



RESEARCH ARTICLE

SOCIAL INSTITUTIONS FOR ECOSYSTEM MANAGEMENT AND BIODIVERSITY CONSERVATION: THE CASE OF AMARIE KUNA IN BORENA-SAYNT NATIONAL PARK

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Abstract

This study aims to assess 'Amarie-Kuna' Traditional Ecological Knowledge Systems (TEKSs) of the local communities towards utilization, management and conservation of the natural resources, its set values and norms and, comparative advantages with modern schemes in Borena-Saynt National Park. It tries to unleash information gaps pertaining to traditional practices and norms in relation to ecological functions and, legal and institutional frameworks so far operational in the study area. The assessment was conducted on four major vegetation communities through interviews made with 30 households and 10 key informants (KII) and, discussion with 45 focus groups (FGD). Representative of the local communities were considered and put in to place. Collected data arranged and organized using SPSS Ver. 16 of recorded data using questionnaires and checklists. Data analysis and interpretation held using descriptive statistics methods and techniques. With respect to values and norms set under Amarie-Kuna customary practices, main points were discussed with FGD and KII. From a total of 30 interviewed households, the majority marked preference (72%) for community-based rather than government-led ecosystem management system for the sustainability of the Borena-Saynt National Park. Most argued for the beneficial aspects of the traditional management systems (87%), and few mentioned the 'Amarie-Kuna' customary practices, used for centuries to protect the sacred 'Denkoro-Chaqa' from various disturbance factors such as fire, encroachment to critical habitats, allow free movement of wild, animals unlike the current act of deterrence by dogs, illegal wood cuts by distant dwellers, somehow reducing intensive grazing via rotation and, protect the forest by the community themselves unlike the current mode of protection by guards. Hence, the future park management system should apply the traditional institutional system in complementary with the modern park management scheme.

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Introduction:-

Background of the Study:

Borena-Saynt National Park (BSNP) was established in 2009 by the Amhara National Regional State Government, issued and proclaimed with Regulation No. 68/2009. Since the time of Emperor Zeraeqob, 1428-1461, the park has been under protection with varied names; 'Min-Yiwab' and later changed in to 'Denkoro' that literally means deaf in English. The purpose of protection was to achieve the needs of the King's family. During the reign of Emperor Haileselassie II, especially starting from the year 1960, the park got attention due to its biodiversity potential. In continuation, the 'Dergue Regime' the area was under protection with the objective to conserve the rich biodiversity resources it endows with the assistance of adjacent Woredas local communities. Some of the peculiar features that the park has been recognized to are: a variety of biodiversity, spectacular landscape, cultural heritages, natural aesthetics such as caves, waterfalls, high cliffs and, sacred areas particularly of graves (ANRS Council Reg. No. 68/2009).

Conservation and landscape restoration are emerging concepts which consider to an approach involving stakeholders in all affected land-use sectors and applying participatory decision-making processes (FAO, 2016). The aim is to maintain the integrity of ecosystem and species richness of the remnant patchiness and fragmented forests while fighting the challenges of degraded and denuded ecosystems. Moreover, Missourian (2005) mentioned that landscape restoration is an approach to forest restoration that seeks to balance human needs with those of biodiversity, thus aiming to restore a range of forest functions and accepting and negotiating the trade-offs between them. Stone (2010) also defined deforestation, degradation and restoration of forests consistently. Deforestation as, "the loss of forest and loss of carbon storage by the means of deforestation is cutting trees, firing forests, over grazing and change the lands to crop production." Similarly, degradation also reduces the number of trees and the stock of carbon in a specific area. Besides, Stone (2010) explained that restoration is one of strategy to tackle such challenges and it rehabilitates the areas that were deforested in many years ago can be returned to its original state and order by doing restoration activities. Nonetheless, Marenja and Barrett (2007) argued that, "Countries in the low-income tropics face the challenge of increasing their food supply to fulfil demand. Overcoming those challenges is difficult because they have low agricultural yields associated with widespread failure to make investments that are sufficient to sustain the quality of farmland."

