AGRARIAN COMMUNITY WETLAND RESOURCES AS TRIGGERS OF INTERMITTENT INTERACTION CONFLICTS IN THE BALI NYONGA BASIN OF THE WESTERN HIGHLANDS OF CAMEROON

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ABSTRACT

This study surveys the geographical basis and trends of agrarian community conflicts typical of the Bali Nyonga community stakeholders' quest for spatio-temporal agrarian resource disparity that creates rivalry between the crop and cattle farmers within this Grassfield bastion with a distinct intensity of cropping and cattle rearing. Apposite wetland hydrography and rangeland pasture epitomize the quintessence human and cattle attraction in a basin relief unit where wet and dry seasons alternate producing spring-boards of seasonal agrarian migrants whose wellbeing targets clash in historicity of community quest for scarce resource survival.

This study identifies the seeds of this farmer-grazier misapprehensions in Bali as concealed in a history of intriguing political, socio-cultural, geographical, natural, economic and demographic pressure bound in traditional livestock raising and crop cultivation, the absence of paddocks, the mindset of crop farmers and graziers, the weaknesses of land tenure institutions, disrespect of transhumance laws and inadequacy of the legal framework. The results of this study reveal that the expansion of human and cattle population adversely heightened pressure on geographical resources thereby ushering in conflicts during the dry season transhumance. Signature of these conflicts take the form of petitions and recourse to the administration, violence and breakdown of communal solidarity, destruction of houses, loss of lives, displacement of population, devastation of crop and livestock.

KEY WORDS: Bali, cattle, crops, farmer-grazier conflicts, Fulani, resources, transhumance
INTRODUCTION

The issue of conflict is not new as conflicts of various natures have been witnessed in certain parts of Cameroon and the world at large. These conflicts have generally been over land and its resources. Conflicts in Cameroon are rife in certain regions with disturbing fallouts (Dze-Ngwa, 2011). The North West Region of Cameroon has an archetypical citadel of inter-tribal and farmer-grazier conflicts (Ngwa, 1981). Hard toll conflicts within recent times have been mainly tribal boundary hatched like the Oku-Mbessa, Balikumbat-Bambalang, Bambili-Kedjom Keku, Bambui-Finge, Bambili-Kedjom Ketingu and the Balikumbat-Bafanji land conflicts (Lambi, et al., 2008). These are diametrically different from the agricultural resources-quest engendered conflicts between different stakeholders in their shrewd grit for community survival that are recurrent in Bali Nyonga.

This study considers only farmer/grazier conflicts that are incompatibilities, clashes, disagreements or confrontations of interest between the farmers and graziers over the utilization of land which has multiple functions and is used for grazing, cultivation of crops, for settlement, construction of roads, source of mineral resources and water among other uses. The focus of study is Bali Sub-Division stretching to the 1970s examining the occurrence, manifestations and ramifications of the conflicts on Bali that is found in Mezam Division between longitudes 9°40’E and 10°50’E and latitudes 5°50’N to 6°10’N of the Equator covering a surface area of 240 km² with a population density of 125 persons per km² (Fig. 1). This study area is beset by farmer-grazier conflicts dating back to late 1970s as recorded in Koppin, Wosing, Ngwandikang, Ngwatkan, Beisen, Bawock, Mbeluh, Mbufung and Koplab. These are key area of trespassing and encroachment by one party into the zone of the other between Fulani herders and local crop cultivators.

THE RESEARCH METHODOLOGY

This study was carried out in a historical approach of field investigation and observation over a period of thirty years. Direct field observation for primary data went across all the villages of the community using a systematic multi-sectoral approach involving all stakeholders and ethnic groups. Secondary data was obtained from Sub-Divisional Delegations for Agriculture and Livestock Rearing. Annual records and reports were consulted. Data collection involved secondary and primary sources to trace the origins of farmer-grazier problems in Bali, its evolutions, manifestations, impact. For primary sources, data was collected from archival materials (National Archives Buea, Regional Archives Bamenda, and the Bali-Sub-Divisional Council Archives) and valuable and resourceful informants (some selected local authorities, traditional rulers, Ardos, statesmen, Administrative officers, notables, farmers, graziers, and heads of households and Directors of NGOs) were interviewed.

RESULTS AND DISCUSSION

The zone specificities of agrarian system resource abundance in Bali

There is an unequal distribution of agrarian wetland resources in Bali and its environs which make the study area a milieu par excellence for extensive mixed semi-subsistence farming where cropping and cattle rearing thrive in close to the same conditions.

