

COMMON PROPERTY RESOURCE MANAGEMENT - A STUDY ON THE INSTITUTIONAL ASPECT OF THE IRRIGATION SYSTEM AND VILLAGE TREE PLANTATION MANAGEMENT IN THE AMBOBER VILLAGE, GONDAR ZURIA WOREDA, ETHIOPIA

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Abstract

This paper deals with two newly crafted common property resources, namely, village plantations established, owned and managed by the state that were later transferred to the community, and a small-scale irrigation system, created and managed by the local users. The objective of this study is to examine the origin, evolution and importance of these two common property resources for the livelihood of the local users and the sustainable management and utilisation of the resources. The paper also shows that the villagers perceive the plantation in some new way as “their” plantation, the common property of everybody and attempt to protect it from asserting an individual harvest but its lingering strong link to the external links determines the direction and pace of development while the villagers bear the high social and economical cost of monitoring the plantations (guarding against free-riders). The new irrigation system provides an interesting contrast to the plantations. Embedded in the local social, economic and agricultural practice, it continues to thrive well as a local organisation with great autonomy from the state and with a minimum social and institutional cost.

1. INTRODUCTION

The focus of this paper is on two recently established village common property resources (CPR) and their management. One is a locally initiated and managed irrigation system and the other, village plantations, originally established and managed by the state but now under the ownership of the communities. The management institutional set ups of these resources are interesting from ethnographic, organisational, ecological and political points of view. On the macro level, collective action in the management of common property resources was acknowledged as a vehicle of rural development by the Derg regime (1974 – 1991) by imposing state controlled local institutions by-passing the indigenous institutions. The present government on the other hand, has laid down a process and framework that has enabled for traditional and neo-traditional CPR institutions to flourish as illustrated by the case studies herein.

The data in this paper was collected during a field study, undertaken between September 2000 to February 2001 and in July 2001. It was carried out through participatory observation, case studies, focus group interviews of the different agencies inside and outside the village, and few documents collected from the local Kebele Administration (KA) and district (Woreda) authorities. This paper, contrary to the conventional meta-narrative of the ‘zero contribution thesis’ (Olson 1965) and ‘tragedy of the commons’ (Hardin 1968) that understates the ability and capacity of user groups to ‘act to achieve their common or group interests good’¹, tries to show that under an enabling situation and/or with autonomy from the state, local users ‘are very inventive and skilful in organising different personal matters and in defending their own interests in their daily lives’ (Wolf 1990 in Long 1992) and that, ‘it is possible for CPR appropriators to design, operate, monitor and enforce their own institutional arrangement’. (Östrom 1994) in managing their common property resource. This paper argues that the environment is affected or transformed by the inter-relationship between the social and ecological system and the various stakeholders/actors construct and evolve a CPR management institution over time. In doing so it

¹ For a thorough critic of these positions, see Feeny, D., F. Berkes, B.J. McCay and J.M. Acheson, (1990)

assesses the factors (technology, local knowledge, property rights, macro-policy, etc) contributing to the process that lead to the specific outcome.

Most natural resources are multiple-purpose (for livelihood, social and occupational) and thus have multiple users having stake in them. The property right regimes might be one or a combination of private, state, collective/common ownership and an open-access resource. What is common in the management of resources under the first three property right regimes is that they try to institute control of access to the resource (the exclusion problem) and enforce rules among users to avoid or solve conflicts and/or divergence between individual and collective rationality through formal and informal constraints. (Berkes and Folke 1998; Östrom 2000; Campbell 2001). CPR management thus, implies a property regime in which resources are jointly used by a user group, with a set of rules (formal or informal), defining rights to use, exclude others, to manage, and to sell. (Schlager & Östrom 1992; Acharyulu 2000; Östrom 1999)

