

Local Communities and Compliance with the Forestry Policy: Perspectives from South Busoga Central Forest Reserve, Mayuge District, Eastern Uganda

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Abstract: The Uganda Forestry Policy, 2001 provides a panacea for formal conservation of forest resources in the country but since its inception like other previous and cohort policies, the forest resources have been disturbingly petering out even in the government managed central forest reserves, South Busoga Central Forest Reserve (SBCFR) epitomizes this policy failure manifested in illegalities in the forestry docket country wide. A total of 344 local communities engulfing SBCFR and 31 conservationist with vested interest in SBCFR revealed that their perception on factors leading to non-compliance were strongly correlated at $r = 83$ which was at ($>0.65 < 0.85$) segment of the strength of correlation at a 0.05 level of significance. This therefore meant that soil fertility in the forest reserve, poverty and population pressure were the main driving forces to non-compliance. Using Chi-square statistic value it was clear that none of the possible aspects viz., individual concern at ($\chi^2 = 27.9$); self reporting at ($\chi^2 = 85.0$); criminalising failure to report and submission of false report at ($\chi^2 = 69.8$) and lenient treatment of self reporting at ($\chi^2 = 94.2$) was statistically possible in the compliance with the forestry policy at ($df = 2$ at $0.01 = 9.210$) at SBCFR, Mayuge district. A Likert scale attitude index revealed that the local communities were somewhat willing to stop illegalities at an attitude index of 360 and very much willing to stop illegalities at an attitude index of 270. This therefore was positive towards compliance with the forestry policy, 2001. The researchers therefore recommended family planning to ease population pressure; agro-forestry skewed towards soil fertilization as a local community detachment with the forest reserve and collaborative forest management.

Key words: De-legitimization, illegalities, non-compliance, policy, proximity, self reporting

INTRODUCTION

The genesis of modern forests conservation can be traced from the earlier researches of French scientists under the influence of Rousseau, reacting to deforestation in Mauritius in the 1760s. The Botanist Commerson took an innovative approach to conservation in two ways, viz., perception of a relationship between deforestation on the island and local climatic change and persuasion of the local authorities to pass an ordinance in 1769 calling for reforestation and consequent soil conservation through montane forests and supporting establishment of a professional forest service on Mauritius in 1777. These ideas trickled down to British colonies such as Tobago (Elliott, 2009).

Forestry in Uganda started in 1899 with the creation of the Botanical and Agricultural Department. This department transformed into the Scientific and Forestry Department, the Botanical and Scientific Department and the Botanical Forestry and Scientific Department under British colonial administration. Initially also included in its responsibilities were agricultural and veterinary matters but in 1910, these were deleted to form separate departments. In 1917, the botanical and scientific sections were handed over to Agricultural Department and Forestry became the responsibility of the Forestry Department (FD) (Olet, 1977; Hamilton, 1984).

The establishment of FD was in line with the East African Forestry Regulations published in 1892 which transferred management mandate to the FD. The

regulations were to curtail forest destruction by shifting cultivators and pastoral communities (Mwangi, 1998; Mbaria, 2001). A number of researchers also claimed that the rules provided for the gazettelement or de-gazettelement of forests; outlined forest offences and their penalties, introduced the compounding of offences; authorized the issue of licenses for permitted activities (Mwangi, 1998; Hamilton, 1984; Otieno, 2003; Otieno and Buyinza, 2010; Kantwi, 2001). These therefore pushed the local communities living adjacent the forest reserve out of them and outlawed their customary laws.

Initially in Uganda, the forests were state controlled through various agreements between the protectorate government under Britain and the native authorities as negotiated at the time. These included among others; Uganda Memorandum of Agreement (Forest) 1907 and the Forest Ordinance (1913) following, the Toro Agreement (1900), Ankole Agreement (1909) (Olet, 1977; Hamilton, 1984; Mupada, 1997). Olet (1977) added that by 1910 sound foundations had been laid and the way lay open for the creation and development of a permanent forest estate. There was much concentration on exploiting the forests, establishment of ornamental trees on a number of plantations and species trial projects between the periods of 1910 to 1929. All these agreements were quazi legal and without effective consultations with the local communities living adjacent the forest reserves, leave alone the exploitation by the FD at the expense of the natives. This therefore, became a point of conflict in natural resource management.

The 1929 forest policy, the first of its kind was crafted ostensibly, without consultations with the local communities engulfing the forest reserves. Many researchers summed up that the policy provided for sustainable management of the forests with an inclination on profitability given the capital invested in the project through afforestation of more land (Obua *et al.*, 1998; Mugenyi *et al.*, 2005; Olet, 1977). Olet 1977 continued to assert that through it, the Forestry Ordinance was reviewed empowering the governor to declare any area a forest reserve. Research plans for forest reserves were drawn up by colonialist. This projected to the independent Uganda where in 1968, the local government forest reserves were amalgamated with the central government forests. This exploitation by the few at the expense of the obstructed majority was merely laying grounds for opportunity of the latter to come.