Bali is sited at the south west foot of the Western Highlands, on the foothills of the Bamboutous Plateau in the north east around Mbu-Baba highlands. The Bamenda escarpment slopes down to Bali as a cliff between Naka and Nsongwa. Bali then continues as an undulating ground which gives it a basin-like nature. From Mantum to Kufom and Mbeluh in the North East it is low-lying and this continues south-westwards into Momo Division. The main hills are the Olulu, Koppin Mbutu, Mbluh, Kubat, and the Fukang (also called Matterhorn) hills. Between the streams are broad valleys and lowlands that stretch from Mantum
to the Baforchu (Mbu) highlands, and extend to the foothills Olulu, to Bawock and to the the fertile farmland valley of Mbufung. These topographies carpeted by savanna pastures that offer excellent grazing parklands for cattle that often infringe into farmland and vice versa leading to conflicts.

For agrarian hydrological resources, Bali has many streams of various sizes and the surrounding highlands are watershed from where the Nakaa stream takes rise from the Mbutu hills in the North East to flow to the North West. The Matua stream (Ntsi Matua) flows from the Baforchu hills to the North West as Tob stream and then to Mbengwi to form the River Abi River. South of Bali streams take their rise from the Pinyin hills like Ntsi Mbeluh, Ntsi Mbufung and Ntsi Kubat and serve as drinking points for cattle.

Adapted from 2005 monographic study of Bali Rural Council, Babila (2013), Fieldwork 2014

Figure 1: Map of layout of Bali
The climate of Bali is a humid tropical zone with highland equatorial climate whose rainfall ranges between 2,000 – 3,000 mm. The south west monsoon winds bring rains from mid-March to mid-November. From 1978 to 1986 the maximum rainfall was in June, July, August and September. This climatic condition is favourable for the growth of food crops such as cocoyams, groundnuts, cassava, beans, sweat potatoes, yams, and maize that is the stable food cultivated twice a year from July to February and April to June. These cropping takes place in the plains and accounts for farmer-grazier conflicts especially during transhumance. The climate permits luxuriant fodder growth thereby attracting Fulani cattle rearers into this tsetse fly free area.

This region has a sudano-savanna being part of the Grassfield has dense and tall grass but greatly degraded into secondary vegetation owing to the activities of man and animals. The valleys and depressions are covered by gallery forests, raffia palms and very tall elephant grass. The interior of valleys serve as favourable grounds for vegetables, fruits and other market gardening crops and during the dry seasons, it serves as grazing land owing to the scarcity of pasture. This triggers conflicts in the dry seasons when graziers descend to valleys for pasturage leading to open clashes with farmers when farms with crops are devastated by cattle (Lambi, 2001; Lambi, et al. 2008)

Bali has volcanic soils which enabled it to sustain a two-season cultivation of crops. The black and brown soils are weathered from ancient basalt. The flood plains of some streams and rivers have alluvial deposited along the Naka, Mbufung and Mutua streams that are used for growing two-season maize. The upper slopes are bare and rocky landscapes that are grazing land for cattle. When farmers cultivate in patches of fertile land near to these grazing areas leads to conflict with graziers.

Germs of farmer-grazier conflicts in the Bali agrarian community landscape

The historicity of the demographic mobility of the Bali tribes settles on the fact that it was under the reign of Fonyonga II (1901 - 1940) that the Fulani, Hausas and Aku cattle rearers arrived in Bali (Awasom, 1984). The Fulani were of two groups, namely, the Fulbe (sedentary Fulani) and Mbororos (nomadic or semi-nomadic pastoralists) also called the Jafun and Aku. Societal interactions remained harmonious till under Galega II (1940 -1985) that farmer - grazier crisis exacerbated when Fulanis were accepted and accorded grazing land. These Aku entered Bali from Northern Nigeria and Mankon attracted by the savannas pasture so settled in the hilly slopes and marginal lands at Wosing, Beisen and Ngwandikang starting in 1953. Some settled at Koppin, Bossa, Jangman, Kunjah or Koplab, Mbufung, Mbeluh, Ngwatkan, Kubat and Kopndeng which constitute the main farmer-grazier conflict zones in Bali.

The Fulani population eventually expanded into a distinct socio-cultural entity of five hundred people under a recognized leadership of an Ardo (or chief) of the Koppin grazing area. The human population growth was simultaneous with that of their livestock implying more grazing and cropping land. Confrontation with farmers occurred whenever they trespass grazing land limits and vice versa reaching worrying proportions in the 1970s.

The Hausa settlers on the other hand arrived from Mendankwe to be settled at Joh Wo’o in Njenka Quarters. There was greater influx from Mankon and Northern Nigeria in the 1930s, 40s and 50s. Joh Wo’o residence thus became small so their Hausa leader requested and was the land today known as Njenka-Hausa Quarters while pasture land was accorded them at Beisen and Ngwandikang. The Hausa cattle breeders and indigenous farmers cordial co-existence was breached by the eventual expansion of human and cattle being an avenue for conflicts of occasional trespassing by graziers into farmland while farmers encroached into grazing land.
There is a compendium of anthropic and natural seeds sown in the history and land use transformations of Bali that underlie the agrarian conflicts in Bali set in place by the complex relationship between human and cattle numbers (Fig. 2).