The emergence and process of institutional formation and development is directly and indirectly influenced by internal and external variables. Locally, the users have, first of all, to recognise the magnitude of the problem and their power and means of making an institutional change (McCay 2000). A common property resource management is feasible if the resource is relatively scarce² and is a major source of income and only if the envisaged benefits generated is assumed to be more than the social and economic costs of running a collective management and outweighs the 'exit options' embedded in the external world (Steins, et al. 2000; Kolavalli and Brewer 1998) The presence of a leader or leadership with knowledge, political, social prestige and influence and/or with cultural experience of cooperation is critical to the success of the institution (Östrom 2000; Kolavalli and Brewer 1998; McCay 2000; Meinzein-Dick, et.al 2000). The smaller³ the size and relative homogeneity (ethnic and economical) of the user groups, the cheaper the transaction costs becomes. (Blair, 1996; Östrom, 1990) and facilitates easy communication between members. Under an enabling state policy that either gives recognition to their existence or provides relative autonomy, new CPRs, through trial and errors, or 'time to experiment' can enhance their routines and define and create patterns of social interaction, thereby reducing uncertainty for the individual members. (Kolavalli and Brewer 1998; Apestegeja 1998; McCay 2000). Another important external variable is the geographical proximity of the CPR to market towns (Östrom 1999; Östrom 2000; Steins, et al. 2000). Linkage to long-standing local formal and informal institutions provides a new CPR with information on organisational density and social capital. (Östrom 2000; Campbell 2001) making their development process more cost and social effective with forums for negotiations with several social actors within the context of their cultural dispositions, habitus, or embodied history and by the distribution of power and resources in the wider arena (Lang 1992).

2. THE SITE - AMBOBER NUUS KEBELE

Ambober nuus kebele is an old autonomous Peasant Association, which was merged with its neighbouring Wuzaba in 1996 and is now part of the administrative unit of the Ambober-Wuzaba Kebele⁴ Administration (KA). The Ambober nuus kebele (read Ambober village) covers an area of 2,372 ha. (47% is farm area, 10% grazing and 8% covered with forest), with a

² As Blair pointed out, 'an abundant resource obviates the need to conserve, while an exhausted one makes it useless to do so, but a *middling scarcity* offers enough to reward conservation efforts.' (Blair, 1996)

³ There is some evidence for a U-shaped relationship between size and success, with smaller and larger groups doing better than middle-size ones. (Meinzein-Dick, 2000)

⁴ The Ambober-Wuzaba KA is one of the 43 KAs of the Gondar Zuria Woreda (pop: of 232,910; area of 145,359 sq.), administered by the Woreda Council of Representatives from the principal town of Maksegnit, 18 km south of Teda town

population of close to 3,000 or 557 households. The average family size is 4.9, which is higher than the district's (Woreda) official average of 3.96 (see the table below) and the average land holding is 1.93 ha. The study area is located within the woynadega or sub-temperate ecological zone (1100 and 2100 m.a.s.l), which covers 70% of the district. The annual rainfall is between 950 to 1035 mm and the soil consists of 70% black soil, 20% brown and 10% red soil. The village is situated 32 km south of Gondar on the road and 5 to 10km from Teda town/market. Ambober consists of nine sub-villages or gotes⁵, which are administered by a three-man team called mengistawi buden, (literally meaning 'government team'. A gote consists of a cluster of 50 households on the average.

The Ambober-Wuzaba Kebele Administration is not a typical Ethiopian village. It is endowed with some social service facilities⁶ and a relatively good gravel road of 15 km connecting it to the major town of Teda. The Kebele is also endowed with grazing areas, remnants of natural forests and man-made plantations of Seramle, Segid Terarana Kebero meda, and Woyniye Blocks, foot paths/road⁷, and the two major rivers of Wuzaba and Ttebdelit Rivers, that are all considered as common properties by the people themselves.

The first inhabitants were mainly Amhara rist balabats⁸ (landlords) and their tenants comprising of Amhara and Felasha/Bet-Israelis. The current Amhara inhabitants have their origins in the nearby villages in the lowland to the west and the highland villages to the east and northeast of Ambober. With the departure of the Felasha/Bet-Israelis to Israel in 1985 and 1991, some Kimant⁹ people emigrated from villages in the north of Gondar town and settled mainly in the Seramle gote where they managed to have access to the farmlands abandoned by the Felasha.

The population of Ambober nuus Kebele - by gotes

#	Village or gote name	Number of HHH	Female	Male	Total	Average family size
1	Lay Woglo	55	57	62	174	4.1
2	Tach Woglo	68	100	121	289	5.2
3	Debresal	52	97	54	203	5.0
4	Tibaga	57	86	51	194	4.4
5	Lay Woyniye	52	78	88	218	5.2
6	Tach Woyniye	54	104	84	242	5.4
7	Ambober	92	117	106	315	4.4
8	Seramle	66	140	132	338	6.1
9	Godguadit and Shembeko	61	81	78	220	4.6
	Total	557	860	776	2193	4.9

Source: mengistawi buden of the seven gotes

⁵ The *gotes* have history going back to the early 1930s, prior to the Fascist Italian occupation of Ethiopia. Except for Seramle and Tibaga *gote*, which lies 5km from Teda town, the rest are situated within the range of 12 to 15 km from Teda town.

