FSS Discussion Paper No. 13

A COMPARATIVE STUDY OF FOREST MANAGEMENT IN EZA DISTRICT, GURAGE ZONE, SOUTHERN ETHIOPIA

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Contents

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Abstract

The management of three small forests within a proximity of about 10 kms in the district of Eza, Gurage zone, Southern Ethiopia was studied. While the social and ecological profile of the three forests are similar, they have been under differing management systems at one time or another. The main aim of the study was to compare and contrast the varying management systems and draw inference for policy in the realm of natural resource management to increase the stock, improve the quality and enhance the livelihood of the population. Participatory Rapid Appraisal (PRA) and a stratified sampled survey of 300 households (100 from each) were used as instrument of data collection.

Given a synergy between the objectives of conservation and utilization of natural resources in a win win context, the comparative study of the three forests suggests the construction of a policy making social space which interfaces and builds on the comparative advantages of the state, the market and rural institutions. In the case of the latter, success is more probable where the community is small, has blood relation and/or strong ties to the place. The state is best positioned to lay down an enabling environment such as the construction of infrastructure, and to introduce and disseminate better inputs and practices for more efficiency in production and marketing to maximize welfare.

By expanding the space and social horizon of the products from natural resources, in this case forest products, the market can be an important instrument to augment the livelihood of the farmers but social policy ensuring that there is no negative trade off between involvement in markets and the sustainable use of the resource and its role as a base for other economic activities. Attuning the institutional framework to the existing rural ones can ensure a sense of ownership, care and cheaper modes of management compared to bureaucratic lethargy, cost and poor drive and motivation.

1. Introduction

For radical theorists, the peasantry is an awkward class or even "primitive community" which will have to be swept away in the march of history. In spite of the efficient but poor thesis of peasants by scholars such as Schultz, [1966], grand theories such as modernization, view peasants as relics of the past encumbering the dynamics of the market and its attendant, supposedly universalist, social and economic progress. With reference to peasants in Africa, Goran Hyden's theory of the 'economy of affection"argues that the African peasantry has no other alternative but to undergo the trajectory of the Western model of the depeasantization of economy and society [Hyden: 1980,1983].[1]

In almost all cases, however, issues of peasants and development hinge on a strategy of "transition" towards raising peasant productivity for increased and diversified consumption at the farm level and channeling a spiral of product and labour surplus via the state or the market for expanded reproduction at the farm and national level.

Implicitly or explicitly, radical and modernization theories prescribe resource management[2] dominated by the state or the market administered by political and modern elites respectively. While the former implied nationalization of resources of production, the latter focused on privatization - a position recently resurrected by the so-called Washington Consensus.

Notwithstanding the more recent and varied experiences of East Asia,[3] development theory and practice have seen peasants, and by implication their institutions, as obstacles to development, needing to wither away in the development process. The derivatives from modernization theory in works such as Hardin [1967], which propounds the privatization of the commons, are also largely premised on the rationality and efficiency of privatization in the management of natural resources and the environment.

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[1] For a good recent review of competing theories of development including with respect to peasants, up to the post-modernization debate, see [Martinussen: 1999].

[2] For the purpose of this study, management system embodies a sense of degree of ownership individually, at household and collectively at community level with a range of autonomy in decision making and self interest regarding the conservation and utilization of forest resources and environmental services. The three management systems which are the subject of comparisons and contrast - private, state and community have a combination of varying degrees of autonomy and sense of ownership which are discussed in Section Four and their implications for benefits and willingness to pay to enhance them are dealt with latter in the empirical analysis of data in subsequent sections.

[3] Here, rather than the protracted historical proletarianization of peasants in Europe and the development of capitalist agriculture alienated from the hitherto extensive use of land in North America, aided by a market led economy augmented by public policy, hard and soft technology, members of peasants households undertake multiple engagement – intensive farming, industry and services suggesting a different model of transition to a modern society.

Between its liberation from Italian occupation in 1941 and the emergence of the *Derg* in 1974, Ethiopia's system of governance under went two transitions, broadly encompassing the precepts of modernization and "scientific socialism". The first may be termed as an attempt at transition via the modernization of absolute imperial autocracy. Under the aegis of British and later American tutelage, it attempted to commoditize the traditional ***rist*** [family inherited plots] and the commons belonging to village and/or kins. The second (1974-1991) nationalized land and its resources without compensation.

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The main aim of this study is to compare and contrast the varying management systems of three small forests within a proximity of about 10 kms in the district of Eza, Gurage zone, Southern Ethiopia. While the social and ecological profile of the three forests are similar, they have been under differing management systems at one time or another. The three forests, *Kueter Gedra*, *Gece* and *Ambussie,* are located about 175 kms [*Ambussie*], 185 kms [*Gece*] and 195 kms [*Kueter Gedra*] south-south-east the Addis Ababa-Jimma highway. They range in elevation from about 1,800 metres at *Ambussie* to 2,200 in *Kueter Gedra*. The largest in area, *Ambussie,* is about 100 hectares while *Gece* and *Kueter Gedra* are 80 and 60 hectares each.

In the course of the two "transitional" periods noted above, the hitherto *Gece* community forest was in transition to private property (1941-74) under the hegemony of a chief from a minor sub-tribe but with strong connection with the royal court in Addis Ababa[4]. The second radical attempted transition to socialism, 1974-91, led to the planting of *Ambussie* as a state forest but using peasant labour extensively. Withering away the vicissitudes of differing transitional policies, *Kueter Gedra* remained a community forest. That is even when the ultimate ownership of land in the country as a whole was vested in the state during the period of the *Derg*.

Whereas *Kueter Gedra* was owned and managed by people of the same clan, the *Keuter tib* (the first term is the name of the clan and the second sub-clan in the local language), the environs of *Gece* consisted a multitude of clans but with the *Neguera tib* as the largest group. Prior to its being planted in 1979-81 with selected varieties of white and red eucalyptus in a modern way (with row planting to ease mechanical harvesting), *Ambussi,* was a marshy area marginally used for grazing. All the labour for land preparation and planting

[4] This was following the liberation of the country from Italian occupation [1941] when for tax collection and individualization of holdings under capitalist modernization, legal land titles were being established with registration under individual names.

was provided by the local community under government technical and coercive leadership.

Today, while the current status of *Gece* is in limbo, *Ambussie* and *Kueter Gedra* have always been perceived as being owned by government (central government in the past and local now) and the community respectively. Notwithstanding minor local climatic variation based on elevation, the environs of the three forests are inhabited by the Gurage ethnic group with very similar ways of life, culture and a confederal traditional governance.

The aim of the comparative study is to map out the locus of institution(s) [from community, private and state] with ownership and management systems which can interface the drive of peasants to maximize the benefits and motivate them to willingly pay cash and labour to improve and sustain the productivity of the resources and by doing so expand the livelihood base of the community.

The three forests are then compared and contrasted by the **peasants themselves** in terms of the management systems, the perceived benefits and the derived willing ness to pay (WTP) to maintain and improve the benefits. It is hoped that the study will point towards cost effective, equitable and flexible mode of service delivery in the management of forest resources and the environment.

Following this Introduction, Section Two provides a conceptual framework to place the empirical data and the PRA discussion in context. This is followed by a report on the Study Method and simple Models used. The first substantive part of the study in Section Four discusses the rural institutions of the people of the study areas, the Gurage, and the broader governance system of the Ethiopian polity within which they are located. It attempts to elucidate the prevailing institutional norm and its impact and relevance to the mode of management of the natural resources and the environment. To supplement the social by the economic and to specify the analytical categories for comparison (socio-economic status, gender and age category of household heads) presented in the succeeding sections, Section Five reports on a brief synopsis of the bases of the economy in general followed in Section Six by the Forest Resources.

Section Seven is an exposition of the comparison of the forest management systems and the accompanying sense of ownership of the three forests and **their rankings by their own and the other two forest area dwellers in the study.** This is followed in Section Eight by the estimated benefits and WTP for sustainable use of the resources and the services provided by the forests and the environment [scenic beauty and existence value approximated by the joy of living near the forest]. In addition to between forests, the model also analyzes the differences in the felt benefits and WTP by socio-economic status, gender and age group of the household heads. The study is concluded with a Summary & Policy Implications.

2. The Conceptual Framework

There are three major modes of management of natural resources – private, public and community[5]. Following Hardin [1967], the Private Property Rights School has argued that in the transition from common to private property, by internalizing externalities and where the gains of such internalization become larger than the cost, private and social benefits can be maximized. This results from one or a combination of increases in the economic value of the resource(s), changes which stem from the development of new technology and the opening up of markets towards which the preceding property rights were poorly attuned to.

If the real world strongly reflects these assumptions, economists have advocated the **universality** of private ownership (except those where the consumption of one does not reduce that of the others), **exclusivity in ownership** and **transferability for better allocation.** When taken to the world of actual resource management**,** such prepositions have tended to make most assume that rural communities in the developing countries have relatively little to contribute to either economic development or environmental protection – the better and modern practices will come from the urbanized elites, the capital city, international organizations or donors.

However, even when privatization yields a more optimal road map for natural resources management, it may be confronted with the problem of distribution. It is implicitly taken that privatization of the commons is costless. Or under competitive equilibrium accompanied by appropriate set of transfers, everybody can be made better off. This assumes that the former users of the resource get their rights recognized and compensated for the loss in income which they incur in the process of privatization either by being made private owners or when the proceeds are remitted to the former users.

In many instances, unfortunately, traditional users do not get their user rights recognized and are simply excluded from the use of the resources with no compensation.[6] Apart from the neo-classical arguments of efficiency and their critiques of various strands[7], if we take a political economy approach to the problem, where such transfers had taken place, enforcement costs could be very high. Social costs include lives when the process had reached the point of violence especially when it takes the form of expropriation of former users

[5] Although not very many, there are cases of joint management among the three proto-types such as the well known CAMPFIRE [Communal Areas Management of Indigenous Resources] Programme in Zimbabwe. For example see Tenkir Bonger: 1999.

[6] See section Four in the case of the privatized *Gece* and state owned *Ambussie* local forests in this study.

[7] For an excellent, extended and latest versions of this problematique with respect to natural resources see (Baland, Jean-Mary & Platteau, Jean-Philippe:2000; Lee, D.R. & Barret, B.:2001).

without commensurate compensation. The cases of colonial Kenya, Zimbabwe and apartheid South Africa are some of the cases in point.

Alternatively, since the resource under privatization is efficiently managed, it is possible that the marginal productivity of labour increases in such proportion that the former users, now working as wage earners, could actually gain from privatization. If, however, the marginal productivity remains the same, since labour is now paid according to its marginal product, instead of average product under common property resource management, both the wage rate, employment of labour and therefore its income can fall.

There is also the discrepancy between the market and private values as the common property may provide other economic and spiritual functions. In such cases, the transaction costs could even be higher than those thrown out by the strictly market efficiency postulating mode of analysis. There are informational asymmetries and the rising problem of moral hazard in cases for example when access to credit to purchase the natural resource in question may be restricted to those having sufficient collateral or political influence.

Efficiency may be impaired for four possible reasons. First, as we shall see in the empirical sections with regard to *Gece* and *Ambussie* forests latter, if the legitimate interests of the former users are hurt, their passive or active resistance could lead to the deterioration of the resources and/or enforcement costs can increase. Second, skills and detailed knowledge of the resource which had been acquired may be irretrievably lost. Third, in the event of privatization, due to the erosion of social capital in the form of cultural attachment to the natural resource, it could result in degradation. Fourth, the market for the private rights may be too thin or there are only few sellers of the products under the new ownership regime giving to a possible rise of oligopsonistic collusion in the post-privatization period.[8]

An alternative is where the state substitutes itself for a deficient private initiative at the price of increased centralization of social life. In such cases, it can result in weaker moral norms not being able to induce people to respect the legal rules. Direct state control may also be ineffectual for a variety of reasons including high information costs, lack of adequate monitoring devices, trained personnel, financial resources and the subordination of the environment to short term economic or political interests.