The apparent overriding objective for the creation of forest reserves was to create a sufficiently forested estate that would cater for the country's forest products and service needs as reflected in the 1929 Forest Policy

(Mugenyi *et al.*, 2005). Permits, fees and licenses were therefore introduced to allow utilization of the resources apart from firewood and poles for domestic use given that forest boundaries had been identified, evidenced by marks on the ground with numbered posts or some other forms of boundary mark as they are currently. Traditional systems of resource management were to this effect criminalized and a more civilized body of state law was adopted. Worse still armed foresters carefully watched over the reserves (Mugenyi *et al.*, 2005; Kantwi, 2001; Hamilton, 1984). This in essence meant that the reserves which were in the communities' ancestral land became separate entities from them. But the colonialist could use them at will a bone of contention.

Subsequent policies such as 1948, 1970, 1988 and currently 2001 oscillated between environmental benefits and production of goods for economic benefit. Olet (1977) added that between 1930 and 1949 many areas were reserved; working plans for forest reserves were drawn up besides the 1968 Local Government Forest Reserves' amalgamation with the Central Government Forests. In these apparently no consultations were made to the local communities torching the forest reserves. The rigid forest management strategies were imposed by the colonial government which rubbished the Traditional African forest conservation strategies (Banana *et al.*, 2007). This seemingly was the origin of non-compliance leading to enforcement of forest polices on communities who prior had a mutual relationship with the biosphere in their proximity.

The Uganda Forestry in 2001 emphasized the following in connection to the management of Central Forest Reserves (CFR) in the country; the permanent forest estate under the government; profitable and productive forestry plantation business; Collaborative Forest Management (CFM) and water shed protection forests. It also indirectly impacts on CFRs through; the development and sustainable management of natural forests on private land and encouragement of tree-growing on farms (Republic of Uganda, 2001, 2002, 2003). A legal framework was attained by enacting the National Forestry and Tree Planting Act (NFTPA) 2003 to replace the Forest Act 1964 (Republic of Uganda, 2001; The Republic of Uganda, 2003). The act reviewed, the National Environment Statute in 1995, the Wildlife Statute in 1996, the Water Statute in 1995, the Local Government Act (1997), Land Act (1998) and others in order to harmonize them (Republic of Uganda, 2001). The policy emphasized a common management authority for the sectoral institutions concerned with the biodiversity conservation. Thus, National Forestry Authority (NFA) had to develop close links with NEMA, UWA, relevant

line ministries, NGOs/CBOs and the private sector (Republic of Uganda, 2001). This was ideal but in reality especially in the district forestry services there was a growing envy skewed towards NFA believed to be better financed hence, left to battle its own deforestation challenges alone.

Pre-colonial days is remembered with nostalgia given the symbiotic relationship which existed between the local communities with the natural resources in their proximity bound by unwritten policies. Basing on forests Bikaako-Kajura (2002) added that the communities living adjacent forests derived their supplementary subsistence needs besides being important cultural and spiritual site. NEMA (2008) asserted that the traditional system relied on a network of traditions and customs that regulated the use of natural resources hence, conservation in the then Uganda. The unwritten natural resource policies were effective in most developing countries thus sustainable forest resource utilization.

Many researchers agree that it was ostensibly clear that forest management in pre-colonial Uganda was communal and forests were used as an open access resource. People utilized them for wood and non-wood forest products. They were a cultural asset within a Kingdom, thus communally managed in the contest of the existing political and cultural institutions at the time (Bikaako-Kajura, 2002; Mugenyi *et al.*, 2005; Kamugisha-Ruhombe, 2007; NEMA, 2008). Besides that some elders through divinations also provided guidance on natural resource utilization and control. Above all to show the intricate relationship, some cultures viz., Banyoro, Baganda, Acholi and Akarimajong planted trees to mark the birth of a child (NEMA, 2008). This ascertained compliance with unwritten rules which were apparently legitimate compared to the current forest policy.

The issue of encroachment in Uganda dates back in the colonial times especially in 1951 where people attempted to go back to Mabira forest after eradication of mbwa flies (*Simalium damnosum*) making life attractive in the reserves. These could be envisaged in South Ankole (>100 people); East and West Mengo (245 people); Kadam CFR (400 people) and several others (Webster *et al.*, 2003). Despite all these Mugenyi *et al.* (2005) claimed that these illegalities were not serious problems before the 1960s. In the post independence Uganda it started during the politically turbulent 1970s and continued up to early 1990s (Kamugisha-Ruhombe, 2007; NEMA, 2001; Mugenyi *et al.*, 2005). Mupada (1997) added that the 1970 Forest Policy stressed timber production, harvesting and utilization and under played the conservation requirements and the need for participation of local

authorities. Thus given the anarchy that existed in the country by then encroachment was opened with some impunity.

