to see that users are following rules, mobilizing material resources such as savings or credit to help increase production, assisting newly formed groups to access productive resources, securing sustainability in natural resource use, providing social infrastructure such as constructing ponds, clinics, roads, and schools for communities at the village level (Scoones and Thompson 1994; Baland and Platteau, 2001), influencing policy institutions that affect the collective members, improving access to information for rural populations, improving flow of information between the collective group, government, and NGOs, advocating community rights, and mediating access to resources for disadvantaged or excluded groups of people (Scoones and Thompson, 1994).

Experience has shown that the institutions involved in collective action play an important role in determining how people use natural resources, which in turn shapes the outcomes of any production systems (Pandolfelli *et al.*, 2007). It is important to note that collective action includes forming and enforcing rules for the use, or non-use, of resources that determine who is included in the use and management of the resources and how the group is managed. Nonetheless, the presence of rules does not necessarily indicate any achievement. What actually

matters is the way the rules that influence participation in collective action are put into use. For example, a group may use monitoring as a rule enforcement mechanism though its effects are unpredictable as frequent monitoring produces a feeling that individuals are not trusted (Ostrom, 1990). Even in the absence of monitoring, rule violations can be limited when rule obedience is based on mutual trust that others would do the same (McCarthy, 2004). When resource users live over a scattered area and detection of rule breakers is difficult, rules may not work effectively and enforcement is difficult. Generally, collective action is sustained only if there is a significant gain for all agents involved (Ghate *et al.*, 2008).

Collective action is often considered narrowly in terms of activities undertaken through formal organizations, but many formal organizations exist on paper only and do not foster any real collective action, whereas much collective action occurs informally (Meinzen-Dick *et al.*, 2002, 2004; Ostrom, 2004) through social networks, or even through people coming together temporarily for specific short-term purposes (Ostrom, 2004).

METHODOLOGY

Description of the study area

The Awbere district ranges in altitude from 1200 to 1660 meters above sea level and is one of the six districts in the Jijiga Zone. The district has a semi-arid climate marked by seasonal variations and it receives an annual rainfall that varies from 400 to 900 mm. The area experiences a bimodal rainfall classified as a main rainy season from April to June and a short rainy season from October to December (Devereux, 2006). The mean temperature is 14 °C with minimum and maximum temperatures of 20 °C and 25 °C, respectively (JZOA, 2001).

According to the Central Statistics Authority (CSA, 2008), the Awbere district has a population of 299,336 persons (165,148 male and 134,188 female) and roughly 88 percent of the inhabitants are agro-pastoralists. The district has 59 Kebeles (the smallest administrative unit at the village level). The people in the Awbere district are mainly from the Somali tribe and are Muslims. The clans living in the Awbere district are mixed, mainly consisting of Isak, Gadebursi, and Medigan. Another clan, the Akisho, also occupies the district. The geographic location of the district provides opportunities to the residents. For instance, cross-border movement provides access to grazing resources since there are other members of the Isak and Gadebursi clans who live in Somaliland.

The natural vegetation in the district is a mixture of deciduous bush land and shrub land with different species and vast areas of pasture land. The farming system is agro-pastoralism and land use is a mixture of private cropland and communal grazing land. The ecosystem of the district is fragile and subject to intensive grazing, with intensive destruction of trees for fuelwood, fencing, and construction materials. Surface water is harvested into ponds and cemented cisterns (*Berkads*) during the rainy season.

Agro-pastoralists in the Awbere district own mixed-livestock consisting of mainly cattle, sheep and goats, and also some camels. The major feed sources for the livestock are communal pasture and crop residues. Pasture is supplemented by crop residues between May and July primarily for milking cows and oxen. *Berkads* and seasonal ponds are the main water sources both for humans and livestock. *Berkad* water is sold by better-off owners to poor households and seasonal ponds are communally shared. In years where the rainfall is normal, livestock remain grazing on clan land close to the family base. In years of poor rainfall, households with livestock move to the closest grazing areas such as Dambel in the Shinile zone, Kebribeyah in the Jijiga zone and Somaliland.