Moreover, state monopoly in the management of village level natural resources could have the effect of threatening traditional sources of subsistence livelihood, making customary rights highly insecure and thereby destroying informal cooperation mechanisms. Undermining traditional regulatory authorities and their social prestige could open the way to large scale intrusion

[8] In post colonial India, rope buying, (which was a common property of the farmers nearby until British rule), from the state by few traders in an auction led to selling it at higher prices to the nearby farmers.

of business interests in the domain of their resources. There is also the danger of an insurmountable limit to a top down approach in which the state has to resort to taxes and fines in conditions of highly imperfect monitorability of users behaviour.

The third possible management mode is the community.[9] In a small closed community characterized by high information sharing through closed personal interaction, the cost of social opprobrium and ostracism could be large. The trust accumulated through personal interaction in the community increases efficiency and reduces cost associated with the division of labor. **In this regard, social trust becomes social capital.**

On the other hand, such potential advantages from community management of natural resources can sometimes be outweighed when local conditions do not provide sufficient guaranty for effective Common Property Resource (CPR) related collective action owing to recent changes in the rural scene and new challenges from the outside world and/or due to deep rooted features of the social structure. At least initially, the establishment, maintenance and expansion of modern infrastructures, modes and means of production and marketing may also be woefully inadequate.

When found to be more efficient and effective, market system is a consequence of institutions that provide low transaction costs including the enforcement of contracts. Depending on its nature, instruments and the dominant class, the state has also been an important component in the enforcement of contracts, provider of security and advancement in basic knowledge and usable technology. Being very near to CPR, indigenous knowledge and rural community institutions could add social, economic and cultural value in the construction of an optimum natural resource and environment management systems. As could be deduced from the empirical presentation of this paper, rather than positing the optimum natural resource management institutions as via the state, the market or indigenous systems on their own, the construction of a synergy with demonstrated win-win outcomes may be more a fruitful approach.

In Ethiopia, the formal governance systems regarding natural resource management in general and forestry in particular as portrayed in Gazettes, Proclamations and Orders depict increasing concerns about their preservation and the overriding control and penalty mechanisms by the state. Until very recently, natural resource and environmental governance and the resultant management systems attempted to control and penalize users within frameworks underpinned by unclear policies, fragmented institutions and sectoral rather than integrated approaches [Shibru Tedla & Kifle Lemma: 1998;

[9] According to Leach & Mearns [1996], a **c**ommunity is an organization typically tied by blood, tribe or location affinity that guides community members to voluntarily co-operation based upon close personal ties and mutual trusts.

ECO-CONSULT: 1999; Environmental Protection Agency (EPA): Federal Democratic Republic of Ethiopia: 1997].

A very recent evaluation of the poor state of the environment and natural resources asserts that to reverse the trend, rather than just technical solutions, deep rooted social, cultural, historical, economic and political factors have to be examined. And amongst these, the disruption of the indigenous institutions without the requisite technological development is cited as one of the principal factors [Shibru Tedla & Kifle Lemma: 1998, p5]. The provision of the post 1991 Government's legislation regarding natural resources and environmental management is premised on " ... the sustainable utilization of the country's forest resources is possible through the participation of the people and benefit sharing by the concerned communities" [EPA: 1997, p5]. To this end, it has enacted the Conservation Strategy of Ethiopia [EPA: 1997]

The Ethiopian Peoples Democratic Revolutionary Front's [EPDRF] realization of the right to clean and healthy environment under the Constitution is much dependent on how much environmental considerations are integrated in all spheres of the social economy [Article 92/1994] and the commitment to ensure clean and healthy environment to all citizen expressed in the Constitution [Art. 92/1994].

To this end, the EPDRF has established the Environmental Protection Authority [EPA]. EPA is responsible to look into, and advice on policy matters on the sustainable use of natural resources and the environment. It is in the light of this new policy framework and environment of the Ethiopian Government that this comparative study from south central Ethiopia aims to contribute towards policy making in the realm of appropriate institutions in the management of local forest resources and the environment.

3. Study Method and the Statistical Models

The original research proposal was to study "Three Governance Systems in the *Kueter Gedra* Community Forest: Implications for Sustainable Resource Management & Livelihoods". However, on a preliminary visit to the research site, given the small size of *Kueter Gedra* community forest, the area of study was widened. This was reinforced by the prevalence in proximity of two forests (*Gece* and *Ambussie*) of similar size but under different ownership and management systems (private and government respectively) at one time or another. Given the opportunity provided by the study site, instead of just a comparison of governance and management of one forest (*Kueter Gedra*) through time, taking on together *Ambussie* and *Gece,* it turned out to be a comparative study of three forests under different management systems.

The study began with a reconnaissance of the area with the help of local informants on the ground and aerial photographs taken at different intervals.[10] Being a social/institutional study, this was followed by an extensive Participatory Rapid Appraisal (PRA) with elders, Development Agents and local government functionaries consisting of elected *kebele* executives and *wereda* officials.

The format of the discussions consisted of semi-structured topics divided into four sections, viz. general condition of the area comprising age, sex, religion of migrant and settled members of the communities; political, social and traditional management systems of the three forests in the different regimes; economic situation of the communities around the forests (source and share of income, size of land holding and other assets); and the forests coverage, topography, type of trees and benefits. These consisted of information common to the localities hence not needing to be investigated in detail by the household questionnaire to follow. The exercise also assisted to identify issues for focus in the latter household survey.

Simultaneously, a sample frame consisting of villages and households bordering the forests was drawn. In consultation with members of the community, this was stratified by socio-economic category (poor, average and better off) and the gender of the head of the household head.[11] A proportionate random sample of 100 households from each forest, 300 in total, was selected for interview. The interview schedule was divided into six sections, namely:

1. Household socio-economic conditions including assets, incomes and migration
2. The size, type and use of plants in the forests
3. Traditional and modern administrative/governance systems and changes thereof
4. Ranking of the three forests **by all the respondents** with respect to their natural potential, management, and conservation practices and
5. Willingness to Pay in cash and labour for conservation and sustainable use of the forest resources and the services provided by the environment.
6. Problems, solutions and future goals

Data was entered in SPSS Version 10 for analysis. Following data cleaning, standard variables such as consumer unit, labour unit, livestock unit etc were derived. The main analytical tools employed are descriptive tables in the form of **Frequency Distribution, Cross –tab and their Chi-square** tests in the

[10] See in Annex 1 for the aerial photographs taken in 1957 and 1994 and 1998.
[11] In the course of analysis, the household heads were also divided into years of above & below 40 years of age.

ranking of the forests with respect to their management of the resources and the environment.

In order to understand the social context of the management systems of the three forests and examine the interface between the traditional and modern governance
systems which will serve as the bases for the discussions in the succeeding sections, the following Section provides a brief social profile of the area in which the forests are located.

4. Social/Institutional Profile of the Forest Areas[12]

Prior to the formation of a semblance of a modern state under Menelik II towards the end of the 19th century, the Gurage managed their affairs under a highly decentralized confederal arrangement [Gebreyesus Hailemariam: 1991; Seifu Dibabe: 1974: Shack:1966]. The hierarchy of the governance system began from Household Rules to Village and Sub-tribe Councils culminating at the top most with the *Yejoka.* Depending on the seriousness of the case and appeals by the defendants, the *Yejoka* presided over issues coming from the household level to the whole of the tribe known as ***Yesebat Bet Gurage,*** (the Houses of the Seven Garages). When conflicts could not be amicably settled by the political cum judicial proceedings at the *Yejoka,* the final resort was the *Weg,* which is the equivalent of a constitutional court in the Western tradition.

The *Weg* not only interprets existing rules, mores and customs but also interfaces them with new occurrences emanating from social change which require new precedents, rules and practices on that basis[13]**.** Comments and ruling by the *Weg* were final. Unlike traditions of revenge and capital punishment for murder, the Gurage judicial system imposed exile and reform depending on the motive of the assailant. The geographical-political hierarchy in the settlement of disputes and enactments of rules and regulations are complemented by ***tib*** (clan) members who are so closely connected by blood that they cannot intermarry.

With regards to natural resources, while patriarchially inherited farm holdings were individually operated, communally held forests, highways, village roads, pathways, water sites etc. were managed as part and parcel of their economic, political and cultural institutions. The formation of the

[12] This section is based on discussions which emerged in the PRA and the sources cited. It forms the social/institutional background about the Gurages in general, the macro governance systems into which they were incorporated and the specific contexts of the of the modeled institutions - private, community and state.

[13] With high rate of migration and exposure to HIV/AIDS, the Gurage Tribal Council recently promulgated that marriages could get traditional blessings and approvals only upon the presentation of HIV/AIDS free certificates issued by medical orderlies appointed by the tribal elders.

Ethiopian modern state under Menelik and subsequent consolidation under Haile Sellassie saw the incorporation of the Gurage and their traditional institutions into the wider state system and through it into the global economy.

As in their areas in northern Ethiopia, Menelik and his successors imposed the tributary mode of appropriation whereby peasant households were required to provide labour services, livestock and goods to the overlords. The amount, quality and the duration of tribute payments were fluid and arbitrarily set. The upper and lower limits were determined by the dominant social class[14].

At the end of the Second World War, Ethiopia emerged from Italian occupation as an ally of Britain. During this period and later, under British advisory roles, the Ethiopian Government proclaimed individual registration of peasant holdings and formalized cash land tax based on actual and potential productivity. The country was divided into provinces and the traditional power of tribal chiefs and warlords were centralized under imperial authority. Values and norms of northern Ethiopia, enmeshed with that of the developed world, were imposed [Clapham:1968; Perham: 1952; Mahteme Sellassie Wolde Meskel:1949/50].

Following the 1974 Revolution, much more radical changes were introduced. In line with state socialist countries of Eastern Europe, all urban and rural lands including the flora and fauna were nationalized. In the realm of agriculture and natural resources, access was mediated by rural peasant associations. No more than 10 hectares were to be allotted to individual households. Although constricted by the subsistence and dispersed nature of the peasant form of production, the heavy hand of the state attempted to reach all spheres of life including the management of community forests [Government of Ethiopia: 1975; Halliday:1981; Lefort:1983; Pausewang & Eshetu Chole:1990; Dessalegn Rahmato:1985].

The objects of this study, *Kueter Gedra* and *Gece* Closed Community Forests, have been in existence for hundreds of years. They were managed by their respective communities as per tradition handed down from generation to generation. *Ambussie* had been a very low density marshy grazing land before it was planted exclusively with red and white eucalyptus tree in 1979-1981 period by the community under the tutelage of the *Derg*..

According to reports of members of the community in the PRA study, currently, the immediate environs of *Kueter Gedra*, *Gece* and *Ambussie* have about 4,800, 720 and 3,600 households respectively. As the Gurages are the most mobile[15] and urbanized people in Ethiopia, save for the Harari's, another 16,000, 1,800 and 2,300 people claimed by the discussants in the PRA as their

[14] For details of the social economy of this period and theory of the tributary mode of production, see Tenkir Bonger: 1996; Amin:1974; Mahteme Sellassie Wolde Meskel:1949/50.

[15] This has vastly eased the population pressure on land especially in the most thickly populated *Kueter Gedra*.

kin and kith living permanently outside of the tribal homelands. Migration to urban centers began with the occupation of the areas by the *neftegna* (military rulers from Central and Northern Ethiopia) who arrived with the expansion of Menelik and demanded dues in kind and money. Nowadays, migrants are not only adult men but also women and children.

The *Kueter Gedra* community forest, with similar flora and fauna to *Gece,* has to this day remained in the hand of the community not being subject to privatization efforts in the 1941-74 period and nationalization under the military government in 1974-91. During land registration of the 1950s, it came under the name of the community which paid Government taxes. Under the *Derg*, the tax on it was distributed among those using the grass in the forest but collective community management continued**.** Only the Council of Elders designated by the clan has the right to protect and permit the utilization of the resources. These functions are enforced by community oaths which sanction curses and blessings respectively for damages and contributions of labour, guarding and conservation works such as controlling erosion.