In a bid to stamp out encroachment in the forest reserves the government crafted the 1988 Forest Policy. This policy stressed on forest conservation, research, agro-forestry and extension services (NEMA, 2001). Besides that NEMA (2001) also reported that in 1991, the government consequently evicted all encroachers from gazetted forests and cancelled all land titles issued for lands within the forest estates between 1971 and 1986. Most forest reserves were resurveyed, boundaries re-opened and demarcated (NEMA, 1998, 2001). Nsita (2006) claimed that after demarcations and evictions the NFA embarked on planting the formerly encroached land with indigenous species of trees. This echoed the planting of musizi tree species (*Maesopsi eminii*) on hitherto encroached cleared forest land of about 500 acres in West Mengo forests (Webster *et al.*, 2003). Many researchers agreed that competitive 2006 presidential elections thwarted this noble course and drew the country to the 1970s-1985 conditions (Nsangi, 2006; Nsita, 2006; Tenywa, 2007; De Temmerman, 2007; Natusiimira, 2007; Kamugisha-Ruhombe, 2007). The February 2006 Executive Order halting evictions led to spontaneous increase of the number of encroachers from 170,000 to >300,000 (Watasa, 2009). The researchers were out to:

- Establish factors leading to non-compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district
- Assess the local communities' attitude towards compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district
- Establish the local communities' possibilities of compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district

Description of the area of study: The case study forest reserve was gazetted and demarcated in Legal Notice No. 110 of 1938. Under Legal Notice No.41 of 1948 the title of the forest is South Busoga Central Forest Reserve (Leggat, 1954). It is currently under NFA with a total area of 16382 ha. It is absolutely situated on the Northern shores of L. Victoria between latitudes 0°16'59"N and longitudes 33°34'22"E (Davenport *et al.*, 1996). It is 51 km South East of Jinja town and 131 km South East of Kampala city. The target population comprised 8941 households in seven parishes torching SBCFR. These were in two sub-counties viz., Kityerera and Malongo sub-counties all in Bunya county, Mayuge district in Uganda.

The area has a bimodal type of rainfall which begins in March or April with peaks in May to June and October to November. From December to March the area experiences dry spell though occasionally irregular rains fall in the former months (Leggat, 1954; Davenport *et al.*, 1996). The natural vegetation conforms to the rainfall intensity thus decreases Eastwards and Southwards from Kityerera (Leggat, 1954). According to Davenport *et al.* (1996) the forest can be broadly classified as medium altitude moist semi-deciduous forest (Albizia-Chlorophora dominated) and moist Combretum savanna this is within an altitudinal range of 1140-1300 m above sea level. The lake shore vegetation in the reserve is of the papyrus swamp. The main species in the closed area were *Albizia markhamia* with *Chlorophora canarium*, *Croton macrostachys*, *Sapium*, *Premna*, *Pseudospondias*, over an under storey mainly of *Caetacme*, *Teclea* and *Clausena* over a dominantly *Aframomum* and *Cyathula achyranthoides*. Besides these between 1949 to 1941 Mvule (*Chlorophora excelsa*) and other valuable species were planted in 765 acres (Leggat, 1954). Most of this vegetation has been devegetated due to non-compliance with the forestry policy manifested in encroachments leaving behind tree stamps of the mentioned species, partly attributed to conflict of interest between both the enforcement officials and the local communities engulfing SBCFR, Mayuge district.

MATERIALS AND METHODS

This was a case study conducted through a cross-sectional survey research design. It was concerned with assessment of the local communities' compliance with the forestry policy at SBCFR, Mayuge district. Such issues are appropriately investigated using a cross-sectional survey research design. The design enabled the researchers to obtain information that described existing phenomena with respect to one or more variables (Mugenda and Mugenda, 2003). Given its nature as viewed by many researchers including the researchers used triangulation (Gay *et al.*, 2009; Bailey, 2007; Amin, 2005; Morse and Richards, 2002; Nachmias and Nachmias, 1987). A total of 344 respondents participate out of the expected 369 households. This number especially of the households was chosen in line with Krejcie's and Morgan's sampling size for research activities determination table (Amin, 2005). There was also triangulation of sampling techniques thus both probability and non-probability sampling techniques were concurrently used (Bailey, 2007; Amin, 2005). The

techniques applied were stratified sampling, snowballing, purposive sampling and convenience sampling techniques.

The researchers used; questionnaires, interviews, observation and document analysis as the main tools for collecting data. The researchers were mainly concerned with views, perceptions, opinions, attitudes and behaviors of the respondents. Such information could be best collected using the given tools (Bell, 1999; Cauvery *et al.*, 2007; Oso and Onen, 2005). The percentage distribution techniques was used to show the particular frequencies of respondents preferring a particular alternative to give the face value implications on non-compliance and enforcement problems of the policy on deforestation of SBCFR. Statistical Package for the Social Sciences Version 10 (SPSS) was used given the number of respondents and carrying out cross tabulations which cannot be done either manually or using Excel (Fisher, 2007; Fraenkel and Wallen, 2008). A Spearman correlation analysis was done to establish the relationship between the conservationists' and the local communities' perception on factors leading to non-compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district. A χ^2 -test on possibility of compliance through reporting was also used.

Attitude scales were used to measure attitudes, opinions and behaviors of respondents. This was applied mainly to objective three of this study which was to establish the community living adjacent to South Busoga Forest Reserves attitude and willingness to comply with the Uganda Forestry Policy, 2001. Thus, Likert and rating scales were used where the respondents were required to self report along a continuum of choices as expressed in the questionnaire. Likert scale was mainly used to the local communities and the politicians where positive attitudes were measured by Strongly Agreed (SA) = 5; Agreed (A) = 4; Undecided (U) = 3; Disagreed (D) = 2; Strongly Disagreed (SD) = 1. Thus, individual score was determined by adding the point values of all statements (Gay *et al.*, 2009).