⁶ An elementary school (1-8th grade), a clinic, three churches, a flourmill, small private shops, and local beer houses.

⁷ The Debresal-Tibaga path/road or, *Alkeber* is the outcome of a cross-village cooperation of Debresal and Tibaga built in 1998, a path that connects them to the Gondar town/market.

⁸ According to some elderly Amhara *balabats* informants, the Ambober area was ruled and controlled by the Amhara *balabat gultegas*, who trace their ancestry to the three sons of Atse Dawit, Emperor of Ethiopia in the 16th century. These princes were Zem, Gergis, and Gedo. They married the daughters of Emete Eksosayt, the grand daughter of Atse Fassil and wife of Dejach Kiflewahid of Agame from Tigray. Zem married Woletahawariat the twin sister of Bekims and settled in Seramle, Gergis married Amete-tSION the twin sister of Yohannes and took Woyniye as their *rist* holding. Gedo married Woletedingel the twin sister of Zewelde Mariam and had Woglo as their holding. The Agere Duba was granted to them as their common property. One of my informant *balabats* was an old man of 74 claiming to be a descendent (10 to 15 generations) of Ametetsion and Gergis.

⁹ For the origin of these two ethnic groups, see Quirin, J. 1998

3. HISTORY OF COOPERATION AND CPR INSTITUTIONS IN AMBOBER

Within the context of the Ethiopian feudal rist system, the Amhara culture was seen to be as 'non-conductive, undifferentiated and static, having no space for collective action' attributed to the 'individualistic' nature of the Amhara personality (Levine 1965; Poluha 1989). As a result, cooperation with others was 'peripheral' or simply 'a temporary coincidence of individual interests' at times of crisis (Levine 1965). However, the individualistic nature of the Amhara was a natural 'ideological' response and adaptation to the feudal land tenure system of access to land that was contested by pedigree alone. For a local collective action to take place, Levine suggests for an intervention from outside that carried new norms and values of solidaristic sentiments and rationalised organisations, a course of action applied by the Derg but with a disastrous result. (Yeraswork 2000; Hoben 1997)

Rather than looking for outside intervention, others see the rich and long established traditions of indigenous forms of co-operation of labour sharing, debayit, pairing of oxen, makenajet, socio-religious associations, mahbers, and other informal institutions, that have functioned as a safety network and source of stability as viable framework for socio-economical development addressing shortage of labour and/or capital, flow and exchange of information, between households and defining the individual's role and social identity (Pausewang 1990; Griffin and Hay 1985). With regards to managing natural resources, however, some doubt the viability of re-directing the traditional institutions on the grounds that they were formed for different purposes. (Yeraswork 2000) This is, however, simplistic and disregards the accumulated experience in collective action, decision-making structure, conflict resolution and rule enforcement mechanisms that they have established over time, which, as this paper shows, are the basis from which the new CPR of irrigation system was crafted. Re-directing of old local institutions to deal with new social dilemmas and opportunities is possible and cheaper (McCay 2000).

Until 30 years ago, it is said that the area in and around Ambober village was totally covered with forest, giving shelter to various animals and plant species. The landlords (balabats) had then full control over the area and its resources which they managed through their district officer (Chikashum) The district officers controlled and allocated forest area for farming to new tenants, at the cost of 10 birr per household called 'ye-dingay fenkel' which literally refers to the clearing of the stones and not the trees on the land allocated. It was up to the clearer as to what to do with the felled trees. The abundance of the natural forests at the time made it unnecessary for any rules on the utilisation of the trees. Thus, the attitude towards the natural forest became, what Levine observed as being of 'getting what one can, out of what nature readily provides.' The trees on the land were considered as part of nature and not a commodity and nature was simply 'a passive agent of god's rewards and punishments, something to be adjusted to and exploited.' (Levine 1965; Messing 1957) This social perception still prevails and many believe that it is 'their traditional right' to have access to and use the natural forest as an open-access. Forest trees were treated, as open-access resources while the land remained a private property. The emergence of trees as a commodity began in earnest during the Italian occupation of Ethiopia in the 1930s when the use of charcoal¹⁰ for domestic and commercial use began. Besides the clearing of forest for farming, the continued open-access status of the natural forests gave way to the fact that the landlords, urban dwellers and farmers joined the growing lucrative

¹⁰ The people engaged in charcoal production are, for the most, the poor members of the community, earning something between 15 to 60 *birr* per week. The introduction of *equb mahber* or credit association by the people with no genealogical link in the community has become an additional pressure on the natural trees where the members cover their contribution by selling charcoal.

market for firewood, charcoal and construction poles and contributed to the depletion of this resource.