Since the curses are feared, any one who has taken the oath has to report damage done to the forest, even when the culprit is a son[16]. The wood from the forest is used for the construction of schools, health facilities and bridges. Families who have lost their homes through such accidents as fire are also allowed to use wood from the forest. In all cases, for every tree cut down, 10 new ones have to be planted. Due to the construction of roads and schools, the area under the forest has decreased [See aerial photo in Annex].

The *Gece* Forest area is inhabited by the clans of *Negiyera* (55% of the population), *Kuenchacha* (25%) *Buez* (15%) and others making up the rest. Following land registration in the post-Italian period, the hitherto *Gec*e community forest was registered under the name a powerful *balabat* belonging to the minority *Kuenchacha* clan. For sometime, although the chief kept the land under his name, the community continued to access the resources and services of the forest with his nominal permission. In the mean time, his registration of the hitherto community forest was contested by the chief of the other major clan, the *Neguera*. Upon the death of the owner, a rapacious deforestation was carried out at a heightened speed.

The Land Proclamation of 1975 brought it under the management of Peasant Associations. However, having been alienated from the community, the ensuing lack of sense of ownership by the community led to unabated cutting

[16] In the course of the PRA, it was related to us that when a father asked his son as to where he obtained the wood for annual festival of *Meskel* [the day of the founding of the True Cross] and the son replied that it was from *Kueter Gedra*, the father is said to have given the community a shout so that his son would be apprehended for breaking his father's oath. The elders during the study said any one with a normal mind will not dare to cut any tree in the forest without permission by the community elders.

down of trees[17] to the extent that the regionally well known formidable closed forest became a series of bushes. *Gece* thus has the two major clans in the area but in differing proportions which had become a source of rivalry when measures towards its privatization began in the 1950s.

Being a marshy and hot area for the highlanders adjacent to it, the area planted in *Ambussie* and its surrounding had been grazing outpost for those who practiced transhumance from the surrounding areas gradually settling as population pressure increased. Most of it had been granted as *gasha*[18]. Since most of the grantees were absentees, both settlement and transhumance required payment of rent opening an avenue for tenant land-lord relations in the area.

The land-lord tenant relation was later abolished following the Rural Land Proclamation of 1975. Since *Ambussie* was not a traditional *rist* but settled on by those seeking more land in addition to or in lieu of their highland plots, it has the most heterogeneous sub-ethnic composition. These include the *Negiyera* (45%), the *Kuenchacha* (45%), *Diba* (10%), the *Boz, Sherar, Kueter*, *Yedera Tib*, and the *Ywe Tib***.** The prevalence of heterogeneous clans in its environs makes the establishment of a common property resource or monitoring illegal harvest the more difficult.

In contrast, unlike *Ambusssie* and to some extent *Gece*, the environs of *Kueter Gedra* is exclusively inhabited by the *Kueter* (who are so close that they cannot intermarry) which is probably one of the
reasons which has built a strong bond with the resource and cooperation among the community.[19]

Although *Ambussie* is considered as a state forest, it was planted by the labour of the whole community in the adjacent peasant associations. The first large harvest in 1990 was all appropriated by government without any share of the benefits from the proceeds by the community or consultation as to the timing and use of the revenue from the forest. The community is thus left with a sense of alienation. It is to such an extent that many truckloads of high quality eucalyptus are cut down at night and illegally carried away to Jimma and Addis Ababa either with the connivance of some or nonchalance of the community nearby.

All the three forests are located within a social tradition of democratic civil society with a synergy of the private and the commons arbitrated by the

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[17] However, even then, as could be discerned from the aerial photos [1957 and 1998], the perimeter of the forest has not been encroached upon depicting the strength of social/traditional values that it cannot be brought under private use.

[18] Unit of land measurement (about 40 hectares); also a term for land grants for service to the state in the imperial era.

[19] It was reported to the researcher that while collecting money to build a secondary school [another one is just 9kms away in Agena–see map] the *Kueter* community refused to take contribution from the adjacent clans but opened the school to all. What a pride in one's community or sub-ethnic nationalism pushed towards exclusionist fervor!

demands of the present and concern for the future. With the attempted introduction of state and private ownership and management and the reduced stake of the collective in the case of *Ambussie* and *Gece* resulted in at least part alienation leading to nonchalance towards the *Ambussie* forest, deforestation and negative externalities from wild life at the *Gece* forest. While conservation is taken more seriously at the community owned and managed *Kueter Gedra*, it has not benefited from modern afforestation.

Before we anchor the interpretation of the empirical data within this social/institutional framework and the implications thereof for perceived benefits, WTP and sustainable use of the resources and the environment, the following two sections further add to the socio-economic foundation of the data base and specify the bases of some of the variables sets in the comparative quantitative models constructed and tested in Sections Seven and Eight

5. The Bases of the Economy

The four main bases of the economy are labour, land, livestock and remittances from migrants. Both land and migration can be made effective source of livelihood through labour with accumulation in the form of livestock.

5.1 Labour

The 300 sample households from which the data was collected are located in 24 villages of which nine are in the environs of Gece and within*;* nine excusively outside but in the environs of Ambussie; and six around *Kueter Gedra*

The 1610 people enumerated come from 62 clans almost all of whom are Gurages. However, in *Gece* and *Ambussie,* the *Neguera and Kuenchahaca* in each case make up 1/3 and 1/4 of the total respectively with traditional rivalry between the two which partly led to the deforestation of the *Gece* forest when its ownership changed. On the other hand, 78% in *Kueter Gedra* belong to the *Keuter* clan and almost all of the non-*Kueter* in the area are entrants through marriages.

Although equal number of households were sampled, as shown in the following table, *Kueter Gedra* has by far the largest population size with the highest number of households and people per village. Its average household size of 6.7 persons is higher than the average of 5.4 persons by 24%.

Table 5.1: Distribution of Population of the Sampled Households

Forest	Villages	Population	X HHS	% of Population
Gece	9	491	4.91	31
Ambussie	9	450	4.5	28
Kueter Gedra	6	669	6.69	42
Total	24	1,610	5.38	101

XHHS = Mean Household size

Overall, 11 29 and 60 percent the households are under better off, average and poor socio-economic status respectively. Nearly 40% of the households have 1-4; 59%, 5-10 and 1% >10 people. **The larger the family size, the higher the socio-economic status of the household.** Thus, whereas 79% of the better off households have family size of 5-10, the corresponding size for the average and poor households is 63% and 54%; Family size of 1-4 persons make up only 18% for the better off, 35% and 46% respectively for the average and the poor. Nearly 2/3 of the households are headed by over 40 years olds and 14.3% by over 60 year olds. 70% are male and 30% female headed households.

There is a significant difference in the share of female headed households between the three forest communities ranging from only 13% in *Kueter Gedra* rising to 41% in *Gece.* **Proportionately, more of the older and male headed households are in the better off and less in the poor category**. Among the three forest villages, **although *Kueter Gedra* has the highest density of population, it also has the highest number of better offs and the least proportion of poor households**[20]. Whereas 55% of the total population and 60% of all the households live in poor households, for *Kueter Gedra,* it is slightly less than half.

Table 5.2: Socio-economic Status of the Population

Forest	Better off		Average		Poor		Total	
	No	%	No	%	No	%	No	%
Gece	54	11.1	139	28.6	293	60.3	486	100
Ambussie	5	1.1	185	41.7	254	57.2	444	100
Kueter Gedera	158	23.6	177	26.5	334	49.9	669	100
Total	217	13.6	501	31.3	881	55.1	1,599	100

[20] The causal relationship, however needs further investigation. As *Kueter Gedra* scored muchhigher than others in the maintenance, benefits and WTP for the sustainable use of the resources & the environment, it suggests a positive relationship between population, natural resources and the environment.

Of the total population of above 5 years of age, nearly half are illiterate ranging from 64.1% in the predominantly Moslem *Ambussie* to 40% in *Kueter Gedra*.. Only 7.3% had attained some level of secondary education while the rest had acquired primary/middle school education. However, there is a wide disparity by socio-economic status. Thus, while only 28% of the members of better off households are illiterate, the corresponding rate for average and poor households is 50% and 54% respectively. When it comes to age and gender of head of households, the gap in the literacy rate becomes even wider. With only 28% overall literacy by household heads, the literacy rate for old and female headed households is only 9.6% and 7% respectively. 3/4 of the household heads of the average and poor socio-economic categories are illiterate. The rate for better off household heads is 50%.

Female headed households make up 30% but proportionately more of them (35%) make up the poorer households. Where better off households make up 11.3% of all the sample, only 3.5% of the female headed ones fall in this category. By contrast, while the 60% of the households are under poor category, the equivalent for female headed households is 73%. Female headed households have smaller family size with an average of only 2/3 [3.9 persons] of the male headed ones [6.0]. **Female headed households are therefore slightly poorer, smaller in size and less educated**.

Although the majority of the population is Christian, 10% of the total households are polygamous with most such households being located in the predominantly Moslem *Ambussie.* One of the most important social characteristics of the population is the rate of migration. Although Gurages' share of the total population of Ethiopia is only about 2%, they make up 17% of the total population of Addis Ababa, [GoE:1986]. Save for the Hararis, they are the most urbanized population group in the country. In the surveyed villages, from the total population of over 15 years of age, 27% are part-time and permanent migrants. 22% of the households have part-time migrants with nearly half from the *Gece* forest followed by *Kueter Gedra*. With more than half having part-time migrants, the rate from the better off households is double the average. ¾ of all migrants are males.

Whereas about half of the population above 5 years of age among the permanently residing population is illiterate, only 14 % of the part-time migrants cannot read and write. Most migrants had completed middle level primary and secondary education. The forest areas export their relative elites in search of jobs to the urban areas outside of their locality.

44% of the households have members who have permanently settled outside. As with part-time migrants, proportionately, more of the permanent migrants also originated from better off households and least from the current poorer households. While 53% each of the better off and average households have at least one permanently settled member, the rate for poor households is

only 38%. This success in migration perhaps explains the reasons for improvements in the rural household of the migrant[21].

Nearly 2/3 of the reported permanent migrants are males. Hence, although the overall male female breakdown is 49.3% and 50.7% respectively, in the age group of 20-50 years among the studied villages, females by far outnumber males. Female permanent migrants includes those who married out. Nearly half of the permanent migrants left their rural villages in the last 8 years; 8% left many decades ago. Others did so during the *Derg* regime. For 86.6%/ the destination was Addis Ababa. Others include towns as far away as Dire Dawa (1.1%), Jimma (2.2%), Awasa, Nazreth, Sellale, Wello, Badmie and Ogaden within Ethiopia and 4 traveled abroad to the Middle East.

5.2 Land

Land tenure in the traditional system consists of family holdings referred to as *yab afer* [soil/land of the father] communally held commons [mostly by geographical contiguity and sometimes by blood relation] for grazing and natural resources such as forests, water village tracks and highways held by village and/or clan(s). As with the other so-called ***eset,*** cultures of Southern Ethiopia, family plots are extremely small appearing more as gardens than as farms as in the rest of highland Ethiopia. 55% of the households have less than 0.5 hectare plots. Only 6% have more than 1 hectare. Save for the high carrying capacity and drought resisting nature of the plant***, enset*** areas are very much pressed by high population density. In almost all cases, they are one of the major labour exporting regions of the country.

Within the minute sizes of holdings, there is a significant difference between the adjacent inhabitants of the three forests. With holdlings measuring less than half a hectare accounting for 64% and 48% of the household plots respectively, the middle altitude *Gece* and higher altitude *Kueter Gedra* are more densely populated. By contrast, in the low lying *Ambussie*, only 9% are less than 0.5 hectare. Although older, male headed and better off households have more labour, due to the constraint on the supply of land, there is no significant difference in the size of holdings with the younger, female headed and poorer households [Table 5.3]. With limited scope for the intensification of agriculture through investment of labour in land, more of the labour endowed with education enters the informal national labour market through migration.