RESULTS AND DISCUSSION

The respondents from the households engulfing SBCFR parishes were 60% male while 40% female. This could be attributed to the fact that they were from Busoga region dominated by Basoga culture which is patriarchal in nature. Thus male dominate in management of the households as shown in Table 1. These were distributed among the parishes torching the forest reserve as follows: Bubinge (5.8%), Bukalenzi (17.7%), Bukatabira

Table 1: Attributes of the households in the proximity of South Busoga Forest Reserve, Mayuge district in relation the forestry policy (n = 344)

Attributes	n	Percentage
Gender		
Male	207	60.0
Female	137	40.0
Education background		
No	30	8.7
Elementary	21	6.1
Primary	63	18.3
O Level	99	28.7
Post secondary	130	41.4
Family size/dependants		
0	52	16.6
1-5	119	37.9
6-10	92	29.3
11-15	36	11.5
16-20	25	8.0
>21	16	5.1
Parish of residence		
Bubinge	20	05.8
Bukalenzi	61	17.7
Bukatabira	64	18.6
Bwondha	50	14.5
Kityerera	47	13.7
Namadhi	41	11.9
Wandegeya	61	17.7
Occupation		
Peasants	88	25.5
Casual	14	4.1
Idle	21	6.1
NGO	14	4.1
Politicians	76	22.0
Self employed	59	17.1
Government employees	72	20.9
Source of policy awareness		
Radio	225	65.4
Newspapers	120	34.9
Conservationists	121	35.2
Television	58	16.9
Village Council Meetings	112	32.6
All the medias	28	8.1
Ignorant	37	10.8
Illegalities in SBCFR		
Settlement	180	52.3
Farming	249	72.4
Charcoal burning	218	63.4
Deforestation	74	50.6

(18.6%), Bwondha (14.5%), Kityerera (13.7%), Namadhi (11.9%) and Wandegeya (17.7%). Most of the respondents were within the active working age group hence, their active interaction with the forest reserve at their proximity.

The households' education level according to Table 1 showed >90% of them acquired basic education that is from elementary to post secondary level. Elementary and primary level which forms less than a quarter of the respondents are basically unskilled and at most semi skilled hence have limited choices of research due to lack of skills. Thus, need a lot of sensitization and enforcement so as to comply with stringent policies. At post primary levels who were 70.1%, there is more integration of skill training enabling individuals to make

sustainable choices depending on their abilities, interests, sensitization and enforcements. The post primary level included O Level, A level, Certificate Course, Diploma, Degrees and Post graduate courses. Surprisingly, with an 8.7% of shown as per Table 1 the households out weighed the national survey which had up to 20% of the population 15 years and above having no formal education. NEMA (2008) continued to assert that literate individuals are better equipped to participate in both personal and community development hence, more likely to play part in environmental decision making and to take advantage of opportunities for environmental justice. Given the circumstances at SBCFR, the literacy opportunity had not been exploited by all stakeholders in the forestry resource utilization portrayed by the dwindling of the resources.

Table 1 clearly shows that merely 16.6% of the households studied had no dependants while more than a third of them had at least 1-5 dependants. Surprisingly, almost half the respondents had >5 dependants. This was in concomitant to the fact the total fertility rate of Eastern Uganda region was 7.4 per woman which superseded the national of 6.9. Many researchers agree that in tropical countries population pressure has a significant correlation with deforestation as seen in illegalities viz., farming (72.4%), charcoal burning (63.4%), settlement (52.3%) and general deforestation (50.6%) in SBCFR as per Table 1 (Simon, 1981; De Blij, 1988; Whitmore and Sayer, 1994; Otieno and Buyinza, 2010). The illegalities were done despite the fact merely 10.8% of the households were ignorant of the forestry policy (Table 1). In contrast China the most populous nation globally presented a unique increase in forest cover from 8-12% between 1949 and 1984. The Chinese case presented a justification that there are other vital factors compared to population pressure, certainly de-legitimization of forestry policy.

Table 1 has it that slightly more than a quarter (25.5%) of the households were directly engaged in peasantry farming. More than a fifth (20.9%) of them were government employees, 6.1% were idle; 4.1% casual labours in various activities including farming while 22% were politicians. All these as per the interview and observation partly and fully participated in farming in the forest reserve. These further included self employed 17.1% and non-governmental organizations' employees 4.1%. The households' participation on farming whether by proxy or directly was a manifestation of the ill definition of property rights over the forest areas in Uganda hence most people treat them as open access commons. The disappearance of ungazetted forests country wide in Uganda attests to this notion and ostensibly extrapolated in CFRs exemplified with deforestation of SBCFR with impunity (NEMA, 1997; Bikaako-Kajura, 2002).