Sampling, data collection and analysis

The selection of the *Kebeles* and agro-pastoralists who took part in the key informant interviews and focus group discussions used a

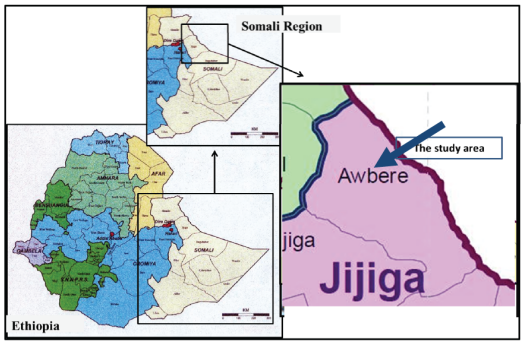

Figure 1 The study area (Awbere district)

purposive sampling technique. In the Awbare district, ten *Kebeles* were selected to ensure variation in village size and distance between villages. On the basis of theoretical saturation (the point in data collection when new data no longer bring additional insights to the research questions) three to four focus group discussions, in each of the ten *Kebeles*, were held with seven members in each group at a time (in the entire data collection period, 250 pastoralists participated in focus group discussions). Data collection occurred through focused group discussions to familiarize the research team and the local population, to gain in-depth understanding on the types of collective action activities and management of collectively provided resources; and key informant interviews with government bureaucrats, NGO staff, local elders and other key informants to generate information on types of collective action. Finally, data analysis involved qualitative data analysis techniques such as narrative and ethnographic analysis.

RESULTS AND DISCUSSION

Collective action activities are a common feature in rural areas of the Somali Regional State. Four types of collective actions are widely practiced in the Awbere district. These include construction and management of ponds and water wells, collective herding, labor sharing groups (*guus*), and *Diya* paying groups. Each of the collective actions and its management is discussed in detail below.

Constructing ponds and water wells

In the study area, the rainfall is not reliable for livestock and crop production. Consequently, people living here harvest run-off water during the rainy season by constructing ponds and digging water wells near seasonal rivers. This practice has been a persistent activity of the people for generations. Members of the community provide labor to construct communal ponds and engage in maintenance such as fencing, silt removal, and channel cleaning. Water wells are dug to depth, the four corners of the well covered by wood to prevent the collapse of the well and the top of the well is covered with strong materials such as bricks to prevent silt and sand entering into it during the rainy seasons, and in addition, monitors are assigned to the well. Water well maintenance is easier compared to that required for the ponds with the exception of the need for frequent monitoring. Under effective management, ponds can retain water for both human and livestock use for about 5–7 months after the heavy rainy season while water wells can sustain water for years.

In the course of constructing and maintaining ponds, the cooperation is required of all the able-bodied men of the settlements that use the ponds. A day is appointed for the work and the men of the local settlements are called to assist. Men provide labor and women prepare meals and drinks for the working men. Failure to assist without a reasonable cause will result in a verbal warning and the imposition of fines in the form of live animals. A warning follows one day's absence from group work, but if a member is repeatedly absent, other members impose fines. In such cases, the absentee is forced to provide a live animal which is slaughtered and eaten by all members who have been working on the pond.

Once the construction of the pond or water well is completed and water has accumulated, every member of the community has the right to take water. A household that has not contributed to the entire

period of construction or maintenance will be excluded. Members strongly encourage contribution to the construction and maintenance rather than resorting to exclusion from utilization. Usually a rule is developed by community elders with regard to watering animals. Mostly, the common rule for prioritizing watering is "first-come-first-served". These arrangements are locally known as *Kaalaysi*. Such schedules are strictly followed by herders and anyone violating them is punished usually in the form of a temporary suspension of use rights. In cases where members of another clan, other than the owners, come in search of water, they are given precedence under a reciprocal arrangement established with their clan. Anyone refusing to give precedence to the guests will face social exclusion from his clan members, be branded as "ridiculous" and receive stiff punishment.

Collective herding

Collective herding is the formation of a herd tending group in which a group of herders tends its livestock jointly to graze on the pastures and to prevent animals from attack by predators. Collective herding also serves to confront and address security risks related to theft and conflict over resources. Collectively migrating with livestock to the sources of feed and water is less costly than bringing feed and water to livestock, because of the lower labor demand. Members share labor and the formed group moves with the herd to distances away from the residence to graze livestock, sometimes moving beyond their own grazing area. The formation of the group creates the feeling of being secure. Before commencing collective herding, the herd is divided into the lactating and the non-lactating or dry animals. The lactating animals and young stock are left for family use under the supervision of the females and young children, while the management of the remaining livestock is undertaken by the young men (that is, the herding group) and they then move to where good pasture is available. This strategy allows the seasonal resting of dry-season pastures around the permanent residence. If the household does not have a young man who can join the herding group, the responsibility of managing the herd is given to a hired herder. This procedure is known as *Xidhaale*. A four-year-old camel is paid annually to the hired herder. He also receives a full package of clothing (*arad bax*) consisting of a pair of shoes, shirts, and a sheet.