5.3 Livestock

Rather than land and its agricultural outputs which are constrained by supply, it appears that a more differentiating variable among the households is the

[21] Unlike many others in Ethiopia, the urban-rural, inter-personal, inter-clan and sub-clan link among the Gurages in terms of remittances, physical presence during holidays and networking is very strong.

ownership of livestock. 24%, 41%, 43.7%, and 36% respectively of the total households have no calves, heifer, dry cows, or lactating cows. 71%, 55%, 53% and 62% have one or two of the same livestock classes. The community as a whole has on average 1.13 of calves, 0.83 heifers, 0.84 dry cows, 0.84 lactating cows, 0.5 sheep and 0.15 horses. Whereas 60% of the better off households have over 5 cattle, the respective rate for the average and poor households is 43% and 20% respectively. Overall, only 16% of the households have over 3 livestock units. In the more densely populated *Keuter Gedra,* the ratio is 32%. That livestock, labour and remittances rather than land are the main differentiating variables is borne by the fact that **the most densely populated *Kueter Gedra* has more better off households, the highest ownership rate of livestock units and remittances** as shown in Table 5.3 below.

Table 5.3: Distribution of Household Resources and Remittances by Forest, Socio-economics Status Gender and Age of Household Heads

	Analytical categor	By forest (%)			By Socio-economic Status (%)			By M & F HHHs (%)		By Age of HHH (%)		Total #
		Gece	Amb use	Kuter Gedera	Better off	Ave rage	Po or	MHHH	FH HH	Below 40 years	Above 40 Ye	
1.Land Holding	1-10 Zengs	64	9	48	29.4	26.7	48.9	38.6	44.4	47.2	36.6	121
	11-20 Zengs	26	31	32	32.4	33.7	27.2	30.5	27.8	28.3	30.4	89
	21-30 Zengs	7	29	15	23.5	24.4	12.2	18.1	14.4	16	17.5	51
	31-40 Zengs	2	16	4	8.8	7	7.2	6.7	8.9	6.6	7.7	22
	41-50 Zengs	-	7	1	2.9	3.5	2.2	3.8	-	1.9	3.1	8
	51-60 Zengs	1	5	-	2.9	2.3	1.7	1.4	3.3	-	3.1	6
	> 60 Zengs	-	3	-	-	2.3	-	1	1.1	-	1.5	3
	Chi-square Tests	94.35, 12, 0.000			18.17. 12, 0.111			6.199, 6, 0.401		7.50, 6, 0.277		
2.Livestock Unit	No livestock (0)	8	7	2	-	2.4	8.3	4.3	8.9	8.5	4.1	17
	0.1-2 LSU	53	44	25	8.8	27.1	53.3	35.9	52.2	50.9	35.2	122
	2.1-4 LSU	34	38	40	41.2	49.4	31.1	39.2	33.3	31.1	40.9	112
	4.1-6 LSU	4	9	22	35.3	14.1	6.1	14.8	4.4	6.6	14.5	35
	> 6 LSU	1	2	10	14.7	7.1	1.1	5.7	1.1	2.8	5.2	13
	Chi-square Tests	40.340, 8, 0.000			66.061, 8, 0.000			15.926, 4, 0.003		12.687, 4, 0.01		
3.Labor Unit	0-2 AE	19	32	10	-	17.4	25.6	11.4	41.1	26.4	17	61
	2.1-4 AE	56	58	59	58.8	54.7	58.9	61	50	67	52.6	173
	4.1-6AE	18	10	24	29.4	22.1	12.8	21.4	7.8	5.7	23.7	52
	6.1 and above	7	-	7	11.8	5.8	2.8	6.2	1.1	.9	6.7	14
	Chi-square Tests	24.806, 6, 0.000			21.302, 6, 0.002			38.865, 3, 0.000		23.203, 3, 0.00		
4.Share of emittance to Cash income	0	54	73	73	64.7	62.8	68.9	75.2	46.7	77.4	60.8	200
	1-25 %	24	16	10	20.6	16.3	16.1	11.4	28.9	9.4	20.6	50
	26-50%	16	7	2	-	12.8	7.8	6.2	13.3	3.8	10.8	25
	> 50 %	6	4	15	14.7	8.1	7.2	7.1	11.1	9.4	7.7	25
	Chi-square Tests	29.8, 6, 0.000			7.58, 6, 0.271			24.28, 3, 0.000		7.502, 6, 0.277		

Note: Zeng = Sq.mts, AE= Adult Equivalent, LSU = Livestock Unit M= Male, F = Female HHH= Household Head, Chi-square Tests used = Pearson

5.4 Sources of Livelihood and Items Transacted

The three most widespread sources of subsistence and cash income are *enset,* eucalyptus and *chat*[22] cultivated by 91%, 70% and 59% of farmers respectively. The other main products are maize, *gesho,* potatoes, pumpkin, and citrus fruits. The yield of the main staple food, *enset,* varies inversely with size of holding but directly with labour. Since it requires male labour during ploughing and transplanting, female headed households' rates of harvest of over 10 plants is just over half of the male headed ones. The respective ratio for the same range is 82%, 47% and 35% for better off, average and poor households. None of the better off household harvests less than 40 while 21% of the poor ones do so. *Enset* is almost exclusively consumed within the household. Only 4/288 who reportedly cultivated it, sold more than 25% of their produce of *enset*.

In contrast, almost all those growing *cha***t** bring it out to the market. The other important cash crop is eucalyptus. Since it has varied uses in the household economy (fuel, house construction, fencing etc), only ¼ of those growing it bring it to the market. **There is no statistically significant difference in the sale of cash crops by socio-economic category**. Another major source of cash is remittances from migrants. About 1/3 of all the respondents obtain cash sent by migrant relatives. This ranges from 1-25% of all cash income for about half of the recipients reaching as high as 25-50% and over 50% for ¼ of the beneficiary households. Residents of ***Kueter Gedra*** **forest and female headed households receive more remittances at statistically significant level**. There is no difference in the **level of** remittance between socio-economic and age group of the household heads.

The most common items sold on a weekly bases are butter and cheese, raw food derived from harvested *enset* plants, *areke,* and to a lesser extent locally produced mats, cabbage, potato, coffee kettle, spices, baskets and oil reported by 93 of the households. A significant number also sell apples, maize, mats, *teff* [*ergostica abyssinica*] and barley.

Purchases also include local produce by those in short supply but also urban made produces such as salt, kerosene, soap, sugar, and maize flour. By far the largest frequency is for salt [210], coffee [170], followed by a distant third soap [77] and the local food *kocho* [74]. With 49 cases each, cabbages, matches and oil also figure significantly. The weekly markets held in the adjacent market towns and open fields and kiosks are the supermarket equivalent of the rural households. These are supplemented by small replenishments in the local village markets.

[22] A semi-narcotic plant similar to the coffee trees in stand whose leaves are chewed as stimulant. Owing to higher relative prices from expanding demand and the ease of harvest all the year round, it has been gaining ground over coffee which grows under similar ecological conditions.

6. Forest Resources

Kueter Gedra forest measures about 60 hectares while *Gece* and *Ambussie* are 80 and 100 hectares each. *Kueter Gedra* consists mostly of pines [90%], *kosso* (hagenia abyssinica)*, gomra, chechema,* and junipers*. Gece* predominantly consists of various types of bushes with some stands of junipers, *dokma,*and *zigba* . Since the *Gece* bushes provide cover to many types of predatory wild animals, the adjacent farmers have ceased to rear small ruminants such as sheep, goats, chicken or plant citrus such as oranges. Like *Kueter Gedra*, *Gece* was also a community forest of pines, junipers and other middle altitude woods. *Ambussie* is exclusively under eucalyptus.

Over 75% and 90% of the households suggested that *Kueter Gedra* and *Ambussie* respectively had more than 75% of their areas under forest and only 7.5% said so for *Gece*. Only 1-10% of *Kueter Gedra* is reported to be covered by bush compared to 71% for *Gece*. Over 80% of the underbrush is covered with grass. Overall, 29% of the households reported that they obtain more than 40% of their cattle feed from the forests rising to as high as 42% in the community managed *Kueter Gedra.* Farmers do not dare to openly graze in *Ambussie* because it belongs to the government.

About 1/3 of all the households reported that berries and similar wild food are obtained from the forests. The most important medicinal plant is the *kosso* which is used to kill tapeworm contracted by eating raw meat. Other uses include food sweetener and brewing plants such as *gesho*. The overwhelming number of households reported that all the three forests are used as sources of wood to be used for fuel. This is more pronounced in *Gece* which is almost no man's land, Here, over 84% of the households reported that they obtain their fuelwood from the underbrush.

While none of the respondents in *Ambussie* and *Kueter Gedra* reported use of forest wood for fences, in *Gece* practically all the households obtain material for fencing from the forest. The pattern is similar in the use of wood for house construction. About ¼ of the households in *Gece* and *Kueter Gedra* reported using dung collected from the forests. Being a state forest, the rate reported for *Ambussie* is half the other two which may perhaps be due to some extent the reluctance of respondents to divulge information about the use of the state forest. The leaves of plants in the forests are also of significance use to the community. All the forest domains have very little use as sources of water. With the permission of the community, *Kueter Gedra* provides wood for house construction. Over 50% of the households reported the twines of the plants are used as ropes in the construction of houses and fences. Together with palm woods, such materials are also used in crafts works.

About half of the households in *Gece* and *Ambussie* and 80% in *Kueter Gedra* grow eucalyptus (mostly red ones). This has had a tremendous boost since the construction of an all weather road by the community, meeting

increasing demand from far away urban areas but mainly Addis Ababa for both construction and fuel purposes. The construction of the road has induced more trade, increased prices of products from the area and lessened the price of purchased goods originating from other parts of the country**.**

Eucalyptus also serves as insurance in time of need. Whereas nearly 1/3 grow it primarily for domestic consumption, about 1/4 do so for sale. It is more of a cash crop in *Gece*. It is purchased by urban traders who transport it to Addis for sale mainly for use in construction. 60% of the respondent do not see any economic or environmental problem, 10% report that it absorbs water which otherwise could be used for other crops, 8% consider it as useful since it acts as a substitute for other crops; 7% think that it stunts other crops planted nearby, 5% say that it spoils grazing land, and 3% say that it acts as a shelter for wild animals. The introduction of the saw is seen as the most important technological change in wood processing.

39% of the households see no negative or positive impact of population growth on the management and sustainability of the forests. 30% say that it has accelerated the cutting down of trees on the one hand and increased the demand for the construction of houses. Migration from the areas eased pressure on land, brought increased awareness about the use of forests but has also led to the decreased supply of male labour for local work.

The time it takes to collect grass for thatching the traditional homes has increased leading to the substitution of such houses by corrugated iron ones. The more so in *Gece* and *Ambussie* where during the period of study, 75% of the households report over 2 hours of journey to acquire thatching grass. In the no mans land of *Gece* and the state *Ambussie* forests, no protective cover is provided by the community towards the preservation of the forests. By contrast, all residents for the adjacent community forest, *Kueter Gedra,* reported that it is protected by the community and this is implemented through the community oath. Here, penalty for abrogation of community rule in the preservation of the forests is based on community decisions. A penalty of cash payment of varying amount is imposed on adults. The equivalent for students if found guilty is to make them work in the forest in such activities as gully erosion protection schemes. *Kueter Gedra* reported some planting and filling of gullies on the side of roads. Today, more so than in the *Derg* or imperial period, illegal deforestation and hunting have been increasing in *Gece*, decreasing in *Kueter Gedra,* and have remained constant *in Ambussie.*

7. Perceptions of Ownership, Forest Management Systems and their Rankings

In all the periods, the overwhelming majority of the respondents in all the forests said that *Kueter Gedra* has been owned and managed by the community. That of *Gece* straddles individual, state and community ownership in different

periods and proportions of respondents. *Ambussie* is viewed as belonging to the district government [80%] currently and to central government [74%] during the period of the *Derg.* During all the regimes, the borders of the forests have been known and demarcated. While no tax is paid or its tax status is not known for *Ambussie* [the state forest], nothing is reported to be paid for *Gece.* The residents in the environs of *Kueter Gedra* pay the tax for the forests as part of their land tax. The pattern has been similar under different regimes, 1941-74, 1975-1991 and currently.