Table 2: Factors leading to non-compliance with the Uganda Forestry Policy 2001 among the households living adjacent to South Busoga Central Forest Reserve, Mayuge district (n = 344)

Factors	Local communities' views		
	Agreed	Undecided	Disagreed
The forest reserve has fertile soil compared to outside	261 (75.9%)	15 (04.4%)	68 (19.8%)
Settling in the forest reserve is reclamation of ancestral land	196 (57.0%)	55 (16.0%)	93 (27.0%)
Population pressure on land outside the reserve	241 (70.1%)	33 (09.6%)	70 (20.3%)
Poverty a driving force	245 (71.2%)	38 (11.0%)	61 (17.7%)
Reluctance of NFA officials leads to settlement	185 (53.8%)	50 (14.5%)	99 (28.8%)
Free access to the forest reserve	159 (46.2%)	58 (16.9%)	127(36.9%)
Forest officials exploit the forest resources at the expense of the local community	183 (53.2%)	62 (18.0%)	99 (28.8%)
The proximity of the forest reserve	232 (67.4%)	40 (11.6%)	72 (20.9%)
The forest land was arbitrarily gazetted	186 (54.1%)	55 (16.0%)	103 (30.0%)

Factors leading to non-compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district:

Non-compliance with the Uganda forestry policy, 2001 at SBCFR, Mayuge district was manifested in the following aspects referred to as illegalities in the forest reserve; farming, settlement, cutting trees, saw milling, bricks making, cultivating opium and charcoal burning. These were done with impunity causing; bodily harm to NFA officials, neglect of enforcement of the policy, conflict with NFA officials and abuse of office by NFA officials who carried them by either proxy or boldly. Non-compliance was attributed to factors exhibited on Table 2 according to the local communities engulfing SBCFR, Mayuge district.

Results in Table 2 shows that there was an overwhelming (75.9%) acceptance that the forest reserve had fertile soils compared to land outside the forest. This was in line with the occupation of most the household respondents torching the forest reserve viz., peasants 25.5%; politicians 22.0%; government employees 20.9%; self employed 17.1%; these indirectly or directly engaged observably in crop farming which needed fertile soils. Through observation farming was evident in SBCFR, Mayuge district, at about 300 m away from the NFA headquarters at Kityerera sub-county. Therefore, this served as a testimony for the de-legitimation of the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district. Davenport *et al.* (1996) observed the same claiming that the forest reserve was engulfed by heavily populated agricultural land to both the North and East. The crops grown mainly were maize, beans, potatoes, cassava and other annual crops. This had become a point of conflict of interest between the foresters who would wish to conserve the SBCFR with the peasantry community living adjacent the reserve with a hope of sharing the forest land.

Table 2 also shows that poverty was perceived by the majority (71.2%) of local community respondents as a driving force to non-compliance. Very close to poverty was population pressure on land outside the forest reserve (70.1%). Through interviews, it was clear that many of the respondents lived below poverty line and 83.4% had dependants ranging from 1 to over 21 (Table 1). A testimony to this was the make shift shelters established in the forest reserve near Nakalyango a supposedly trading centre in the forest reserve. Through observation from these make shifts, it was clear that poverty was a reality for despite the aeration some of them were accommodating a family of six people viz., a husband and wife plus four children. In the proximity of the homesteads, the following would be visible, tree stamps, charcoal kilns and gardens. Man is generally a resource utilizing animal and therefore cannot stay without encroaching the resources loosely administered within his or her proximity where the policy was de-legitimised. Besides, the national forest plan also acknowledges that it is often the poorest that depend most critically on forest resources for their well-being and survival in the absence of other livelihood assets and opportunities (Republic of Uganda, 2002; Otieno and Buyinza, 2010). There is thus a postulation of a casual link between poverty and environmental degradation as seen in forest reserves.

In the context of agrarian technology as experiences in the rural Uganda, population increase and dependency syndrome leads to landlessness or pressure on land (Otieno and Buyinza, 2010). This was backed by more than half the respondents (53.9%) as in Table 2, claiming to have 6 to >21 dependants and generally poor. This therefore made political utterances an impetus to engagement in illegal activities in the forest reserve. Contradictorily, China despite the constant population increase had forested land area changed from 8-12% in 1949 and 1984, respectively (Agrawal, 2007). Thus, other factors stand on population's way to engage in non-compliance activities.

Results from Table 2 portray that more than two thirds (67.4%) of the households living adjacent to SBCFR claimed that non-compliance with the forestry policy was attributed to the proximity of the forest reserve. Some of the NFA officials interviewed claimed that most of the occupants within the forests reserve were foreigners to the area and more so wrong doers from other places who had opted for Moslem names. This view of the NFA officials were also shared by many of the interviewed settlers in the forest reserve who claim that most of their compatriots impersonated their identity in unique names not known in their places of origin. They also agreed that

majority of them were wanted criminals from outside the forest reserve. Kenyans and other people from outside Busoga region seasonally came into cultivate food crops (Siminyu, 2009). This therefore dispelled the aspect of proximity as a major factor compelling non-compliance at SBCFR.

There was a claim by more than half (57%) of the households that settling in the forest reserve was reclamation of ancestral land (Table 2). Through interview it was clear that this place was depopulated as a result of sleeping sickness epidemic. Thus, the colonial government arbitrarily gazetted it as forest reserve. Webster *et al.* (2003) specified that the epidemic took place in 1901-09. This therefore led to the formation of ittakalyange pressure group; presumed land lords of the area led by Iddi Mwondha who were renting out or selling parcels of the forest estate with moderate impunity. This became a basis through which non-compliance with the policy was taken with impunity as seen in other forest reserves such as WBFR (Otieno, 2003).