To date, a time has increasingly become a paradigm shift from independent and exclusive approach of conservation or restoration to in tandem uses of both approaches. And, this has been the guiding principle in the 21st century. According to IUCN (1998), the significance of protected areas as an area of land and/or sea is pronounced if dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means- as it may vary from one country to other country.

In view of this above, even though Ethiopia endows with larger number of Protected Areas, reaching nearly 60 in number, ecosystem disturbance factors have increasingly been escalating, whereas efforts made to tackle challenges have been far below the minimum requirements. Majorly, the under-pinning causes for ecosystem degradation are humans and little by climate change and, lack of habitat and feed are the accounts attributed to biodiversity loss. For these reasons, ecosystem restoration and biodiversity conservation goals and objectives have not been reconciled. Thus, the need to search other ways to address both challenges is timely and urgent. Being complementary to the conventional restoration and conservation systems, social institutions are the likely mechanisms to address problems, and hence effectively intervene critical issues at a time.

Specific to the Protected Areas of Ethiopia, different published and unpublished articles have so far been made available showing the major threats and challenges, all of which share a-more-or-less similar biophysical and socioeconomic conditions. In addition to this, threats and challenges of Ethiopian ecosystems have now widely become identified by various scholars. Surprisingly, the majority of hitherto works lacked to consider the role of social institutions to ecosystem management and biodiversity conservation (Wubneh Belete, 2006).

There are a number of ways in which local institutions and resource management practices related to TEK can be studied. This study focused on the role of TEK in management practices and social mechanisms for conservation of biological diversity. In particular, this paper focused on the management of diversity to secure a flow of resources and ecological services on which the local social-ecological system depends. Many of the practices and social mechanisms have increasingly shown the role of Traditional Knowledge Systems (TKSs) in relation to the potential to confer resilience in local resource management systems. Equally, though are few cases to confirming that TKSs

can contribute also for aggravating disturbance and disequilibrium in ecosystem integrity and species diversity. Today, commonly agreed is that TKSs can be applied being complementary to modern schemes meant to nature protection and biodiversity conservation endeavours. Ethiopia, being a culturally diversified nation, can be a model towards making use of its treasures valued important in the fields of nature protection and biodiversity conservation.

This paper was initiated to address the role of social institutions for EM and BDC that how local communities used to protect the ecosystem and conserve species through norms and values under traditional ecological knowledge systems. Understanding the role of traditional institutions in EM and BDC helps to apply the traditional EKSs towards management and conservation endeavours in complementary with the modern schemes.

‘Amarie Kuna’ Indigenous Social Institution:- General Overview:

Social Institutions are generally understood as human society's most characteristic attributes created by people forming social beings with unique beliefs and values. In a sense that beliefs and values in this study do account for issues and concerns made in response to ecosystem management and biodiversity conservation. Social institutions represent its familial, political, educational, religious, and economic systems. Broadly, social institutions are classified in to two: - Formal and Informal (Fundamental Principles of Environmental Science, 10th Edition). Traditional Ecological Knowledge (TEK) refers to “a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment” (Berkes and Folke, 1998).

The term ‘Amarie- Kuna’ is derived from two local terms ‘Amarie’ and ‘Kuna’ consecutively. ‘Amarie’ refers to the people locally residing at the inter-alia highlands sharing with varying biophysical and similar socio cultural phenomena. ‘Kuna’ on the other hand, refers to a homemade tool made from special grasses mainly used to measure agricultural crops. Therefore, the conscience meaning of ‘Amarie-Kuna’ is a customary norm made by ‘Amarie’ community to measure the level and extent of miss behaviour committed by its members and the amount and types of corrective measures imposed on the violator (TemesgenTessema, 2004, unpublished). And custom (extension of traditional systems: - in this case ‘Amarie-Kuna’) is a practice or a-way of doing things that has been handed down from one generation to the next. Customs are a part of the culture shared by members of a social group.