In *Kueter Gedra*, use of the resources of the forest is determined by community decision [70%] and to a much lesser extent this is also true for *Gece.* In *Ambussie*, the residents adjacent to the forest collect bushes and about one third do not know how the final product of the forest resources are exploited. In *Gece* and *Ambussie,* no one can differentiate actual user rights while in *Kueter Gedra*, almost all report that such allocation is made by the tribal elders. Two years ago, poachers using trucks to transport stolen eucalyptus from *Ambussie* were apprehended. The other two forests did not report any such incidents. As shown in the table below, almost all the residents of *Kueter Gedra* [98 out of 99] reported that the forest is guarded by the community through common oath taken by the sub-tribe. According to the residents, *Gece* is protected by no one since it has no owner. *Ambussie's* protection response is spread over as shown in the table below.

Table 7.1: Guardians of the Forests

		Gece		*Ambussie*		*Kueter Gedra*		Total	
	Guardian	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
1	No one	87	96.7%	29	33.0%	-	-	116	41.9%
2	Community/Society	3	3.3%	22	25.0%	98	99.0%	123	44.4%
3	Government	-	-	19	21.6%	1	1.0%	20	7.2%
4	Don't know	-	-	11	12.5%	-	-	11	4.0%
5	Other	-	-	7	8.0%	-	-	7	2.5%
6	Total	90	100.0%	88	100.0%	99	100.0%	277	100.0%

Kueter Gedra reported systematic series of meetings about the utilization and management of the forest resources including this year, five and ten years ago. Very few reported similar meetings in the other two forests.

Table 7.2 : Meetings Held This & Last Year About Forest Management

		Gece		*Ambussie*		*Kueter Gedra*		Total	
	Members	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
1	No meeting	89	98.89%	88	94.62%	18	18.37%	195	69.40%
2	Tribal members	-	-	-	-	65	66.33%	65	23.13%
3	Selected Reps	-	-	3	3.23%	14	14.29%	17	6.05%
4	Do not know	-	-	1	1.08%	-	-	1	0.36%
5	Other	1	1.11%	1	1.08%	1	1.02%	3	1.07%
	Total	90	100.00%	93	100.00%	98	100.00%	281	100.00%

While the utilization and management of *Kueter Gedra* is in conformity with village and sub-tribal rules laid by the community, no such practice exists for *Gece* and *Ambussie.* Compared to last year, five and ten years ago, overall, the attention given to the conservation of *Kueter Gedra* has increased but has decreased or remained constant in the other two cases.

Except for *Ambussie*, planted by the state in the late seventies and early eighties, the areas, flora and quality of the forests in the other two has been decreasing progressively[23]. Among the main reasons for the decrease in the size of the *Keuter Gedra* forest is the construction of road and schools within the perimeter of the forest. Cutting down tress without control and replacement is the main reason for *Gece*. Here, in due course, the number of wild life and the damage they inflict on livestock and humans has been increasing. With its conversion from marshy grazing land to modern eucalyptus plantation, only the productivity of *Ambussie* has improved. For others, those reporting decrease in productivity far outweigh increase and constant. Demand for the construction of traditional houses and 'unwise' use are accounted for the decrease in the size and productivity of the forests.

Over 2/3 of the residents of *Kueter Gedra* do not perceive poor protection of forest resources and resultant conservation failure. For the other two, it is lack of sense of ownership which has led to decrease in productivity and erosion.

Table 7.3 :Causes for the Poor Protection of the Forests

		Gece		*Ambussie*		*Kueter Gedra*		Total	
	Causes	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
1	No Problem	2	2.3%	2	2.2%	55	68.8%	59	23.1%
2	Sense of ownership	63	73.3%	45	50.6%	8	10.0%	116	45.5%
3	No Gov't assistance	4	4.7%	11	12.4%	4	5.0%	19	7.5%
4	Low public awareness	3	3.5%	15	16.9%	1	1.3%	19	7.5%
5	Other	14	16.3%	16	18.0%	12	15.0%	42	16.5%
	Total	86	100.00%	89	100.0%	80	100.0%	255	100.0%

The residents adjacent to the forests appear to have a fairly good knowledge of the consequences of deforestation and measures to abate them. If depletion is not halted, they expect drought, deterioration of weather condition, increased aridity, heat, lessened amount of pasture and water for livestock, fuel wood and grass for thatching, accelerated erosion with most leading towards lower levels of agricultural and forest resource productivity. A number of

[23] This is despite the increase of care for the forest reported for *Kueter Gedra*.

solutions at household, village, community, district, zonal and regional levels are suggested. At the household level, encouraging more planting, strengthening and implementing traditional conservation values, increased awareness and a sense of responsibility through education are suggested.

At village level, reinvigorating traditional systems, replanting, coordination, promoting a sense of ownership are recommended. Communities are called to undertake training in management of natural resources, introduce rotational guarding, replacing the practice of providing wood for house and church construction to those who lost their homes fire or in need of building new ones. Districts need to train farmers about the significance of forests, coordinate local community efforts, employ guards, promote new plantations, design incentives, instill a sense of ownership and take responsibility for management and employ guards to look after the forests. The next higher level government structure, Zones, should empower district level administration to duly focus on conservation, coordinate the community and districts and facilitate planting new tress. Similar recommendations are also set out for regional and central governments. The responses are summarized in Table 7.4 below.

With respect to management, *Kueter Gedra* residents opt for continuation under community management. Nearly 40% of the residents in the environs of the state planted *Ambussie* forest also opt for the same while about half condone the *status quo* – district management. Nearly ¼ of *Gece* also prefer community management while the rest suggest joint administration between district and community. Overall, nearly 2/3 prefer community and/or a combination of community and state management.

Table 7.4: Who Will Best Manage The Forests

		Gece		*Ambussie*		*Kueter Gedra*		Total	
	Better Manger	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
1	Community	21	21.9%	33	34.7%	51	51.5%	105	36.2%
2	District Council	26	27.1%	51	53.7%	3	3.0%	80	27.6%
3	Combined Admin	47	49.0%	6	6.3%	4	4.0%	57	19.7%
4	Continue as now	2	2.1%	2	2.1%	39	39.4%	43	14.8%
5	Central Gov't	-	-	3	3.2%	1	1.0%	4	1.4%
6	Zone	-	-	-	-	1	1.0%	1	0.3%
7	Total	96	100.0%	95	100.0%	99	100.0%	290	100.0%

Chi square test 186.546,10,0.000

Having probed into the perceptions and proxies for management, in general, as above, **all** the interviewees in the environs of all[24] the forests were requested to rank each forest with respect to the following[25]:

1. Suitability for forest development
2. Reliability of weather
3. Climatic quality
4. Management competence
5. Conservation practices,
6. Uses of the forest resources by the community [grazing, fuel, house construction and other uses],
7. Administrative capability,
8. Attendance of management meets
9. Sense of ownership and
10. Attitude of government officials about the quality of management and their goodwill.

The theoretical average rank ranges between 1.00 when all 300 respondents rank a forest 1st for all the above indices of good and management and 3.00 when all rank it last, 3rd in all respects.

The first horizontal average rankings represent rankings by *Kueter Gedra* residents about first their own forest followed by that of *Ambussie* and *Gece.* The fourth row in the first column is the ranking of *Kueter Gedra* by its own residents in column one, row one and by others in column one, rows two and three. Similar positioning holds for the other two. Hence, the mean under each column stands for the average ranking of the corresponding forest by its residents and the other two neighbouring respondents. Since the community managed forest, *Kueter Gedra* [KG] is distinctly highly ranked on most of the measures, the rank deviation of the others from it are computed in the last row.

The three Chi-square test statistics across each of the rows give the level of significance of the average of the frequencies from which the ranks were computed for each of the forests by the corresponding one in the row. As could be discerned from the results, the level of significance is 0.000 in most cases.

[24] Since the three forests are only about 10 kms apart, are in the same ***wereda*** and belong to Gurage-wide and sub-Gurage traditional and modern institutions, residents in each of the forest areas have a fairly adequate knowledge and perception of the other two forests.

[25] Prior to the rankings, extensive discussions were held explaining the concepts in general and with regard to the specific items in particular.

7.1 Suitability for Forest Development

No.	Forests	*Kueter Gedera*	*Ambussie*	*Gece*	Chi-square Test Statistic
1	Kueter Gedera	1.47	1.71	2.77	41.1; 2, .000; 25.9, 2, .000; 99.1, 2, .000
2	Ambussie	1.42	1.47	1.74	64.2, 2, .000; 37.8, 2, .000; 35.7, 2, .000
3	Gece	1.90	1.19	2.91	91.2, 2, .000; 113.5, 2, .000; 155.4, 2, .000
4	Mean	1.60	1.45	2.47	
5	KG's Rank Deviation		+0.15	-0.87	

Regarding current endowments for forest development, both *Ambussie* and *Kueter Gedra* ranked themselves equally [1.47 each] but the former comes on top on the basis of higher ranking of it by Gece. This is partly a reflection of it benefiting from modern nursery for seed and agricultural extension service during its planting - systematic row planting, application of selected eucalyptus variety and the construction of a network of roads for harvesting. The residents of *Ambussie* ranked *Gece* much higher than itself but still at average rank of 2.47, it is nearly a unit rank [1.0] further from *Kueter Gedra* and slightly more than a unit rank from *Ambussie.* With no clear ownership since its attempted privatization in the late

7.2 Reliability of Weather

No.	Forests	*Kueter Gedera*	*Ambussie*	*Gece*	Ch-square Test Statistic
1	Kueter Gedera	1.24	2.47	2.24	128.9, 2, .000; 35.7, 2, .000; 74.3, 2, .000
2	Ambussie	1.18	2.02	1.42	37.8, 2, .000; 22.6, 2, .000; 43.3, 2, .000
3	Gece	1.84	1.92	2.24	16.3, 2, .000; 34, 2, 2 .185; 12.6, 2, .000
4	Mean	1.42	2.13	1.96	
5	KGs rank deviation		-0.71	-0.54	

1950s, most of it has now reverted to bush serving as sanctuary to various types of wild animals. Its potential development back to that of a forest will require massive clearing and re-planting.

Kueter Gedra is rated as one with more reliable rain by all groups followed by *Gece.* Although *Gece* rated *Ambussie* higher than itself, its average ranking of 2.13 is slightly lower than that of *Gece.* The reliability of rain increases with altitude from *Kueter Gedra* which is on the verge of *dega* [high altitude-cooler] to *woina dega* [middle altitude-moderate temperature] for that of *Gece* to the proximity of *Ambussie* to *kola* [low altitude – warm to hot] all in a space of about 20 kms.