The households engulfing SBCFR claimed that arbitrary gazettement of the forest reserve was instrumental to non-compliance to the policy (54.1%) according to Table 2. This was dispelled by more than half of the lead agencies interviewed. The local communities' position was correct for ostensibly, no record shows that their relatives were consulted in either gazettement of the forest reserves or forestry policy making. The various sectorial laws covering wildlife, forestry, fisheries and the next, during the colonial times referred to as ordinances were a direct replica of the English law covering similar sectors in Britain (Tunushabe and Bainomugisha, 2004). Thus, nobody in Uganda was consulted and yet the independent Uganda adopted all colonial activities. Hence, the arbitrary gazettement claims by the local communities torching SBCFR.

Reluctance of the NFA officials leading to settlement in the forest reserve was noted by 53.8% of the respondents (Table 2). This was opposed by more than half of the Lead Agencies interviewed and yet at the same time these agencies claimed that no effective policing of the forest reserve was being done by the same rating. Few of the Lead Agencies claimed that there was frequent sensitization of the local communities living adjacent SBCFR. All these combined to expose the reluctance of the NFA officials leading to non-compliance.

Results in Table 2 explicitly show that more than half the community living adjacent to SBCFR (53.2%) claimed that forest officials exploited the forest resources at the expense of the local community. This view was not a direct activity as statistics showed and could be by proxy. The same view was held by the local communities

surrounding WBFR (Otieno, 2003). It was revealed that they participate in felling trees for timber (51.5%); cultivating crops (39%) and charcoal burning (35.8%). Thus though minimum the locals could not spare them exploit at their expense hence de-legitimization of the policy at SBCFR. This selective exploitation at the expense of the local communities dates back to the Kitumbezi (Uganda) Estates which extensively fell the Mvule trees from 1927 to 1936 in the North West portion of SBCFR. Besides the said company, Buchanan's Busoga Saw-mills also carried out Mvule felling operations in the area from 1934 to 1941 (Leggat, 1954). All these were done at the expense of the silent majority waiting for their turn to come. Thus selective exploitation had persisted for long ostensibly passed to generation through stories as time went on yet reclamation of the land has always been in the offing.

Almost half (46.2%) the household respondents according to Table 2 claimed that non-compliance was attributed to free access to the forest reserve. This had a direct connection to an apparent reluctance of the NFA officials as earlier mentioned; improper demarcation of the forest reserve especially using the demarcation stones and jathrupus spices; proximity and political calls. The local communities in the neighbourhood of SBCFR had defaced the boundaries of the forest estate by destroying cairns, removing beacons, destroying sign plates and planting crops along the boundaries. This was done with a hope that the president was giving them the land any time from the 2006 presidential elections. All these combined to make SBCFR both a free entry and exit. Therefore, the situations in this forest reserve depicted non-compliance with the Uganda Forestry Policy, 2001.

Table 3 through tabulations shows that $r = 0.83$. This value lay on a ($>0.65 < 0.85$) segment of the strength of a correlation, manifesting a high/strong correlation at a 0.05 level of significance (Mugenda and Mugenda, 2003; Fraenkel and Wallen, 2008). It could therefore, be concluded that there was a high/strong relationship between the local communities' perceptions and conservationists' perception on the factors leading to non-compliance with the Forestry policy at SBCFR, Mayuge district.

Local communities' attitude towards compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district:

In testing the attitude of the local communities towards the Uganda Forestry Policy, 2001, a Likert scale was used as an attitude scale. Most researchers perceived the Likert scale as the most preferable summated scale given the situation (Nachmias and Nachmias, 1987; Kumar, 2010; Kothari, 2004; Gay *et al.*, 2009). This scale was scored by assigning weights for response

Table 3: A Spearman rank correlation of the perception of local communities and conservationists on factors leading to non-compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district

The Local communities' perceptions (n = 344)			Conservationists' perceptions (n = 31)				
Factors	Values	Rank	Factors	Values	Rank	d	d ²
Fertile soils	261	1	Fertile soils	24	1.0	0	0
Land reclamation	196	5	Land reclamation	10	6.0	-1	1
Population pressure	241	3	Population pressure	20	3.0	0	0
Poverty	245	2	Poverty	22	2.0	0	0
NFA's reluctance	185	7	NFA's reluctance	07	7.0	0	0
Free access	159	9	Free Access	06	8.5	-0.5	0.25
Gov't benefiting alone	183	8	Gov't benefiting alone	15	4.0	4	16
Proximity	232	4	Proximity	12	5.0	-1	1
Arbitrary gazettement	186	6	Arbitrary gazettement	06	8.5	-1.5	2.25
$\sum d^2$ 20.5							

Table 4: Attitude of the local community living adjacent to SBCFR towards compliance with the Uganda Forestry Policy, 2001 (n = 344)