The combined effect of urban and rural population growth and increased pressure on the natural forest for fuel wood, farmland and other products continued to deplete the resource unabated, with negative effect on the environment and agricultural production in particular. Little was done in trying to reverse this disastrous trend and address the food and energy crisis in the country, during Haile Sellassie's period. The Derg regime on the other hand acknowledged the problem and tried to address the issue on a national scale through soil and water conservation measures of terracing, damming and tree plantings activities¹¹ without consideration to the socio-economical aspect of the problem and ended in a fiasco. (Hoben 1997, Yeraswork 2000) Even the less-than 80 ha of natural forests under the jurisdiction of the Peasant Associations were not spared from the axes of the vulnerable poor, land hungry and greedy people. Criminalization of indiscriminate cutting of trees without permission and the erection of checkpoints to control the movement of wood and charcoal to the markets did not help much in the absence of an effective law-enforcing agency and within the context of misguided rural policy. The only natural forests respected and spared from illegal felling were those in and around the premises of the churches. (Hoben 1997)

With its top-down approach of donor-supported reforestation program, the state succeeded in planting and covering a lot of areas, of which the Gondar Fuel wood Plantations Project area (GFPP)¹² was one. Using the local paid labour as well as imported ones, the GFPP commenced in 1989, planting more than a 1000 ha of block plantations on the communal lands in several Kebeles in the district. In trying to rectify the failures of the past regimes, the present government has set in motion development policies based on the devolution of responsibility and control to the regions and subsequently to the local users, hence the decision to implement the 'Participatory Forest Management Plan' (PFMP) in Ambober village in 1999.

3.1 AMBOBER SINCE 1995

Since 1995, some externally induced and internally initiated accomplishment and changes have occurred in Ambober village. Peasant Kebele Associations have formally become part of the state administrative structure through the enrolment of the chairpersons as state employees¹³; landlessness was almost wiped out through the 1996 radical rural land re-allotment to all above the age of 20; resident agricultural extension development agents (DAs) of the Ministry of Agriculture (MoA) are permanently assigned to each KA and the once state owned plantations in and around Ambober have been transferred to the communities on village/gote basis. On their own initiatives, the local people have managed to cooperate and construct a new church on an old ruined church site burnt down 300 years ago; and few farmers endowed with irrigable land have organised themselves and established a small-scale irrigation system.

4. THE EVOLUTION OF THE VILLAGE PLANTATION ORGANISATIONS

The Gondar Fuelwood Plantation Project (GFPP), the Woreda Ministry of Agriculture (WMOA), and District Council Representatives, in consultation with the local people, designed

¹¹ For a full account and analysis of this see Yeraswork Admassie, 2000, .Hoben, 1997

¹² For the history and socio-economic analysis of the project and the project area, see Taddese Asmellash, 1994,

¹³ A monthly salary of 127 birr equal to ca. 127 Danish kroner.

the PFMP jointly, which was to be the only one of its kind in the country. These actors determined to create this new CPR institution, underwent through some ‘social learning’ in the project area itself, some other sites in the country and short stays abroad. Members of local state agencies and the project were sent abroad on short visits and few selected farmers were sent to sites in the country to learn by comparison. The successful implementation of the PFMP was envisaged and hoped to serve as a model for the country. The PFMP outlines duties and responsibilities of the different stakeholders in the protection, evaluation, development, and utilisation and marketing of the produce. Various old and new, secular and religious social associations (Acha mahbers or association of ‘equals’ and the informal socio-religious associations of Senbetes and kinships or zemedes), were considered before the planning team agreed to make the gote or sub-village the management social and geographical boundary of the new village plantations. The first task and challenge of the PFMP was to convince and inculcate the community with the idea that they own the plantations and encourage them through the Development Agent to actively participate in the implementation of the management plan. This would include the establishment of community nurseries and planting of new trees; cover the cost of protection by selecting and hiring guards. Once commercialisation of the multi-purposes forest trees and products is commenced (poles, timber wood, animal feed and thatching grass, and free wood for farm equipment, space for private owned beehives, and roots and herbs for traditional medicine, and hunting and charcoal production after year 2006) with the approval and supervision of WMoA, the members will decide over 75% of the income generated while 25% will be allocated for maintenance and development purposes. The state agency, however, retains the right to decide what, when and who should hunt and produce charcoal. The market for the trees and forest products will be left open to any one interested in buying. In spite of all this, three years after the hand-over, most of the gote communities believe the plantation still belongs to the state; payment to the forest guards is both slow and irregular. Some state bureaucrats take decisions such as the leasing of one of the well-established nurseries to an individual local farmer, reinforcing the communities’ ambivalent sense of ownership of the plantations. No commercialisation of the matured trees has so far taken place. The only exception to all these are the community of the Seramle gote, who, with the permission and support of the WMoA, bought some trees from their plantation and used it in the construction of their new church.