Labor sharing group (*Guus*)

Guus (a labor sharing arrangement) is an informal network which involves a group of people, usually neighboring households, who are organized for a particular agricultural task like ox-ploughing, weeding, harvesting, threshing, and transporting grain from the farm field. A group of people pools its labor resources and/or material resources (oxen, hand plough, and sickles amongst other items) to help fellow neighbors. Even though a farm household is usually framed around a nuclear family, its relationship with the extended family remains strong; this favors the formation of a labor sharing group. The household head, wife, and young men and young women will participate in the group's productive activities including ploughing, weeding and harvesting, according to their ability. Females in the household that is receiving the assistance have also the duty to prepare meals and drinks for the working group. The assisted household is expected to provide labor for the other households that have participated in the arrangement at some time in future activities of the other group members, meaning that group members pay for the labor they receive with their own personal labor in return. Any member household that has temporary difficulties because its productive members have been incapacitated due to illness or the need to care for the sick is also assisted by the other group members who perform any agricultural activity required on the member household's land. Generally, group members in a community have a social obligation to comply with a request for their labor whenever it arises.

The other form of *Guus* is labor sharing for

house construction and dismantling which is performed by a group of women. It is voluntary and based on a mutual understanding to help each other through mobilizing labor to accomplish house construction during settling, and house dismantling during migration or shifting settlement. All households settling or migrating together have a responsibility to participate in the operation.

***Diya*-paying group**

The use of natural resources is susceptible to conflict particularly when the resources are scarce. Conflicts over natural resources have many negative impacts, among these being loss of human life. When conflict occurs, the traditional mechanism for resolving it is through agreements made between the elders of the conflicting clans and the payment of compensation for any lives lost (that is, conflict resolution based on blood compensation). To pay this compensation, Somali people commonly establish a collective blood compensation group known as a *Diya*-paying group. The *Diya*-paying group is defined as a corporate agnatic group whose members are united in the joint responsibility to collectively safeguard all matters of common interest. The *Diya*-paying group is collectively responsible for the payment of compensation in the event of the death or injury of a member of another group at the hands of one of its members. It is also collectively entitled to the receipt of compensation in the event of the death or injury of one of its members at the hands of a member of another group. Moreover, the administration of the *Diya*-paying group has adopted the practice of electing an individual (*Aaqil*) with power and influence to represent them.

The rate of *Diya* is normally 100 camels for the killing of a man and 50 camels for a woman. In a violent conflict over natural resources, where members belonging to both of the clans are killed, then the total number of deaths on both sides is counted and the clan with the greater number of deaths receives compensation (*Mag)* for the extra number as the equal number of deaths on both sides cancels out each other. In cases where the number of deaths exceeds 10 men, 50 camels and a young woman with her complete household equipment is paid for each one of the deceased (*Godobtir*). This has a double advantage, creating intermarriage relationships between the conflicting clans and reducing the burden of paying a huge number of camels. If someone commits a murder deliberately over a minor disagreement with the deceased such as not following the timetable for watering animals or as a result of undermining the deceased or his clan, the *Diya* is 120 camels. Similarly, when the killing involves closely related lineages or involves the death of an elder who enjoys respect not only from his clan but also from other clans, the compensation often exceeds the normal rate, to discourage the bloodshed. When the compensation is higher than the normal rate, the additional amount is paid for the purpose of giving satisfaction or to effect conciliation (*Samirsiis*) and the extra amount of compensation is payable directly to the victim.