7.3 Climatic Quality

No.	Forests	*Kueter Gedera*	Ambussie	*Gece*	Chi-square Test Statistic
1	Kueter Gedera	1.02	2.68	2.24	95.0, 2, .000; 70.2, 2, .000, 74.4, 2 .000
2	Ambussie	1.25	1.94	1.41	101.1, 2, .000; 10.4, 2, .006; 44.1, 2 .000
3	Gece	1.78	2.00	2.13	7.3, 2, .026; 1.3, 2, .527; 2.6, 2, .264
4	Mean	1.35	2.22	1.92	
5	KG's rank deviation		-0.87	-0.57	

Climatic suitability closely follows the rankings under weather suitability. Hence the one with better reliability or rain, *Kueter Gedra*, easily ranks as the top in

7.4 Management Competence

No.	Forests	*Kueter Gedera*	*Ambussie*	*Gece*	Chi-square Test Statistic
1	Kueter Gedera	1.01	2.11	2.85	95.0, 2, .000; 120.0. ,2, .000; 125.0, 2, .000
2	Ambussie	1.18	1.19	2.21	35.6, 2, .000; 98.1, 2 .000; 32.9, 2, .000
3	Gece	1.08	1.92	3.00	70.5, 2, .000; 84.6, 2, .000; 70.6, 2, .000
4	Mean	1.09	1.74	2.68	
5	KG's rank deviation		-0.65	-1.59	

climatic suitability too. It is ranked so also by the adjacent residents of the other two forests. Similarly, *Gece* outranks *Ambussie* by 0.30 units. *Kueter Gedra* is not only better managed and conserved as we shall see in the following sections, it is also better endowed with climatic conditions to be further developed as a forest.

Virtually all settlers adjacent to *Kueter Gedra* ranked their management in looking after their forest as number one. This is also invariably corroborated by the other two. The average deviation of *Kueter Gedera* from 1 [when all rating it 1] is less than 0.10. ***Gece* is by far the worst managed where its own residents gave it a score of last [3rd] in all cases**. *Ambussie,* while further down from the community managed *Kueter Gedra*, is ranked much higher than *Gece*. At an average rank of 2.68, *Gece* is 1.59 units and nearly one unit down from *Kueter Gedra* and *Ambussie* respectively.

7.5 Conservation Practices

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.02	2.12	2.83	91.1, 2, .000; 107.0, 2, .000; 116.6, 2, .000
2	Ambussie	1.12	1.26	1.98	121.1, 2, .000; 8.1, 2, .000 11.4, 2, .003
3	Gece	1.04	1.95	2.96	84.6, 2, .000; 81.0, 2, .000; 92.1, 2, .000
4	Mean	1.06	1.77	2.59	
5	KG's rank deviation		-0.71	-1.53	

The ranking of the conservation measures is very similar to that of management competence above. ***Kueter Gedra* is again invariably ranked 1st by its own and the other two communities.** *Ambussie* comes second with *Gece* a distant third. The average scores and the deviations from *Kueter Gedra* are also similar as under 7.4.

At an average of 2.22, in all the rankings, *Kueter Gedra* is a far down second pertaining to the use of the forest for grazing purposes. Its own ranking is significantly lower than those by the other two. Given the spacious row planting, the non-harvesting of grass in the forest by the state and the lean growth of eucalyptus, *Ambussie* is by far the most used for grazing. While there is an almost open access in *Gece*, because it has reverted to being an enclosed bush with the prevalence of some dangerous wild animals, it use as a source of grazing resource lags far behind *Ambussie*. *Kueter Gedra* shares the second position but slightly ahead of *Gece*. Availability rather than restriction and concern for conservation appears to account for the variability in the ranking for grazing.

7.6 Uses of Forest Resources by the Community

7.6.1 Grazing

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistics
1	Kueter Gedera	2.57	1.91	2.15	48.2, 2, .000; 17.6, 2, .000; 4.5, 2, .000
2	Ambussie	1.58	1.25	1.81	56.8, 2, .000; 79.1, 2 .000; 36.7, 2, .000
3	Gece	2.53	1.15	2.83	46.3, 2, .000; 126.9, 2, .000; 129.9, 2, .000
4	Mean	2.22	1.43	2.26	
5	KG's rank deviation		0.79	-0.04	

7.6.2 Fuel

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.33	2.08	1.26	66.1, 2, .000; 1.7, 2, .428; 84.4, 2, .000
2	Ambussie	1.15	1.65	1.31	107.4, 2, .000; 48.1, 2 .000; 62.4, 2, .000
3	Gece	1.28	2.32	1.12	81.6, 2, .000; 25.0, 2, .000; 145.0, 2, .000;
4	Mean	1.25	2.01	1.23	
5	KG's rank deviation		-0.76	-0.02	

Due to free access in *Gece* and the permission of the elders to use the branches and twigs which fall off in *Kueter Gedra*, both areas are ranked highly in the use of the forests for fuel. By contrast, owing to government ownership and not much fall off from eucalyptus in *Ambussie*, its use as source of fuel is low.

7.6.3 Construction of Houses

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.04	1.71	2.89	180.4, 2, .000; 45.9, 2, .000; 148.1, 2, .000
2	Amussie	1.06	1.22	2.14	146.9, 2 .000; 83.7, 2, .000; 17.2, 2, .000
3	Gece	1.32	1.04	1.32	150.0, 2, .000; 21.1, 2, .000; 88.4, 2, .000
4	Mean	1.14	1.32	2.11	
5	KG's rank deviation		-0.18	-0.97	

Whereas conservation is the predominant management mode in *Kueter Gedra*, the main agreed upon utilization by the community is the granting of wood for house construction for clan members who are establishing new households or those who had lost their dwellings in such accidents as fire. *Ambussie* is a close second.

7.6.4 Other Purposes

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.08	1.20	1.30	69.5, 2, .000; 118.6, 2, .000; 105.2, 2, .000
2	Ambussie	1.11	1.01	1.12	130.7, 2, .000; 81.0, 2, .000; 135.9, 2, .000
3	Gece	1.10	1.52	1.46	64.1, 2, .000; 42.5, 2, .000; 68.2, 2 , .000
4	Mean	1.09	1.24	1.29	
5	KG's rank deviation		-0.15	-0.20	

As could be observed from the mean rank values and the deviations from *Kueter Gedra*, although *Kueter Gedra* scored slightly higher, there is a balanced ranking among the forests regarding other uses such as the provision of raw materials for handicraft, food derivatives, medicinal value, water points, manure collection strings for packaging and in very few cases use for spices.

7.7 Administrative Competence

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.28	1.95	2.82	106.5, 2, .000; 92.4, 2, .000; 127.8, 2, .000
2	Ambussie	1.15	1.21	2.29	58.6, 3, .000; 87.3, 2 , .000; 42.9, 2, .000
3	Gece	1.06	1.87	2.95	39.4, 2, .000; --------; 182.4, 2, .000
4	Mean	1.16	1.67	2.69	
5	KG' rank deviation		-0.51	-1.53	

Again as in the management of the forests and conservation, *Kueter Gedra* by far out-ranks the other two forests. Both *Gece* and *Ambussie* respondents ranked *Kueter Gedra* higher than themselves. Although *Gece* is ranked higher by the other two compared to its own ranking, it is 1.5 units further from *Kueter Gedra.* The latter's deviation from the state administered *Ambussie* [0.51] is also significant.

7.8. Sense of Ownership and Concern

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.57	2.12	2.76	88.6, 2, .000; 98.3, 2, .000; 98.3, 2, .000
2	Ambussie	1.25	1.26	2.26	209.3, 3, .000; 19.7, 2, .000; 68.3, 3, .000
3	Gece	1.06	1.99	2.96	77.4, 2, .000; 96.0, 2, .000; 92.2, 2, .000
4	Mean	1.29	1.79	2.66	
5	KG's rank deviation		-0.50	-1.37	

Here again, with regard to sense of ownership, whereas on average over 3/4 of all the households in all the forest communities ranked *Kueter Gedra* as first, only ¼ ranked it as 2nd and 3rd [on average 29%]. Of those few who ranked it lower, most of them were respondents from its environs [average self ranking

of 1.57] while the respective scores *Kueter Gedra* obtained from *Ambussie* and *Gece* were 1.25 and 1.06 respectively[26].

The one with least sense of ownership is not the state run *Ambussie* but the no man's land *Gece* the alienation of which was set afoot under its transition towards privatization. It is interesting to note that nearly all *Gece* residents ranked it as last and its departure from an all 3rd rank [2.66] is accounted for by higher grading by the other two perhaps a reflection of some sense of regional belongingness and clan sentiment since some of the clans dominant in *Gece* are residents in the other two too.

7.9 Attendance of Management Meetings

No.	Forests	Kueter Gedera	Ambussie	Gece	Chi-square Test Statistic
1	Kueter Gedera	1.05	1.43	2.59	80.1, 2, .000; 11.4, 3, .000; 129.3, 3, .000
2	Ambussie	1.40	1.20	1.74	109.4, 2, .000; 30.6, 2, .000; 8.5, 2, .000
3	Gece	1.77	1.75	2.53	47.5, 2, .000; 80.2, 2, .000; 89.1, 2, .000;
4	Mean	1.42	1.46	2.28	
5	KG's rank viation		-0.06	-0.84	

For *Ambussie*, attendance of meetings concerning the forest being government summons within an authoritarian political culture, the score is high. However, even here, community called meetings in *Kueter Gedra* is slightly ahead. *Gece* on the other hand is a far away third in its ranking as there is no sense of ownership and belongingness to the forest either as pushed by government or socially constructed by civil society itself.

[26] When asked about ownership profile disaggregated by period-now, during the period of the *Derg* [1974-1991] and the Emperor [1941-1974], over 80% of the respondents in the environs of *Kueter Gedra* said that it belonged to the community. **For *Gece*, there is no periodic systematic response about its ownership**. The responses are mixed reflecting its alienation in different periods beginning with its privatization in the post-1941 period. *Ambussie* is obviously identified with government but with the local [***wereda***] one. When put in time perspective, *Kueter Gedra* emerges as the only one for which care and concern has increased significantly. According to the respective forest community respondents, concern and care for *Kueter Gedra* has either increased [69%] or has remained the same [30%] compared to both 5 and 10 years ago. The corresponding case for *Ambussie* is that it has remained the same [63%], decreased [39%]. Only *Gece* registered substantially more decrease in concern and care compared to both periods.

7.10. Positive Attitude by Government Officials

No.	Forests	Kuter Gedera	Ambussie	Gece	Chi square Test Statistic
1	Kuter Gedera	1.08	1.83	2.61	70.2, 2, .000; 73.5, 2, .000; 90.1, 2, .000
2	Ambussie	1.15	1.08	2.06	39.0, 2, .000; 136.1, 2, .000; 17.0, 2, .000
3	Gece	1.86	1.28	2.89	34.0, 2, .000; 19.4, 2, .000; 150.0, 2, .000
4	Mean	1.36	1.39	2.51	
5	KG's rank deviation		-0.03	-1.15	

For obvious reasons, government officials rank of positive attitude for *Ambussie* is high. But even here, as in number of people attending meetings, the rank for *Kueter Gedra* is slightly higher. The configuration of *Gece* as series of bushes serving as sanctuaries of wild animals, its deforestation and denudation makes it earn the lowest rank in terms of positive attitude by government officials.

The rankings set out in this section and earlier confirm the better management and sense of ownership in *Kueter Gedra* as conclusively attested to by its own residents and by the other two forest communities. Such higher valuation of the forest resources and the environment and sense of ownership appears to be related to the perceived benefits and the WTP by its inhabitants. This is demonstrated in the following Section. Its sub-clan homogeneity and community ownership are the two important variables which distinguishes it from the other two nearby forests.

8. Benefits from and Willingness to Pay [WTP][27] for Sustainable use of Resources and Environmental Services

The respondents were asked to estimate the monetary benefits they obtained from resources of the forest for grazing, fuel wood, non-fuel wood, meat and hides from wild animals, water, medicine and environmental services (scenic beauty and the satisfaction derived by living in the vicinity of the forests). It was found that the most important use of the forest resources expressed in monetary benefits is for fuel purposes which in most cases is residue in the form of fallen leaves and branches. Next is grazing followed by raw materials for handicraft works. Enjoyment of scenery and use of non-fuel wood are also

[27] As in many other social science investigations, the magnitude of the WTP by the respondents is subject to biases with possible reports of higher levels of payment to please interviewers. On the other hand, confronting non-farmer interviewers, there could also be biases of under-reporting of WTP attempting to demonstrate the inability to pay. Hopefully, these under and over-reporting tendencies may cancel out each other.

mentioned by about a third of the farmers in each of the three forest areas[28]. With respect to wild life, their meat rather than their hide is the more useful resource. Details are presented in Tables 8.1-4.