4.1 THE VILLAGE FOREST ORGANISATION

The village plantation organisation is hierarchically constructed with the Kebele Forest Task Force at the top, consisting of four members of the KA, including the Chairman, the DA of WMoA, and two members at large. Its main task is to monitor the performance of the organisation in collaboration with the WMoA. Under the Forest Task Force are the Forest Development and Protection Committee (FDPC) of each of the 15 gotes endowed with block plantations. The average size of a gote is about 50 households and except for very few gotes with mixed ethnic groups, most are predominantly Amhara population. Each FDPC has seven elected members who act as agents responsible for the whole operation and with assistance and support from the KA, it deals with all issues pertaining to legal and administrative matters. At the bottom of the hierarchy are the forest guards, elected by the gote members. Their job is to monitor the plantations and supervise the proper commercial and social use of the plantations. In order to lower the monitoring cost the number and salary of the forest guards has been reduced to what it used to be under the state’s management. The FDPC is linked to and dependent on the state for preparing the annual working plan, expertise and law enforcement and nothing or very little to the local informal institutions. The state agencies, the WMoA, Zonal MoA, District Council of

Representatives and two farmers from each gote annually evaluate the village plantation organisation. Their terms of reference includes assessing the changes in the plantations, the commercial activities and its effect on the people's socio-economical situation. Membership, according to the document, is defined by the extent of the contribution that each household makes in terms of labour, money and materials whenever requested by the FDPC. This would give the members the right to participate in the firing and hiring of forest guards and equal rights and access to the benefits of the plantation. Households headed by old and/or single women are exempted from labour contribution. Disobedience to the rules and regulations and lack of participation would disqualify one from membership. Village plantation represents a kind of mid-point on a common property resource management spectrum stretching from 'clean' to 'messy' CPRs. (Blair 1996).

Under the new institutional arrangement of co-management, the villagers bear the high social and economical cost of monitoring the well being of the plantations. The overdue utilization and marketing of the trees is at a standstill, pending the initiatives of the concerned outside agencies. The situation is unclear, reflecting a larger local confusion about political and economic devolution process in general. The bureaucratic framework for resource management and rule enforcement is ineffective and inefficient and decisions about when and how to harvest trees are not taken. Nonetheless, villagers agree that the plantation is in some new way "their" plantation, the common property of everybody and they attempt to protect it from asserting an individual harvest. Natural forests are locally treated differently from the man-made plantations. Here 'traditional open access right' is practiced and forest resources form a source of supplementary income for the poor and rich alike.

5. THE IRRIGATION SYSTEM IN AMBOBER

According to Messing, the Amhara practised irrigation gravity techniques for many centuries (Messing 1957) but why it never spread widely is not clear. At present, this form of agricultural production is under utilised. According to the Zonal Agriculture Department head, only 50 out of the 135 rivers in the North Gondar zone are used for irrigation (WIC, August 5, 2000). The state's involvement in the local irrigation systems is peripheral involving itself only in the provision of training to some irrigators in some planting techniques to help increase production. The state agency of the WMoA, acknowledges the techniques but possess no institutional knowledge in the social organisation behind the irrigation systems. This has provided an enabling situation for the system to develop on its own with a great degree of autonomy from outside. In Ambober, the system first evolved after 1995, when some Kimant immigrants, taking advantage of the 'political power vacuum' in the country, moved in to Ambober to take over the land left behind by the Felasha who migrated to Israel in 1985 and 1991. They brought with them the knowledge of irrigation and in cooperation with the local Amhara people, with whom they share everything except their mutual history of ethnic exclusiveness, have established an indigenous or neo-traditional irrigation system. Until very recently, the irrigable lands were only used for rain fed farming of traditional food crops. The new CPR was crafted out of the old and still open-access resource of the Ttebdelit River water. The river runs down southwards for about 10 km from its source in the mountains cutting through the middle of the village until it joins the Megech River. The middle and tail end of the Ttebdelit River are called Seramle and Beshkurit respectively. People use their farmland to rotate between rain fed food crop in the wet season and irrigation cash crop, mainly, onions, potatoes and pepper, giving the farmers between two to three harvests annually. The vegetables have different maturity period (see table 2 below). Growing onions used to be women's