Objectives of the Study:-

The general objective of the study was to assess the role of social institutions for ecosystem management and biodiversity conservation in case of ‘Amarie-Kuna’ customary practices in Borena-Saynt National Park of Ethiopia. The specific objectives of the study are to assess the Traditional Ecological Knowledge Systems (TEKSs) of the local communities towards utilization, management and conservation of the natural resources; assess the customary practices of Amarie-Kuna and its values and norms set to ecosystem management and biodiversity conservation and; compare Amarie-Kuna TEKSs with modern management/conservation schemes in Borena-Sayint National Park.

Research Methodology:-

Research Design and Approach:

The purpose of this research study is descriptive, by taking individuals at different levels as unit of analysis. Therefore, survey research is the most appropriate strategy of inquiry for conducting this research for understanding the best predictors in strategic management practice and determining the current maturity level of strategic management by maturity level predictors or determinants. In this study, cross sectional design was used following Holling (2011). Agreeably, mixed design approach helps to examine the biophysical and sociocultural issues at a time.

Data Sources and Sampling:

For the purpose of this study data were be gathered from both primary and secondary sources. The primary sources of data were the managers at top level, middle level and lower levels of firms in different industries across zones through self-administered questionnaire and focus group discussion. In addition to these, primary data were collected from staffs at lower level. The secondary sources of data were Journal articles, books, manuals, research papers, and directives. With regard to sampling, systematic-random and purposive sampling methods were used. During data collection, both direct and indirect (footprints) information sources were used. Apparently, the three

hierarchical levels of ‘Amarie-Kuna’ system of practice designated ‘Gets’, ‘Gott’ and ‘Kuna’ members/practitioners were separately, but objectively interviewed.

Table 1:- Data sources, sampling units and recording tools used.

No	Data Sources	Sampling Units	Sample measure and size		Data collection tool
			unit	size	
1	Forest stands/communities (4Habitats*3Replicates=12)	Quadrats	No	12	Checklist
2	Households (6PAs*5HHs=30)	Household Heads	No	30	Questionnaire
3	Focus Group Discussion (6PAs*15=90)	Women, youth and community elders, each with 5 representatives	No	45	Checklist
4	Key Informants (3Hierarchies*3Userseach=9)	Customary practitioners and users	No	9	Interview
5	Secondary Data	Articles, official data, documents			Electronic Media and Handcopy

Household Survey:

Representative Household Heads (HHHs) in each of the three researches thematic areas were surveyed through interview. Respondents were systematically interviewed following prepared questionnaires that are of either structured and/or semi-structured in the form of open and closed type questions. From a total of six Woredas found within the project boundary, representative Kebele PAs were systematically and purposively be chosen in the respective Woredas, one Kebele cluster (25 HHHs) and additional five PAs each with 5 respondents (25 HHHs) were be sampled in each of the three thematic sites. For each sampling site groups of individuals on Cluster and PA basis (each comprising 25 HHHs) were be interviewed through prepared questionnaires. By which the total number of sample HHs reaches about 150, considering the three thematic areas with equal proportion of sample HHs.

Kebele and Woreda Level Focus Group Discussions (FGDs):

Targeted groups are community elders, youth and women for Kebele level discussion and; experts, decision-makers, administrative heads, officials and concerned organizations and individuals for Woreda level discussion. Minimum of 45 participants, 15 from each of the three target groups and; individuals who would fill Woreda checklist questions in the eight Woreda sector offices at each Woreda, including decision-makers and other concerned bodies were be invited for participation while discussions are made up on scheduled and fixed dates and places. Targeted groups for Woreda FGDs are experts (Forestry and Agroforestry, Wildlife, Conservation, and LARMEP), Work process heads (Agriculture, NRM, EPLAUO, Youth and culture, Health, education, and so forth), NGO's and Activists who may are well versed about the research thematic sites within the Borena-Saynt National Park. The total number of participants (Kebele FGDs) in the three research thematic sites is estimated to reach 135, whilst it reached 90 for Woreda FGDs. Here Woreda and Kebele discussions were be carried out on similar days, as to which doing this facilitated fieldwork activities. In the middle, suggestions and feedbacks forwarded by participants were be noted and minted.