The process of negotiation takes place among all the elders in a *Diya*-paying group who gather in an assembly (*Shir*) under a tree and democratically make any important decisions of common interest to them. The *Mag* is paid in two unequal installments. In the first installment, part of the *Mag*, known as *Rafisso*, 20 camels in very good physical condition are paid; and in the second installment, known as *Mag Dheer*, the remaining 80 camels are paid. Where it might be difficult to find camels for compensation, the equivalent value in other livestock such as cattle, sheep and goats is preferred to payment in money. However, in the case of the Gedebursi and Isa clans, compensation in terms of money is accepted. In payment of compensation, whether for killing or injury, the amounts are contributed by the members of the *Diya*-paying group including the person who commits the murder or injury.

However, a *Diya*-paying group does not correspond to any specific level of the lineage structure. It is a contractually bound, broad alliance of a number of lower segment units who, for the most

commonly blood-related group, do not necessarily follow the same line to a common primary lineage. It may even include other social groups who are not related to the broader group in terms of kinship, but who only develop the *Diya*-paying social contract with them. Furthermore, the *Diya*-paying group is not static and groups can join or leave the contract.

CONCLUSION AND RECOMMENDATIONS

The research conducted in the Awbere district identified four kinds of collective actions with distinct rules for managing the collective activities. The actions were: constructing ponds and water wells, collective herding, labor sharing for agricultural and social activities and *Diya*-paying groups. Each of these activities was conducted through the provision of labor and contributions depending on the type of operation. The management of these operations was performed through distinct, established agreed-upon rules by the group members, which contributed substantially to the effective operation of group activities as well as the utilization of collectively provided water resources. Members were expected to obey the rules and disobedient and non-contributing offenders were subjected to punishment that was dependent on the level of the offence. Generally, group members preferred to collectively encourage non-participants to contribute rather than enforcing their exclusion since exclusion was difficult to enforce and costly. The members of the clan had the right to use the collectively provided resources such as ponds and water wells. However, other clans could get access to the resources through reciprocal arrangements, but non-contributors were restricted from access to the water resources. The findings also showed that pastoralists design strategies to secure their livestock and create peaceful conditions with other clans through collective herding and a *Diya* paying group, respectively.

Even though members tried to organize themselves and coordinate collective action, external support in providing technological facilities is necessary to increase the benefits from collectively produced resources and operations. The success of the state in enabling the community to improve its members' livelihoods through collective action depends on the extent to which it provides assistance to enforce any collective action efforts. Any development program and intervening organization (government organization or non-government organization) facilitating collective action in such societies where culture plays such a great role in organizing joint activities needs to identify and examine the type of group action (such as pasture management and rehabilitation activities) or any other technological operations that can improve group livelihood in a sustainable manner.

LITERATURE CITED

Aklilu, Y. 2002. *An Audit of the Livestock Marketing Status in Kenya, Ethiopia and Sudan.* Volumes I and II. OAU/Interafrican Bureau for Animal Resources (IBAR).

Ayele, G. M. 2004. *Best Practices in Food Security Among Afar and Somali Pastoralists.* Royal Norwegian Embassy, Addis Ababa.

Baland, J. M. and J. P. Platteau. 2001. *Collective Action on the Commons: The Role of Inequality.* Belgium: University of Namur. Retrieved March, 2009 from www.santafe.edu/files/gems/sustainability/balandplatteau.pdf

Beyene, F. and B. Korf. 2008. *Unmaking the Commons: Collective Action, Property Rights, and Resource Appropriation among (Agro–) Pastoralists in Eastern Ethiopia.* CAPRi Working Paper No. 88. International Food Policy Research Institute, Washington, D.C.

Blench, R. and F. Sommer. 1999. *Understanding Rangeland Biodiversity.* Overseas Development Institute, London.

CSA (Central Statistical Agency). 2008. *Summary and Statistical Report of the 2007 Population and Housing Census Results of Ethiopia.* United

Nations Population Fund (UNFPA), Addis Ababa.

Devereux, S. 2006. *Vulnerable Livelihoods in Somali Region, Ethiopia.* IDS Research Report 57. Institute of Development Studies, Brighton.

DiGregorio, M. D., K. Hagedorn, M. Kirk, B. Korf, N. McCarthy, R. Meinzen-Dick, and B. Swallow. 2008. *Property Rights, Collective Action, and Poverty: The Role of Institutions for Poverty Reduction.* CAPRi Working Paper No. 81. International Food Policy Research Institute, Washington, D.C.

Ghate, R., N. S. Jodha, and P. Mukhopadhyay (eds.). 2008. *Promise, Trust, and Evolution: Managing the Commons of South Asia.* New York: Oxford University Press.