Variable/Question	Local communities' attitude			Attitude index
	Response	Percentage	Computation of the check	
Are you people living around the forest reserve willing to comply with the Forestry Policy 2001 so as to conserve the SBCFR?				
Very much willing	61	17.7	61×5	305
Much willing	80	23.3	80×4	320
Neutral	64	18.6	64×3	192
Unwilling	79	23.0	79×2	158
Very much unwilling	60	17.4	60×1	60
Are you people living around the forest reserve willing to stop illegal activities in SBCFR?				
Very much willing	54	15.7	54×5	270
Much willing	90	26.2	90×4	360
Neutral	63	18.3	63×3	189
Unwilling	68	19.8	68×2	136
Very much unwilling	69	20.1	69×1	69
Are you people living around the forest reserve unwilling to work with NFA officials so as to conserve SBCFR?				
Very much willing	56	16.3	56×1	56
Much willing	86	25.0	86×2	172
Neutral	47	13.7	47×3	141
Unwilling	93	27.0	93×4	372
Very much unwilling	45	13.1	45×5	225

Modified from Otieno *et al.* (2012). Compliance and enforcement of environmental policies in Uganda: Perspectives from South Busoga Forest Reserve

alternatives to positive questions as follows; very much willing-5, willing-4, neutral-3, unwilling-2 and very much unwilling-1. The weights were reversed for a negative question (Nachmias and Nachmias, 1987; Gay *et al.*, 2009). A total score was for each respondent was calculated by summing the value of each item checked as in Table 4.

Results in Table 4 show that at an attitude index of 305 the local communities engulfing SBCFR were very much willing to comply with the forestry policy. Besides that they were somewhat willing to comply at an attitude index of 320. In comparison, they negated at below neutrality attitude index of 192 thus unwilling at 158 and very much unwilling at 60. This therefore was indicative of an overall local communities' positive attitude towards compliance with the forestry policy at SBCFR, Mayuge district (Gay *et al.*, 2009). Apparently, this willingness was thwarted by political incitements aimed at coalescing votes hence the practical non-compliance exhibited at SBCFR. It could also be deduced that non-compliance

was intentional given the positivity vested in the local communities' living adjacent SBCFR's attitude towards the Forestry Policy.

Table 4 clearly shows that the local communities in the neighbourhood of SBCFR were somewhat willing to stop illegalities at an attitude index of 360. They were very much willing to stop illegalities at an attitude index of 270. These showed a partial voluntary compliance given the fact that most of them (65.4%) had heard of the policy over the radio (Table 1). In comparison, they negated at below neutrality attitude index of 189 thus unwilling at 136 and very much unwilling at 69. This therefore was indicative of an overall local communities' positive attitude towards stopping illegalities at SBCFR, Mayuge district (Gay *et al.*, 2009).

Table 4 shows the soar relationship between the local communities and NFA officials where somehow at an attitude index of 372 the former were unwilling to research with the latter, so as to conserve SBCFR, Mayuge district.

At the same time it was clear that the attitude of the local communities at SBCFR's neighbourhood was very much negative at 225. Despite this somehow the local communities in proximity of SBCFR, Mayuge district were willing to collaboratively research with NFA officials at 172 which was more than the neutrality attitude index of 141 and very much willing at 56. This attitude negates the much cherished CFM where stakeholders research in partnership for the conservation of forest reserve at their proximity (Otieno, 2003; Otieno and Buyinza, 2010).

Local communities' possibilities of compliance with the Uganda Forestry Policy, 2001 at SBCFR, Mayuge district: The current trend in natural resource conservation is involvement of the communities' living adjacent the protected areas through; partnership, co-management, CFM, privatisation and community based management (Otieno, 2003; Otieno and Buyinza, 2010). Therefore to that effect the community living in the neighbourhood of SBCFR, Mayuge district was shown as in Table 5.

Table 5 shows clearly that more than two thirds of households' respondents (71.5%) believed that individual concern with conservation of forest reserve was a possibility for compliance with the Uganda Forestry Policy at SBCFR. The interviewed Lead Agencies view was also almost two thirds of their numbers in agreement with this aspect. Compliance is behavioral and should lead to real changes in individual's behaviour. According to Enger and Smith (1995) environmental ethic must begin to express itself not only in national laws but also in subtle but profound changes in the ways people live daily. Thus, its acknowledgement by both the households and lead agencies was a panacea towards compliance slightly.

Table 5 further show that more than half (50.3%) of the households' respondents contended that self reporting of encroachers/violators of forestry policy would be a positive aspect towards compliance with the 2001 forestry policy at SBCFR. This drew slightly more than two thirds of the lead agencies' responses in interviews on this aspect. Self reporting could substitute government monitoring efforts thus reduce enforcement costs without deterrence. Cohen (1999) added that the magnitude of any penalty received had to depend on whether the violation was reported voluntarily or if government enforcement authorities discovered it when no self-report was made. If the latter, the penalty is considerably higher. Many environmental laws have adopted it but lacks on Ugandan law. The research revealed that the local community living adjacent the forest reserve were willing to accommodate it.