Key Informants Interview (KII):

Key informants were chosen from among local communities having knowledge and experience about the study area. Mainly are: community elders, experts, traditional healers (medicinal plants), previous researchers, permanent settlers and practitioners of customary bylaws.

Document Review and Interview:

The document review and record was held on secondary development of the forest through close monitoring launch reforestation programs through a built-in conservation scheme with focus on encourage community biodiversity conservation activities through launching community nurseries, field gene banks and botanical gardens, scale up local conservation efforts through supports in education, training, research and community services consider updates on the IUCN principles and guidelines.

Data Analysis Methods and Techniques:

To process the data from different angles, the researcher were use all the necessary data, and finally the raw data were be organized and grouped on the basis of common characteristics. The data collected from the respondents were be analysed by employing descriptive statistical tools, and results were be expressed in terms of percentages, averages, ratios. While representations of findings were be illustrated using graphs, charts and tables. In addition, statistical analysis software (SPSS Ver. 16) was used for data analysis. Moreover, the analysis and interpretation of data relies on conflict type, causes and dimensions; institutional framework; Local Social Institutions and their

Contribution to EM and BDC; and Comparison of the Modern and Customary Laws: A-SWOT Analysis was devised to understand Amarie-Kuna customary practices along with values and norms set to management and conservation of ecosystem and biodiversity, respectively.

Result and Discussion:-

Population and Demography of the BSNP:

Population characteristics which considered during the study period were: - sex, age, marital status, religion, education level and ethnicity. While, demographic characteristics such as family size, land and livestock holdings, farm size, settlement pattern and distribution and, number of farm plots.

Table 2:- Respondent Households Characteristics.

V a r i a b l e s	C h a r a c t e r i s t i c s	F r e q u e n c y	P e r c e n t a g e (%)
S e x	M a l e	23	0.77
	F e m a l e	7	0.23
A g e	B e l o w 30 y e a r s	5	0.17
	B e t w e e n 30 a n d 50 y e a r s	17	0.57
	A b o v e 50 y e a r s	8	0.27
M a r i t a l S t a t u s	M a r r i e d	22	0.73
	S i n g l e	5	0.17
	D i v o r c e d	1	0.03
	W i d o w e d	2	0.07
R e l i g i o n	O r t h o d o x	19	0.63
	M u s l i m	1	0.03
E d u c a t i o n L e v e l	I l l i t e r a t e	5	0.17
	R e a d a n d W r i t e	10	0.33
	P r i m a r y	8	0.27
	E l e m e n t a r y	5	0.17
	J u n i o r	2	0.07

Based on this above Table 2, households with better access to agricultural land supported protection of the natural resources of the park, as opposed to those landless ones. Besides, literate households had positive willingness for protection and conservation as compared to illiterates. All respondents over 50 years of age were willing to protection and conservation, this probably is due to their accumulated value rested on them transferred generation after generation. In addition, married households have shown positive perception for protection and conservation of the park. Households with larger herds and those living further from the core zones of the park showed negative willingness for protection and conservation of the natural resources. This implies local communities assumed preservation acts by the previous management schemes, and hence brought a negative attitude on the park. Similarly, the above findings resulted in conformity with previous studies such as a recent work of AlemuJemberuet al. (2017). This finding revealed that besides to those above household characteristics, additional considered variables (i.e. family size, land and livestock holdings, farm size, settlement pattern and distribution and, number of farm plots) revealed with a significant level in response to ecosystem management and biodiversity conservation. Statistically, except education level all showed a negative standard deviation from mean values of each variable. But, significant deviation was found to exist for location factor, i.e. Amara-Saynt showed more mean deviation than BorenaKebele PAs.

Key Actors of Borena-Saynt National Park: Stakeholders Analysis:

The BSNP Office annual report revealed that eight sectors are the primary stakeholders towards the park's development and achievement of the conservation goals and objectives. The below schematic diagram was illustrated to show the stakeholder map of the BSNP.