backyard work but the economical incentive have made these vegetables ‘respectable’ and worth cultivating. It has transformed the landscape, created an additional source of income to those involved and a new dimension of interdependence¹⁴ and cooperation across ethnic and economical differences. This innovation has put the irrigable land on high demand among the non-irrigating farmers to go into sharecropping and lease arrangement whenever possible. Women’s participation in irrigation farming is by no way less than in food crop farming. In fact it has become an additional workload as compared to those without irrigable land.

Table 2.: the irrigation calendar

Crop type	Ploughing	Sowing	Cultivation	Harvesting
Red onion	September	October	November	March
White onion	September	October	November	April
Potatoes	September	October	November	January
Pepper	September	October	November	December

The system requires the voluntary cooperation of interested individuals to run and manage the technique and fair distribution of water to the farmlands. The major factors affecting farmers’ involvement in irrigation are the availability of water, availability of factors of production and the socio-economic environment (heterogeneity of the users, leadership, the presence of other formal and informal organisations). Watering turns are determined by drawing lots without regard to ones location on the head, middle or tail end of the river flow. Greatest participation is at the head. The area’s close proximity to the Teda market has made the system more commercially oriented. As one of the ‘clean’ or straightforward CPRs, this small-scale, user managed irrigation system constitutes a CPR to which access by both outsiders and insiders is relatively easy to control because group members can enforce sanctions against free riders (Blair 1996).

5.1 THE WATER-USERS ORGANISATION

At the time of the field study, the total number of the users was 58 on an area of ca. 20 to 30 ha. There are over three or more perennial streams in the area that could be used for irrigation. At the head or Ttebdelit part of the river there are a total of 33 users divided into three teams with 17, 8, 8 members respectively. A team of 18 members at the middle or Seramble part and a team of 7 members at the tail end of River. Each team has an elected person to coordinate the teamwork and represent them in cross-team coordination and with outsiders. Usually, users of adjacent farmland form teams and each team is responsible for diverting and digging canals to their respective farms. Where necessary, wooden canal-bridges are made out of tree trunk to cross the water flow over ditches and gorges. Sometimes, if the water has to flow through a non-member’s farm, permission has to be secured from the farmer concerned. Team formation seems to overlap with residential pattern where the Kimant are concentrated in the middle and tail end of the river and the Amhara at the head end of the river. To avoid conflict and increase the possibility of cooperation, people have made cross-ethnic relationship through fictious kinship of abelejinet or god parenthood and like. The running and management of the system requires an organisation and cooperation of the users for the construction and maintenance of water canals and for the avoidance of conflicts among members and non-members. Water stealing occurs in the nighttime committed mostly by when the water pressure is low. Monitoring is easy since the free riders leave their wet footprints behind, giving a lead to the identity of the perpetrator.

¹⁴ The increased number of corrugated houses is for the most a result of inter-household/ethnic competition, a cost mostly covered through illegal tree felling and charcoal production for the market .

Mediation and resolution of conflicts between and within team members are dealt with through the institution of *shimagilina*. The social capital generated by religion seems to have a stronger influence on this organisation for maintaining reciprocity, respect and conflict resolution.

The water distribution rules adopted are cleverly crafted to suit the users' conditions. Farmers whose planted seeds have to be watered earlier are given first priority and the rest get their turns by drawing lots in teams regardless of the location of the plots vis-à-vis the water source. If someone violates the norms of allocation or distribution by stealing water, he is subject to a fine of 50 birr, something endorsed by the community and with the tacit approval of the Kebele authorities that still consider the river as open-access. By working within the confines of the norms and values of the community the irrigators have managed to legitimise and institutionalise their collective decision-making.