Although there are streams during the rainy seasons in all the forests, access to water and medicinal value are the least in monetary terms. The benefits from grazing is equally distributed between the socio-economic categories; but more of the poor and less of the better off gain from non-fuel wood. The distribution is similar with respect to wild animal meat. Although there is some differences in the frequency of benefits by gender of household heads, it is statistically insignificant. See Table 1 in Annex 3 for details.

Table 8.1 Benefit (Birr) from Grazing in the Forests by Forests.[29]

		0-20.0		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
	Forest	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	1	4.0%	2	8.0%	-	-	11	46.0%	5	21.0%	5	21.0%	24	15%
2	Ambussie	9	13.0%	6	8.0%	27	37.0%	11	24.0%	15	21.0%	4	6.0%	72	44%
3	Kueter Gedra	3	5.0%	4	6.0%	15	23.0%	23	35.0%	13	20.0%	8	12.0%	66	41%
4	Total	13	8.0%	12	7.0%	42	26.0%	45	28.0%	33	20.0%	17	11.0%	162	100%

Chi square test 26.0,10,0.004

Just over half of all the households reported benefitting from grazing. Of these, 11% consider the annual benefit of grazing at over 500 *Birr*. 45% in all the forests value it at 100-200 Birr. **However, in the predatory wild life infested bush of *Gece*, only 1/4 of the total households put any value on grazing in the forest**. At statistically significant level, grazing is valued[30] more in *Kueter Gedera* and *Gece.* In the absence of bush, the lean growth of eucalyptus in *Ambussie* makes it also to be widely valued for grazing. Owing to the greater livestock units owned, male headed households value the benefit of grazing more than the female headed ones [Annex 3, Table 2.].

The benefit from fuel wood is more than that of grazing both in terms of the number reporting and the amount of benefits. Where about 60% value it for more than 200 Birr, overall the open access *Gece* is by far the most valued as source of fuel wood followed by *Ambussie* and *Kueter Gedra*. There is no

[28] It is interesting to note such a high percentage of farmers derive value from scenery. In most instances, such high valuation may only be largely presumed for the urban population only

[29] While the statistical significant tables by forests in this section are presented in the text, the same for other analytical categories - socio-economic status and gender are in the annex. All the benefits and willingness to pay are provided for on annual bases.

[30] This is in contrast to its relative low level use, raising its derived marginal value, compared to he other forests which is spelt out in Table 7.6.1

significant difference by the socio-economic status of the households.[31] Female headed households value the forests as sources of fuel wood more than the male headed ones. There is no significant difference between socio-economic groups.

Table 8.2 Benefits (Birr) from Fuel wood in the Forests by Forest

		0-20		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
	Forest	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	10	11.0	8	8.0	4	4.0	13	14.0	43	45.0	17	18.0	95	41
2	Ambussie	13	17.0	18	23.0	15	20.0	13	17.0	9	12.0	9	12.0%	77	33
3	Kueter Gedra	4	7.0	2	3.0	22	36.0	18	30.0	13	21.0	2	3.0	61	26
4	Total	27	12.0	28	12.0	41	18.0	44	19.0	65	28.0	28	12.0	233	100

Chi square test 68.3,10,0.000

The next important value of the forests is not their resources but their environmental services. Thus, more than 2/3 of the households conferred value for the scenic beauty of the forests. In the community managed *Kueter Gedra,* 92% said so. 60% of them value this service at more than 500 Birr. 56% and 62% respectively *of Gece* and *Ambussie* households also are valued for the scenic beauty of their forests but at lower levels than *Kueter Gedra*. The incremental declared benefit for it perhaps reflects its sense of ownership for now and in the future.

Table 8.3 Value of Satisfaction (Birr) Derived from Scenic Beauty of the Forests

		0-20		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
	Forest	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	9	16.0	10	18.0	16	29.0	6	11.0	12	4.0	3	5.0	56	27
2	Ambussie	22	35.0	9	15.0	8	13.0	11	18.0	8	13.0	4	6.0	62	29
3	Kueter Gedra	8	9.0	6	7.0	2	2.0	8	9.0	13	14.0	55	60.0	92	44
4	Total	39	19.0	25	12.0	26	12.0	25	12.0	33	16.0	62	30.0	210	100

Chi square test 93.489,10,0.000

[31] In all the benefit and WTP pay responses, there is no significant difference between old and young headed household.

Table 8.4 Value of Satisfaction (Birr) Derived By Living in the Vicinity of the Forests

		0-20		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
	Forest	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	8	29.0	11	39.0	3	11.0	2	7.0	4	14.0	-	-	28	16
2	Ambussie	21	36.0	8	15.0	8	14.0	5	8.0	9	15.0	8	14.0	59	34
3	Kueter Gedra	6	7.0	4	4.0	6	7.0	8	9.0	5	6.0	59	67.0	88	50
4	Total	35	20.0	23	13.0	17	10.0	15	9.0	18	10.0	67	38.0	175	100

Chi square test 79.9,10,0.000

Closely related valuation of the environmental services is the satisfaction derived from living in the vicinity of the forests. Again, by far a large majority of *Kueter Gedra* residents [88%] value this service[32] and put a higher value. For the bush converted and wild life menacing *Gece,* the rate is only 28% and most of it valued at less than 50 Birr. *Ambussie* is valued by 59% of the households but at lower monetary value levels as in *Gece*. Male headed households value both of the environmental services provided by the forests more then female headed ones. Socio-economic status and age category of the households heads do not make any significant differences.

Less than 1/4 of the households declared benefit from non-fuel wood and about 1/6 for hides from wild animals. The total value ranges are much less than that of grazing and fuel wood. See Annex Tables 6 and 7. As shown in Table 8.5 below, preference about the distribution of benefits from the forests, whereas those in *Gece* and *Ambussie* divide it between the adjacent community, the state and a combination thereof, identifying ownership and care of it, the overwhelming majority in the environs of *Kueter Gedra* call for benefits to be distributed among the adjacent community. When it comes to contributions of resources to cover expenses in the management of the forests, overall, 45% put the charge on the community followed by the district and joint contributions especially in the case of *Gece*.

[32] It could be that this is not only for physiological and psychological purposes but also cultural in knowing that the
heritage of ancestors is in the service of the current generation to be passed to

Table 8.5 How Benefits from the Resources be Distributed

		Gece		Ambussie		Kueter Gedra		Total	
		No	%	No	%	No	%	No	%
1	Adjacent Community	43	43.9%	41	42.3%	84	87.5%	168	57.0%
2	District	20	20.4%	50	51.5%	4	4.2%	74	25.4%
3	Combination	32	32.7%	2	2.1%	1	1.0%	35	12.0%
4	Zonal Level	-		-		4	4.2%	4	1.4%
5	Regional Level	-		1	1.0%	3	3.1%	4	1.4%
6	Central Gov't	3	3.1%	3	3.1%	-		6	2.1%
7	Total	98	100.0%	97	100.0%	96	100.0%	291	100.0%

Chi-square test: 140.6,12,0.000

Given the more subsistence nature of the economy, in almost all cases, those who are willing to pay in labour [677 for all services] for the different economic and environmental services provided by the adjacent forests are more than those to do the same in cash [566] as shown in Table A.8.1 in the Appendix. Apart from purchased seed which is not in the list of monetary benefits from the forest resources, there is high correlation between the estimated monetary benefits reported on in Tables 7.6-7.9 in Section Seven and the willingness to pay in cash and labour for sustainable use in this Section reported below.

Table 8.6 Number of Households Willing to Pay in Cash for Sustainable Use of Forest Resources and Environmental Services

		Gece		*Ambussie*		*Kueter Gedra*		Total		Chi-square
	Resources/Services	No	%	No	%	No	%	No	%	Test
1	Grazing	24	19.2%	31	20.9%	69	21.1%	124	21.9%	25.7,10,0.004
2	Fuel wood	47	37.6%	34	23.0%	60	18.3%	141	24.9%	22.2,10,0.014
3	Non-fuel wood	21	16.8%	10	6.8%	6	1.8%	23	4.1%	4.8,8,0.774
4	Water	1	0.8%	2	1.4%	12	3.7%	15	2.7%	10.7,6,0.095
5	Wild animal hide	1	0.8%	25	16.9%	1	0.3%	27	4.8%	16.5,8,0.035
6	Medicine	-	-	4	2.7%	5	1.5%	9	1.6%	6.3,4,0.178
7	Handcraft	3	2.4%	-	-	4	1.2%	7	1.2%	2.1,2,0.350
8	Scenery	15	12.0%	14	9.5%	82	25.1%	111	19.6%	48.8,12,0.000
9	For Living in the area	13	10.4%	28	18.9%	88	26.9%	109	19.3%	36.7,10.0.000
	Total	125	100.0%	148	100.0%	327	100.0%	566	100.0%	

Table 8.7 The Number of Households Willing to Pay in Labour for Sustainable Use of Forest Resources and Environmental Services

	Resources/Services	Gece		Ambussie		Kueter Gedra		Total		Chi-square Test
		No	%	No	%	No	%	No	%	
1	Grazing	23	11.4%	53	18.3%	39	21.0%	115	17.0%	38.7,6,0.000
2	Fuel wood	56	27.9%	53	18.3%	40	21.5%	149	22.0%	42.03,6,0.00
3	Non-fuel wood	32	15.9%	23	7.9%	10	5.4%	65	9.6%	8.7,4,0.069
4	Water use	10	5.0%	5	1.7%	12	6.5%	27	4.0%	2.7,2,0.259
5	Wild life meat	1	0.5%	42	14.5%	1	0.5%	44	6.5%	0.153,6,1.000 *
6	Wild life hide	1	0.5%	39	13.4%	2	1.1%	42	6.2%	205,2,0.000
7	Medicine	22	10.9%	-	-	1	0.5%	23	3.4%	**0.23,1,0.595
8	Handcraft	23	11.4%	-	-	3	1.6%	26	3.8%	0.23,1,0.595
9	Scenery	26	12.9%	39	13.4%	41	22.0%	106	15.7%	45.3,6,0.006
10	For Living in the area	7	3.5%	36	12.4%	37	19.9%	80	11.8%	44.8,6.0,0.000
	Total	201	100.00%	290	100.0%	186	100.0%	677	100.0%	

Nearly 60% of all the respondents are willing to pay cash for the purchase of forest wood seed in cash. This is followed by the related use for the availability of fuel wood and grazing. Over 1/3 of all the households are also willing to pay for re-plantation and similar number to maintain the scenic beauty conferred by the existence of the forests. ¼ each reported their willingness to pay in cash for the previlege of living in proximity to the forests and to rehabilitate the gullies. Of the 300 households in the study, 37, 28, 27, 9 and 7 are expressed willing to pay for preserving wood, wild life meat, wild animal hides and the medicinal benefits respectively. The number of residents of Kueter Gedra WTP is more than the combined total of the other two forests.

Compared to cash, there is a considerable difference in ranking of the frequency of willingness to pay in labour for the services of the forest resources and the environment. Hence, the most important service to pay in labour is for the satisfaction of living in the area. This is closely followed by rehabilitation of the gullies and work pertaining to the continuous supply of fuel wood. 45% of all the households also are willing to provide labour services to preserve and improve the scenic beauty of the forests. Over 1/3 each are also willing to provide labour for grazing, seed purchase and replantation purposes. 65, 44, 42, 27, 26 and 23 households respectively are willing to pay for the use of non-fuel wood, wild animals meat, wild animals hide, use of water, raw materials and medicinal value of the trees.