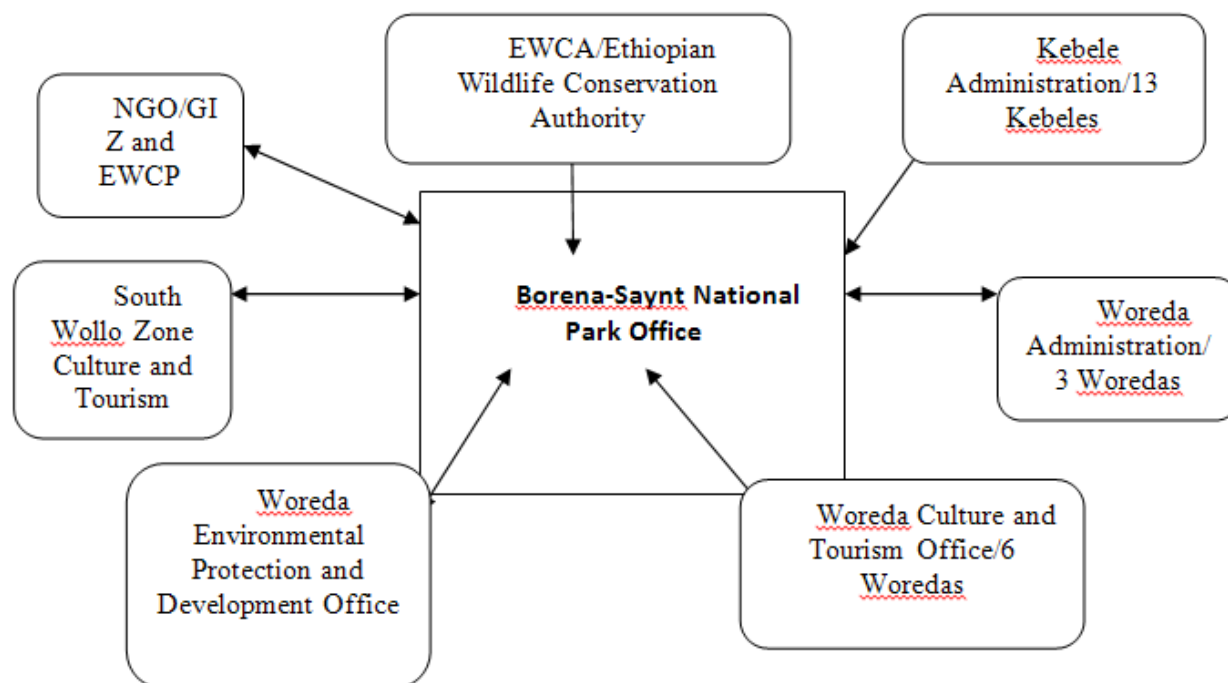


Figure 1:- Stakeholder Map of Borena-Saynt National Park.

Further to this above scheme of the BSNP, the study tried to address the key aspects of Amarie-Kunna customary practices in comparison with modern schemes of management and conservation in the BSNP. Information obtained from household survey and Focus Group Discussion revealed that local traditional institutions existed in the study area. But the practice of 'Amarie-Kunna' is almost about to get lost, in that only of respondents above 50 years old have know-how on this practices confirming that it got declining from time to time. With this, it is generally believed that as the practice got declining, the resource utilization, conservation and management became skewed, and hence the current modern park management scheme since 2007 brought a significant contribution towards deforestation and land degradation observed at alarming paces.

Amarie-Kuna Indigenous Knowledge:

A traditional belief system under 'Amarie-Kuna' customary practices was for centuries an important tool for local communities not to significantly affect the resources 'Denkoro-Chaqa' (now Werhimenu Borena-Saynt National Park) endows with varied resources. As time goes on, however, its customs and practices got declined, and hence the lack to devise the ancient mode of practice by proceeding generations could to a high degree of order and the weakening links between local communities and natural resources became paramount. As a result, denudation of the forest coverage as well as the increasingly observed environmental degradation became a-year-to-year phenomenon observed uncurbed. This together with weak institutional strengths (unstable institutional set-up of the wildlife and tourism sector) in tandem with political-economy dynamics since the time of 1940's contributed a significant role towards the current malfunctioned ecosystem functions in general, and loss of indigenous and endemic flora and fauna in particular. To put it conscience, no doubt 'Amarie-Kuna' customary practices served to maintain ecosystem integrity and species diversity in order that the contemporary park management scheme (CPMS) neglected its norms and practices. The researchers reach to wind-up by stating the need to use traditional customary practices being complementary to CPMS.