6. DISCUSSIONS

The kind of Amhara individualism Levine observed within the context of the Ethiopian feudal rist system might have appeared to be 'non-conductive' for collective action at the time. But given the feudal land tenure access to land that was contested by pedigree alone, such character can only be an 'ideological' response, adaptation and a strategy of survival. The Amhara have long established traditional institutions for collective action and cooperation across ethnic and economic boundaries in the management of their common resources. The Amhara treatment of the natural resources of 'getting what one can, out of what nature readily provides' is a legacy of the past during a time when the resource was in abundance and the continued absence of appropriate macro-policies and visionary and effective authority system contributed to the detriment of the eco-system. Instead ecclesiastical reference were made to justify the collective attitude and treatment of the nature as being 'a passive agent of god's rewards and punishments, something to be adjusted to and exploited.' (Levine 1965; Messing 1957). As the natural forest depleted, no incentive was left to co-operate and conserve what was left of it. To this day, many believe that it is 'their traditional right' to have access to and use the natural forest as an open-access property. This attitude combined with poverty, bureaucratic reluctance and/or inability to enforce the laws has allowed the problem to persist and endanger the total disappearance of the little natural forest left.

Addressing the environmental crisis requires that one looks at the inter-relationship between the social system and the eco-system. The tragedy of the commons is neither due to the 'zero contribution thesis' where the users are unable to cooperate to their own advantages nor to the externally induced mechanism of collective action. The relevance of the two case studies is that local users are capable of crafting a new CPR out of an open-access river water by re-directing and using some of the social capital. The village plantations are an example of a CPR that changed property right regime from the state to the community. The village plantations were established with outside capital, leadership and institutional, and technical backup that carried no customary legitimacy. Upon handing over the plantation to the local community, a new CPR was formed with hierarchically structured management organisation whose local leadership have extensive dependence on the local state officials for major decisions. Both CPRs have their own dynamics, one more than the other. While the irrigation system is 'muddling through' under a high degree of autonomy from the state, the village plantation is undergoing a process of change under the co-management system of the state agency and the community, mitigating each other's weakness, an approach recommended by some scholars (see McCay 2000; Berkes 2000; Acharyulu 2000; Kolavalli and Brewer 1998; Östrom 1999). The 'failure' or 'success' outcome of one or the other institutions will be determined by the interactions between the internal and

external factors as well as the stakeholders' perceptions of these dynamics than a pre-defined ones. (Steins, et.al. 2000)

The village plantations are not in anyway a major source of income at this point in time. If the management of the village plantations is to realise its multi-faceted potential, a change in the present status quo is required. That is, as long as 'the government agencies retain legal powers to interfere and use these powers in ways that reduce the users ability to benefit from their own management or fail to carry necessary supporting actions, either wilful, unplanned, it can make it impossible for user associations to realise their rights or achieve expected benefits.' (Kolavalli and Brewer 1998) Besides its benefit in conserving the soil and water, the plantations have come to be, a new collective symbol of identity for the community in relation to outsiders.¹⁵ This is an additional non-material aspect that has helped strengthen the notion of community but has yet to be able to address and mitigate the socio-economical difference among the community members. Members' exercise of right is only relegated to the rare situation of firing and hiring of guards. Nepotism, corruption and bureaucratic red tape by the law enforcing state agencies are the usual complaints aired by the forest guards and, locally, people are reluctant to report on the illegal tree cutters and charcoal producers for fear of jeopardising their social capital. Thus, making local monitoring and protection of the plantation socially, economically and politically very costly. The economic differentiation among the villagers is increasing with the advent of the free market system. Different groups have different needs from the commons, thus different livelihood strategies might give in to the growing market forces¹⁶, which could bode poorly for the current institutions governing the CPR. The few reported stealing of trees are attributed to economical heterogeneity by the very poor ones from within and outside the gotes with plantations.

The irrigation system, organised around the unifying force of water, was initiated by a small group of immigrants with prior experience of cooperation, influence and leadership, using the simple technology of gravity irrigation, were able to organise and draw in the local residents with whom they share the same culture, religion and language in their project. This co-operation has provided seasonal additional individual benefits for the people to whom farming is a major source of income. Unlike the village plantations, the economical benefit is immediate and personal. The irrigation system has created a new dimension of interdependence across ethnic and economical boundaries. Membership to the system is seasonal and voluntary among those with access to irrigable land and with enough labour to contribute to the construction and maintenance of the water canals. A farmer without enough labour and/or capital can opt to rent out his/her land to other farmers, even to non-residents of the village under a sharecropping or lease arrangements.

The horizontal nature of the irrigation system and the relatively small sized user teams formed according to the ethnically homogeneous residential proximity to the water flow makes it easy for communication within and between the teams at head, middle and tail end, enforcing their agreed rules of fair water distribution by drawing lots and administration of the water canals and monitoring of free riders at no or very low social and economical cost. Belonging to what Blair called the 'clean' or straightforward end of the CPR scale, small-scale, user managed irrigation system constitutes a CPR to which access by both outsiders and insiders is relatively easy to control and detect (Blair 1996). The benefits generated by this new CPR are more than the social organisational and economic cost.