Table 5: Possibility of local communities' compliance with the Uganda Forestry Policy 2001 at South Busoga Central Forest Reserve, Mayuge district (N = 344)

Aspects	Response of the households	
	True	False
Individual concern with conservation of forest SBCFR	246 (71.5%)	98 (28.5%)
Self reporting of encroachers/violators of forest policy	173 (50.3%)	171 (49.7%)
Criminalising failure to report and submitting false report	189 (54.9%)	155 (45.1%)
Rewarding self reporting by leniency in treatment	164 (47.7%)	180 (52.3%)

Table 6: Summary of chi square statistic value of the possibility of local communities' compliance with the Uganda Forestry Policy 2001 at South Busoga Central Forest Reserve, Mayuge district (N = 344)

Aspects	The local communities' responses			
	Observed	Expected	χ^2 -calculated	χ^2 -tabulated
Individual concern	246	344	27.9	9.21
Self reporting	173	3.44	85.0	9.21
Criminalising failure to report and submission of false report	189	344	69.8	9.21
Lenient treatment of self reporting	164	344	94.2	9.21

df = 2 at 0.01 = 9.210

Results on Table 5 show that many of the households' respondents (54.9%) positively responded to criminalisation of failure to report and submission of false report to authorities. This idea was highly applauded by the lead agencies' interviewed. When reporting is properly managed then failure to report and submitting a false report would tantamount to imprisonment (Cohen, 1999). Ironically, the carrot and stick approach was certainly not understood by the local community for they falsified the carrot which was rewarding self reporting by leniency in treatment by almost equivalent response on criminalization (52.3%) (Table 5). On the part of the lead agencies it yielded high positive responses. Thus positive for it reduces enforcement costs.

From Table 6, it was clear that leniency in treatment of self reporting was the most insignificant possible aspect of compliance amongst the local communities living adjacent SBCFR at (94.2>9.21 df = 2 at 0.01). This explained why self reporting was even worse compared to criminalizing failure to report and submission of false report as per the table. Individual concern was fair but statistically insignificant at (94.2>9.21 df = 2 at 0.01). Thus using chi square statistic value it was clear that none of the aspects was statistically possible in the compliance with the forestry policy at (df = 2 at 0.01 = 9.210) at SBCFR, Mayuge district (Table 6).

CONCLUSION

There was a strong correlation between the perceptions of both local communities and conservationists on factors favouring non-compliance at $r = 83$ which was at ($>0.65 < 0.85$) segment of the strength of correlation at a 0.05 level of significance. Thus soil fertility in SBCFR, poverty and population pressure were the main driving forces to SBCFR, Mayuge district. The local communities living adjacent SBCFR was positive about compliance at an attitude index of 305 of very much willing and 320 somewhat willing to comply. They were also somewhat willing to stop illegalities at an attitude index of 360 and were very much willing to stop illegalities at an attitude index of 270. But surprisingly, displayed a soar relationship between them and NFA officials where somehow at an attitude index of 372 the former were unwilling to research with the latter, so as to conserve SBCFR, Mayuge district. Therefore, it could be deduced that non-compliance was intentional given the positivity vested in the local communities' living adjacent SBCFR's attitude towards the Forestry Policy. Using Chi-square statistic value it was clear that none of the aspects viz., Individual concern at ($\chi^2 = 27.9$); self reporting at ($\chi^2 = 85.0$); criminalising failure to report and submission of false report at ($\chi^2 = 69.8$) and lenient treatment of self reporting at ($\chi^2 = 94.2$) was statistically possible in the compliance with the forestry policy at ($df = 2$ at $0.01 = 9.210$) at SBCFR, Mayuge district.

RECOMMENDATIONS

The local community should adopt family planning practices aimed at having manageable dependants; avoid or stop teenage pregnancies, elevate the status of women through empowerment and short child spacing as a means of slowing rapid population growth and improving family well being (Muthoka *et al.*, 1998). NEMA (2008) added that encouraging population movement from where there is high pressure to low pressure. The movement could be effective when income diversification, employment and education opportunities elsewhere form an incentive. This would consequently relieve pressure on the forest reserve.

Trees such as *Tithonia*, *Calliandra* and *Leucaena* whose litter are of a low carbon to nitrogen ratio (C:N) decompose rapidly and is commonly considered to be of high quality especially for short lived crops should be inter-cropped with food crops in agro-forestry. This would lead to soil fertility improvement thus divert the local communities' attention from the apparently fertile forest estate in their neighbourhood. Due to their ease to

decompose, they are applied directly to the field without composting. This could be done through cut and carry practice referred to as biomass transfer.

To further improve on soil fertility biological nitrogen fixation can be done by the following species of trees through agro forestry *Acacia albida*, *Acacia senegal*, *Albizia falcataria*, *Calliandra calothyrsas*, *Mimosa scabrella* and *Sesbania grandiflora* (Tenywa and Lufaafa, 2007). This would divert the attention of the local communities on the fertility of the forest reserve as their preconceived claim and a pull to the reserve. This would consequently alleviate poverty amongst the local communities engulfing the forest reserve, given the soil fertility.

The local communities' willingness to comply with the Forestry Policy, 2001; stop illegalities and collaboratively research with the NFA so as to conserve SBCFR should manifest in the following; self reporting of encroachers or violators of forestry policy; criminalization of failure to report and submission of false report on the forestry; rewarding self-reporting by leniency in treatment of the reporters and above all individual concern with conservation of forest reserve.

The local community torching the forest reserve should organize themselves so as to induce NFA into a Collaborative Forest Management as per the Forestry Policy, 2001. This consequently would mean taking decisions; sharing on interests if any; reforesting the open spaces in the forest reserve; policing the forest reserve adequately; participatory monitoring and the next. This would therefore mean compliance with the Forestry Policy, 2001.

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