Based on survey results, the majority of respondents claim that the recently designation of the Borena-Saynt Park (in 2007) brought contrasts in that prohibited activities restricted them not to feel sense of ownership and impaired free access to the area; unlike what have they long been able to free access and the due care customs to the natural resources transferred from their predecessors. In this regard, quite a number of reasons were pointed out by households, focus groups and key informants. Common to all these information sources was that a strong value rests on the natural resources the park endows with. And, the norms set by the traditional institutional set-ups as premises for wise-use and conservation of indigenous, endemic and/or rare species inhabited within the protected area of the

park. This is because of shortage of farm land and lack of access to infrastructure and technological outputs, together with plummy rights over accessing and poor tenure systems pro-protection of the natural resources than pro-community rights as responsible factors for aggravated rate of deforestation. With respect to the local communities and their degree of dependency over the natural resources of the BSNP, the main utilization purposes are for fuel wood, construction, and forage for livestock. The degree of livelihood dependency beholds on. Finding of the problem matrix analysis have shown that human pressures on EM and BDC become increasing from time to time. Some of the main accounts are attributed to three priority issues. Category-I: Habitat loss by fragmentation, Habitat loss by patchiness, Disturbance from human population number, Disturbance from animal population number, Free-grazing, illegal charcoal making and, illegal hunting. Category-II: Disturbance by disease/pests and weeds and Pollution by persistent organic pollutants (POPs). Category-III: Disturbance by fire, including wildfire, Disturbance by insect outbreaks/occasional, Invasive species and, Selective wood cutting. Based on legal and institutional framework analysis results, though the current effort of the BSNP is appreciated in terms of its organizational structure and the aspiration that targets implementing any other solutions likely to bridge the existing high degradation rates of the natural resources, quite a number of loops were identified meant to effective management and conservation of ecosystem functions and valued species, respectively. The majority of local communities recognized the provisional, cultural, aesthetic and other optional use values of the natural resources, including protective and regulative functions of ecosystem functions. Disturbance by fire (wildfire too), insect outbreaks/occasional, invasive species and, selective wood cutting have been the prominent human pressures affecting the indigenous trees species. Productivity curve showing an inverted-J shape is ideal. Accordingly, *Olea europaea* and *Podocarpus gracilior* were observed to have “Bell” and “J” shape productivity curves consecutively. In both cases, the two trees species did not meet the criteria of normal curve lines, including productivity and sustainable production. This further implies that these similar species have been pressurized by humans, and little by natural calamities. The majority of respondents had reflected almost in agreement with the current status of the BSNP, Category II. Indigenous trees species: *Podocarpus gracillior*, *Juniperus procera*, *Olea europaea*, and *Cordia africana*. Endemic mammals: Menelik's Bushbuck, Ethiopian Wolf, Gelada Baboon, Starck's Hare and, Gray Tailed Rat. Endemic birds: Abyssinian cat Bird, Abyssinian Woodpecker, Black headed Siskin, Harwood Francolin, Thick Billed Raven, White backed Black Tit and, White collared pigeon. For representation of the fragile places in BSNP, the Sub-Afroalpine vegetation dominated by *Erica arborea* was considered, and in deed is now highly fragile (International Bird's Watch Report, 2005).

Values and Norms of Amarie-Kuna:

Ecological Knowledge Systems of the local communities were one of the central themes the study focused on. With this notion, the local communities appreciate the presence of more than 10 different rivers flowing out from Denkoro-Chaka year as part of the Blue Nile catchments, and the presence of wet weather; less frequent drought phenomenon compared to neighbouring woredas. The local communities also appreciate the use of the *Festuca gibberitana* sp (in Amharic called Guassa) for thatching houses and other purposes.