When the responses of the willingness to pay for all the services and resources are disaggregated, of those who reported to pay in cash [566], 58% are from *Kueter Gedra* followed at 26% by *Ambussie* and 16% by ***Gece*** **perhaps demonstrating the more sense of ownership and commitment by the former *[Kueter Gedra*].** Since all of the labour of state planted *Ambussie* was provided by the adjacent peasant community, 43% of all those who are prepared to provide labour services are from the same forest followed by *Gece* at 30% and *Kueter Gedra* at 27%. As expressed in the proportion of responses both in terms of willingness to pay in cash and labour, although they are also prepared to pay more that others, the **inhabitants of *Kueter Gedra* put more value on the environmental services of their forest**, ahead of its resource use, compared to the other two. Tables 8.6-7. .

Another set of questions were the willingness to pay for specific expenses for seed purchase, re-plantation, gully rehabilitation, recruiting guards and the protection of wild animals in cash and labour. Again, **in terms of willingness to pay in cash, the total frequency for *Kueter Gedra* on its own is the combined sum of the other two [Table 8.9**]. Contribution towards the protection of wild animals is the lowest among all the forests particularly in *Gece* where they are a menace for humans and livestock. Except for seed purchase, re-plantation and gully rehabilitation by labour in *Kueter Gerdra*, less than half of the households are willing to pay for the expenses in labour.

8.9 The Number of Households Willing to Pay in Cash to Cover the Expenses for Sustainable Use of Forest Resources

		Gece		Ambussie		Kueter Gedra		Total		Chi-square Test
		No	%	No	%	No	%	No	%	
1	Seed Purchase	34	33.7%	45	29.6%	96	42.3%	175	36.5%	51.7,12,0-000
2	Replanation	38	37.6%	29	19.1%	46	20.3%	113	23.5%	9.3,12,0-669
3	Rehabiltate gully	12	11.9%	20	13.2%	45	19.8%	77	16.0%	20.5,12,0-062
4	Recruiting guards	16	15.8%	32	21.1%	25	11.0%	73	15.2%	10.7,12,0-550
5	Protection of wild animals	1	1.0%	26	17.1%	15	6.6%	42	8.8%	7.2,12,0.84
6	Total	101	100.0%	152	100.0%	227	100.0%	480	100.0%	

8.10 The Number of Households Willing to Provide Labour for Sustainable Use of Forest Resources

		Gece		Ambussie		Kueter Gedra		Total		Chi-square Test
		No	%	No	%	No	%	No	%	
1	Seed Purchase	31	18.3%	38	16.9%	434	67.4%	113	17.4%	21.2,4,0-000
2	Replanation	57	33.7%	58	25.8%	86	13.4%	201	31.0%	35.4,6,0-000
3	Rehabiltate gully	41	24.3%	32	14.2%	86	13.4%	159	24.5%	1.83,6,0-934
4	Recruiting guards	39	23.1%	50	22.2%	23	3.6%	112	17.3%	16.7,6,0-10
5	Protection of wild animals	1	0.6%	47	20.9%	15	2.3%	63	9.7%	22.6,4,0-000
6	Total	169	100.0%	225	100.0%	644	100.0%	648	100.0%	

When the willingness to pay in cash is disaggregated by levels of payment for the benefits, in all cases, the residents of *Kueter Gedra* by far outnumber in the frequency and amount prepared to pay [Tables A.8.2-5] in the Appendix . **Partly because of this, in all cases, the willingness to pay is statistically different by forest**. Overall, for grazing, nearly 70% are prepared to pay less than 100 Birr per year. Except by forest, there is no statistically significant difference between socio--economic status, gender and age of household heads. With regards to fuel wood, at nearly 50%, although the overall frequency is the highest, about half of the respondents are willing to pay less than 20 Birr annually. As for grazing, the difference in the willingness to pay is significant only by forest.

90% of the residents of the environs of *Kueter Gedra* are willing to pay for the maintenance of the raw materials for handicrafts while that for *Gece* and *Ambussie* are at 25%. In similar vein, 88% **in *Kueter Gedera* [against a combined 41% for the other two forests] reported willingness to pay cash to preserve the scenic beauty of their forest and at a much higher level of payment**. Male headed households are prepared to pay more than the female headed ones. The results are similar for the satisfaction derived from living near the forests. Details of the frequency distribution are presented in the Appendix Tables A.8.2-6.

The data presented in the tables above and in the Appendices show that the community owned *Kueter Gedra* is by far better managed, the residents in its environs value the benefits from the forest highly, more of them expressed the willingness to pay and much more than the others for its sustainable uses. The validity of this is strengthened by the rankings of the management practices and the environmental indices by all of the households **each evaluating not only their own but also the other two as well in the previous Section too**.

9. Summary and Policy Implications

Given the dual objectives of conservation and utilization of natural resources in a win win context, the comparative study of the three forests suggest a number of possibilities. The community managed *Kueter Gedra* forest demonstrates many positive attributes in its management. It has a socially strong sense of collective ownership which extend from those residing in the vicinity to those living in Gurageland, other parts of Ethiopia and even outside of Ethiopia.

The qualitative and quantitative analysis of data from *Kueter Gedra* suggests that the smaller the size a socially cohesive community managing its forest by itself, the more it derives benefits, values the resources and services at higher levels leading to willingness to pay for their sustainable use and continued sense of ownership empowering it with economic, social and cultural capital and streams of resources to support livelihoods..

As a common property resource, its outputs have been put to community services. Its superior management position has been consistently attested to by respondents including by those residing adjacent to the other two forests. However, it has not benefited from modern technological inputs and practices to advance its productivity. There are no nurseries or other devices to disseminate modern practices and/or inputs. The natural forests are harvested on an *ad hoc* basis rather than as strategic resources to enhance the livelihood of the population.

In this respect at least, *Ambussie* forest has benefited from scientifically bred and improved red eucalyptus which has the attributes of fast growth, row planting which eases harvest and accelerates growth; varieties are targeted to particular use and the final product destined for the market. The project used abundant labour during the off farming season reclaiming a vast land which was marshy and waterlogged. This process could be perceived as reclamation for capital accumulation with continual streams of income. However, a failure to interface with the community in terms of management and sharing the produce has alienated it from the community, exposing it to a considerable loss of revenue which could have otherwise enhanced improved management and care resulting in better harvest and sustainability.

Gece is a case of an abysmal failure both in terms of conservation and utilization. Following attempts at privatization, the ensuing conflict between the two clan chiefs divided the community and in the end erased the sense of community ownership which had prevailed for many years. Ownership by a minority clan chief exacerbated the situation. A transition towards government ownership during the period of the *Derg* without collective shared incentives with the community continued its demise which had began earlier. Its conversion from forest to bushes generated negative externality on the surrounding farming community. Soil degradation and gully erosion have vastly accelerated. The *haitus* between community ownership and privatization in the

first phase and between private and state in the second phase constructed a very hazy ownership pattern leaving it as almost no man's property. Failure to interface with the community in terms of management and sharing the produce exposed it to trespass and over-exploitation.

The pros and cons of state, private and community ownership and management interfaced with the objectives of conservation and utilization of natural resources suggests the construction of a policy making social space and operationalization which interfaces and builds on the comparative advantages of the state, the market and rural institutions. In the case of the latter, success is more probable where the community is small, has blood relation and/or strong tie to the place. The state is best positioned to promote an enabling environment such as the construction of infrastructure and introduction and dissemination of better inputs and practices which increase efficiency in production and marketing and maximize welfare.

By expanding the space and social horizon of forest products, the market can be an important instrument to augment the livelihood of the farmers but with social policy ensuring that there is no negative trade off between involvement in markets and the sustainable use of the resource and the environments as a base for other economic activities and the enjoyment of the scenic beauty and value. Attuning the institutional framework to the existing ones such as those of *Kueter Gedra* are more likely to ensure the continuation of the sense of ownership, care and cheaper modes of management, compared to bureaucratic lethargy, cost and poor drive and motivation by state functionaries.

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Appendices

Table A.8.1 Number of Households Willing to Pay in Cash and Labour For Sustainable Use of Forest Resources and Environmental Services.

	Resources/Services	Cash	Labour	Lab - Cash
1	Grazing use	124	115	-9
2	Fuel	141	149	8
3	Wood	37	65	28
4	Water use	15	27	12
5	Wild life	28	44	16
6	Wild life hide	27	42	15
7	Medical use	9	23	14
8	Handcraft	7	26	19
9	Scenic beauty	106	129	23
10	Satisfaction for Living in the area	80	175	95
11	Seed Purchase	175	113	-62
12	Replantation	134	113	0 4
13	Rehabilitate gully	77	159	82

Table A.8.2 Willingness to Pay in Cash for Grazing in the Forest by Forest

		0-20.00		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
	Forest	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	10	41.0%	3	12.0%	8	33.0%	3	12.0%	-	-	-	-	24	19%
2	Ambussie	15	48.0%	6	19.0%	4	13.0%	-	-	4	13.0 %	2	7.0%	31	25%
3	Kueter Gedra	20	29.0%	24	35.0%	14	20.0%	6	9.0%	4	6.0%	1	1.0%	69	56%
4	Total	45	36.0%	33	27.0%	26	21.0%	9	7.0%	8	7.0%	3	2.0%	124	100 %

Chi square test 19.2,10,0.038

Table A.8.3 Willingness to Pay in Cash for Fuel Wood Use in the Forest

		0-20.00		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
	Forest	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	27	57.0%	4	8.0%	8	17.0%	4	9.0%	4	9.0%	-	-	47	33%
2	Ambussie	24	71.0%	3	9.0%	4	12.0%	1	3.0%	2	6.0%	-	-	34	24%
3	Kueter Gedra	21	35.0%	23	38.0%	9	15.0%	5	8.0%	2	3.0%	-	-	60	43%
4	Total	72	51.0%	30	21.0%	21	15.0%	10	7.0%	8	6.0%	-	-	141	100%

Chi square test 22.9,8,0.003

Table A.8.4 Willingness to Pay in Cash for Raw Materials for Handicrafts in the Forest by Forest

	Forest	0-20.00		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	14	64.0	2	12.0	3	14.0	1	4.0	1	4.0	1	4.0%	22	16%
2	Ambussie	18	62.0	1	6.0	7	24.0	2	7.0	1	3.0	-	-	29	21%
3	Kueter Gedra	15	17.0	13	14.0	12	13.0	9	10.0	18	20.0	23	26.0%	90	64.0%
4	Total	47	33.0	16	11.0	22	16.0	22	8.0	20	14.0	24	17.0%	141	100%

Chi square test 42.3,10,0.000

Table A.8.5 Willingness to Pay in Cash for the Scenic Beauty of the Forest by Forest

	Forest	0-20		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	7	54.0%	2	15.0%	2	15.0%	1	8.0%	-	-	1	8.0%	13	10%
2	Ambussie	18	64.0%	-	-	7	25.0%	3	11.0%	-	-	-	-	28	22%
3	Kueter Gedra	15	17.0%	9	10.0%	8	9.0%	9	10.0%	17	19.0%	30	34.0%	88	68%
4	Total	40	31.0%	11	8.0%	17	13.0%	13	10.0%	17	13.0%	31	24.0%	129	100%

Chi square test 45.1,10,0.000

Table A.8.6 Willingness to Pay in Cash for the Satisfaction of Living in the Vicinity of the Forest by Forest

	Forest	0-20.00		20.01-50.00		50.01-100		100.01-200.00		200.01-500.00		>500.01		Total	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Gece	38	97.0%	-	-	1	3.0%	-	-	-	-	37	21.0%	34	21.0%
2	Ambussie	37	79.0%	4	8.0%	4	9.0%	1	2.0%	1	2.0%	47	26.0%	47	26.0%
3	Kueter Gedra	86	90.0%	8	8.0%	-	-	2	2.0%	-	-	-	-	96	53.0%
4	Total	159	88.0%	12	7.0%	5	3.0%	3	2.0%	1	1.0%	1	1.0%	180	100.0%

Chi square test 15.8,8,0.046

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