¹⁵ It doesn't explain, however, why the people in Wuzaba sub-village tend to have more incidences of illegal felling, in spite of the fact that the people are much more homogenous and genealogically linked than in the village of Ambober.

¹⁶ Even the Ethiopian Church, one of the most respected institutions, is not spared of the market force where the *tabots*, or copies of the Ark of the Covenant are being stolen and sold illegally.

The irrigated cultivated command area (CCA) is confined to the farmlands along the river with a potential to extend and include more areas (some 40 ha according to the Development Agent of the Kebele). The autonomy the system enjoys from the state derives from the state's lack of well formulated irrigation policy has helped the users to develop their own rules, and to accumulate technical, social and organisational experiences. It draws on the social capital and network in the community for legitimising its rules and for resolving and/or minimising conflicts. For the community, the acceptance of the irrigation system and its rules is in line with how they relate themselves to other local institutions. Though the system also enjoys the tacit approval of the KA leadership in executing its rules, it almost always relegates conflicts arising from water use between members and non-members to the local institutions of shimagilina. Water right from river remains open while water from the canal is attained only through labour contribution to the construction of the canals. Thus, water stealing is in essence labour stealing. However, it is rare and mostly happens at times of reduced water pressure. The high monetary and social penalty has also helped maintain the low level of free riding. The WMoA's involvement in the irrigation system is very marginal and do not have an institutional interest in social and organisational aspects of the system.

The ethnic and economical heterogeneity in the village seems to have no negative impact on both new CPRs. The ethnic composition of the team members and their size reflects the residential patterns of the respective two ethnic groups with the largest user teams, located at the head, who are all Amhara, followed by the second largest members at the middle. At the tail end, there are very few Amhara members. These ethnically based geographical setting has no bearing on the system. On the contrary it has contributed to the effectivity of the system through the factors of team competition and individual interest to make the system work. Moreover, the ethnic differences are bridged mainly by the institution of the church and the religious associations that all members participate in as individuals and the cross-ethnic ties that families make with one another through the various fictous kinship relations. Some of the team leaders are also members of the local gote and Kebele Administration where they can use their position and influence in favour of the system. These social networks informally link the system to the rest of the community.

The institutions of the state, the church/religious associations, local social labour pool, conflict resolution mechanisms (shimgilina) and the markets are, one way or the other, important for both CPRs. The social capital generated through the church institution seems to have a stronger role in the maintenance of the trust and reciprocal relationship among the people. The village plantation are linked to the structurally for the expertise, rule enforcement, and designing of the annual plans and decision making of when and how to harvest and market. Because of their strong historical link to the state, the state agencies act as de-facto owners of the plantation to the extent that one of the major nurseries was leased out to an individual by the state agencies without consulting and securing the approval of the legitimate owners. Thus, sending the wrong signal to the users and a lot of inconvenience to the Kebele leadership who have tried to reverse and rectify the situation. For the PFMP to be realised, the concerned state agencies carry out their part of the deal according to the signed agreements, or their asymmetrical position in the partnership should be modified to enable the community to 'muddle through'.

The two new CPRs are still in a process of development. The commercialisation and selective utilisation of the village plantation once started, individualising or 'communalising' the benefits generated would be a challenge to all the stakeholders involved. The irrigators, through their two or three annual harvests, are becoming economically better off than farmers dependent on rain-fed agriculture alone, which has put the irrigable land at a high demand by people inside and outside the villages. Another impact is the intrusion of men into onion growing business,

which was once an exclusive backyard women's domain, and source of income. Moreover, irrigation has also meant an additional workload for women and children.

The further development of these CPRs will be very much affected by the fact that the village is located relatively close to the administrative and major market centres of Teda, Maksegnit, Azezo and Gondar towns, to which it is connected by road that will facilitate the motor transportation required when and if the commercialisation of the village plantation starts. Given the food security problem in the country, and the potential for its role, the present disengagement in the irrigation system is unlikely to continue. Improvement of the irrigation infrastructure to increase food production has to take into account the institutional and management system that has made it work. Attention has to be paid to the complimentary nature of vegetation cover of the catchments area and the water flow of the river for a sustainable development of the two CPRs. Demographic pressures and growth in market demand for trees and crops will pose new challenges and opportunities to the complex relationship between trees, land and water.

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The Ambober Village

GONDAR ZURIA WOREDA
Kebele Administration



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