All respondents appreciate the other ecological services that they get from this forest. As a result and (unlike many other communities who live around Protected Areas in Ethiopia) the local communities are happy with the presence of Denkoro-Chaka as a protected area in their vicinity as their livelihood depends on ecological services. Their commitment to save this area is manifested by respecting its agreed boundaries. The boundary of Denkoro-Chaka is better respected than any national park in Ethiopia.

Monitoring and Evaluation Schemes of Amarie-Kuna versus BSNP:

The Forest and Wildlife Conservation section of the Agriculture Office monitors the forest and grassland. Around 37 guards patrol the area during the day. Grazing is allowed in the forest area, but totally prohibited in the Afro-alpine grassland. However, the local community is allowed to cut the *Festuca* grass every year. It is used in construction (walls and roofing), for rope, baskets, bedding, etc. Local people are also allowed to gather dead/fallen wood from the forest. Honey is an important non-timber forest product in this area, with farmers suggesting that it is the major off-farm source of income; *Erica* and *Dombeya* are the two most important plant groups for the honeybees. Degradation in this zone is very high and even severe in this vegetation community. Forests have virtually disappeared, as a result most of the mountains sides are bare, valleys have been gullied, and springs and streams, which used to have water the whole year round are now mainly dry in the dry season. This is in contrast to the earlier assertion by Lakew and Fanuel (2007) stating that, in Ethiopia, many existing mountain protected areas are heavily encroached by human and livestock, but Denkoro-Chaka is relatively free of settlement; and human encroachment is too minimal. Analytically, we found out to reach a conclusion that CMS needs to be used in

complementary with the Amarie-Kuna traditions which had in the past used to monitor and evaluate with a more or less additional tasks, i.e. daily, weekly and monthly practices that the CMS has now long been also unable to undertake different modes other than visual methods.

Conclusion and Recommendations:-

Conclusion:-

Amarie-Kuna encompasses three hierarchies, namely are “Gets”, “Gote” and, “Kunna”. Each of these hierarchies performs different tasks and responsibilities such as conflict resolution occurred across landscape and/or administrative units. According to the respondents, Gets operates when conflicts/disputes over natural resources occur between bordering zones, BSNP a central source of conflict, found within South Wollo, South Gondar and, East Gojam. The Gote hierarchy operate when conflicts occur within between woredakebeles; and that of the Kunna hierarchy operates when conflicts occur within between kebele peasant Associations (Pas). Findings of the survey has resulted major traditional practices which have long been practiced, and still existing, by the local communities. No doubt those traditional practices if given emphasis can complement the contemporary park management systems, particularly in Borena-Saynt Park. The study found out that modern agricultural schemes add value for traditional farming system. Traditional practices and working bylaws by local social institutions can also add value for modern farming systems. The key informants did understand higher levels of deforestation and species losses because of fragility and human pressures, including climate change, at faster paces. Results of the households interview revealed that important implications for conservation planning which include; the need for formal and informal education that definitely affected positively; the negative attitudes of some households for closer areas to Afroalpine habitat mainly associated to livestock predation and crop damages; possible solutions why households possessing larger herds could support conservation through enabling them to access enough private grazing land and; land ownership through fully certification that later give confidence for farmers, and hence contribute for sustainable uses of the natural resources on their private and/or communal lands.

Recommendations:-

The reason that local communities have varied degrees of understanding about ‘Amarie-Kuna’ customary practices, awareness creation for the young generation should be offered focusing on the all rounded contributions to conflict resolution and of Ecosystem Management and Biodiversity Conservation. The contribution of traditional ecological knowledge systems in the Borena-Saynt National Park are partly beneficial and partly weak (e.g. planting eucalypt on farm boundaries), the future intervention should be geared towards use of modern park management schemes in complementary with traditional practices. Until today, the BSNP lacked to have a premising principle in this regard, but presumable are almost similar to the American system; in future, therefore, the responsible authority together with the government should underline this issue and, bring about radical changes in making use of which management system, if not to shift from the current preservationist approach to a newly community based park management schemes.

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