Grice, A. C. and K. C. Hodgkinson (eds.). 2002. *Global Rangelands: Progress and Prospects.* Oxon: CABI Publishing.

Heady, H. E. and R. D. Child. 1994. *Rangeland Ecology and Management.* Colorado: Westview Press, Inc.

IPS (Industrial Projects Service). 2001. *Resource Potential Assessment and Project Identification Study of the Somali Region.* Addis Ababa.

JZOA (Jijiga Zonal Office of Agriculture). 2001. *Annual Report. Jijiga Zone Agricultural Office*, Jijiga.

Kebebew, F., D. Tsegaye, and G. Synnevag. 2001. *Traditional Coping Strategies of the Afar and Borana Pastoralists in Response to Drought.* Report No. 17. The Drylands Coordination Group, Addis Ababa.

McCarthy, N. 2004. *The Relationship between Collective Action and Intensification of Livestock Production: The Case of Northeastern Burkina Faso.* CAPRi Working Paper No 34. International Food Policy Research Institute, Washington, D.C.

Meinzen-Dick, R., K. Raju, and A. Gulati. 2002. "What Affects Organization and Collective Action for Managing Resources? Evidence from Canal Irrigation Systems in India." *World Development*, 30 (4): 649–666.

Meinzen-Dick, R., M. Di Gregorio, and N. McCarthy. 2004. "Methods for Studying Collective Action in Rural Development." *Agricultural Systems*, 82: 197–214.

MoARD (Ministry of Agriculture and Rural Development). 2005. *Productive Safety Net Extension to the Pastoral Regions of Ethiopia.* Unpublished Report of the Pastoral Task Force of the Food Security Bureau. Addis Ababa.

MoFED (Ministry of Finance and Economic Development). 2002. *Ethiopia: Sustainable Development and Poverty Reduction Program.* Addis Ababa.

Niamir-Fuller, M. 2005. Managing Mobility in African Rangelands. In CAPRi Research Brief. *Collective Action and Property Rights for Sustainable Rangeland Management.* CGIAR Systemwide program on Collective Action and Property Rights, Washington D.C.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action.* New York: Cambridge University Press.

Ostrom, E. 2004. Understanding Collective Action. In R. Meinzen-Dick and M. DiGregorio (Eds.). *Collective Action and Property Rights for Sustainable Development:* 2020 Focus 11, Policy Brief No. 2, International Food Policy Research Institute, Washington, D.C.

Oumer, S. 2007. The Privatization of Somali Region's Rangelands. In A. Ridgewell, M. Getachew and F. Flintan (Eds.). *Rangeland and Resource Management in Ethiopia.* Gender and Pastoralism Vol 1. SOS Sahel Ethiopia, Addis Ababa.

Pandolfelli, L., R. Meinzen-Dick, and S. Dohrn. 2007. *Gender and Collective Action: A Conceptual Framework for Analysis.* CAPRi Working Paper No. 64. International Food Policy Research Institute, Washington, D.C.

Rinehart, L. 2006. *Pasture, Rangeland and Grazing Management.* A Publication of ATTRA - National Sustainable Agriculture Information

Service. Retrieved June, 2009 from http://attra.ncat.org/attra-pub/PDF/past_range_graze.pdf

Sandford, S. and Y. Habtu. 2000. *Emergency Response Interventions in Pastoral Areas of Ethiopia.* UK Department for International Development (DfID), Addis Ababa.

Scoones, I. (ed.). 1995. *Living with Uncertainty: New Directions on Pastoral Development in Africa.* London: Intermediate Technology Publication.

Scoones, I. and J. Thompson. 1994. *Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice.* London: Intermediate Technology Publications.

Walker, B. H. and M. A. Janssen. 2002. "Rangelands, Pastoralists and Governments: Interlinked Systems of People and Nature." *The Royal Society*, 357: 719–725.

Weddell, B. J. 2002. *Conserving Living Natural Resources: In the Context of a Changing World.* Cambridge: Cambridge University Press.

Williams, T. 1998. *Multiple Uses of Common Pool Resources in Semi-arid West Africa: A Survey of Existing Practices and Options for Sustainable Resource Management.* Natural Resource Perspective No. 38. Overseas Development Institute, London.