Adapted from 2005 monographic study of Bali Rural Council, Babila (2013), Fieldwork 2014

**Figure 2: Map of agro-pastoral land use of Bali**

Their respective quests for the Bali basin wetland resources are typical of North West Region (Lambi & Balgha, 2010). Demographic pressure from the burgeoning human and cattle population over time is certainly a pivotal factor in the crisis backlog in Bali (Table 1)

**Table 1: Expansion of Bali human and cattle population from 1930 to 2010**

<table>
<thead>
<tr>
<th>Year</th>
<th>Human population</th>
<th>Cattle population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>15,128</td>
<td>800</td>
</tr>
<tr>
<td>1940</td>
<td>17,900</td>
<td>930</td>
</tr>
<tr>
<td>1950</td>
<td>19,160</td>
<td>982</td>
</tr>
<tr>
<td>1960</td>
<td>21,440</td>
<td>1,290</td>
</tr>
<tr>
<td>1970</td>
<td>24,440</td>
<td>1,622</td>
</tr>
<tr>
<td>1980</td>
<td>31,806</td>
<td>2,148</td>
</tr>
<tr>
<td>1990</td>
<td>39,912</td>
<td>2,682</td>
</tr>
<tr>
<td>2000</td>
<td>45,000</td>
<td>3,800</td>
</tr>
<tr>
<td>2009</td>
<td>50,000 +</td>
<td>4,700</td>
</tr>
<tr>
<td>2010</td>
<td>51,000 +</td>
<td>5,000 +</td>
</tr>
</tbody>
</table>

*Source: Bali Rural Council Department of Statistics and National Accounts*
This upsurge in population created competition for land and its resources between the farmers and the Fulani herders. Stemming from natural increase and the influx of civil servants and other in-migrants from neighbouring villages the enlarging population exhausted the soil through intensive subsistent cultivation. Grazing allotted graziers on the outskirts witnessed encroaching crop farms, sometimes with constructing farm houses. In such areas cattle occasionally penetrated into the new and old farmlands especially where overgrazing of demarcated lands had caused pastures degradation which and so left to regenerate. This degenerated into farmer-grazier confrontation not only between Fulani, Hausas and local farmers, but also some Bali indigenous stock raisers sought to diversify their sources of income, improve on their socio-economic status in Mbufung, Koppin and Bali-Beisen. The Bororo cattle rearers evaluate their wealth, prosperity and prestige in the community as function of number of cows owned and so hesitate to sell more than five cows at once. This problematic of crop and cattle trespassing by crop farmers and graziers attain their peak during the dry season months (November, December, January and February) when scarcity of pasture also reach their peak with no clear-cut demarcation between farming and grazing land. Most crop farms are adjacent grazing lands and do not possess solid hedges or fences. The breeders of small ruminants (goats, sheep and pigs) had conflicts with farmers because their animals fed on maize stalks and cassava leaves. Between 1986 and 1990 the ruminants in Beisen and Bawock were 3800 and damage crops worth 1,436,000 FCFA. Localities like Kunja, Nandeng and Top are such areas of juxtaposed grazing and arable land.

The second germ is the incompatibility of the subsistent shifting cultivation farming method with pastoral nomadism practices of pastoralist herders. In many cropping areas of Bali, land is cultivated until exhaustion and when crop yields fall, farmers abandon the farmland to regain fertility and shifts to another area. In this system, vegetation and soil burning contributed to soil exhaustion. This pushes farmers into previously demarcated grazing lands like in Beisen, Ngwandikang and Koppin. Equally, the lifestyle and pastoral nomadism rearing system practiced by the Fulani has been a contributing factor to the farmer-grazer confrontations. The Mbororo carry out extensive herding involving constant or occasional movement of herds of cattle by the breeders in search of pasturage and water resources. Graziers and farmers collision occur when animals are in transit or on the dry seasons transhumance. The Fulani herders are conservative and resistant to change or innovations just like the crop farmers and so the conflicts often recorded at Top, Nandeng, Kopndeng, Mbeluh, Mbufung, Beisen, Kubad and Worsing. The Fulani bush burning in the dry seasons to regenerate pastures for their cattle in Koppin, Mbeluh, Ngwandikang, and Bali-Ngemba were often ill-controlled and so ravaged crops and farm houses. Such damages between 1980 and 1985 were over 14,989,000 FCFA involving food crops such as maize, cassava and groundnuts. Besides uncontrolled slash and burn farming fires wrecked grazing lands and cattle fences at Koppin, Beisen, Ngwandikang and other zones of mixed farming.

The third germ is the absence of solid paddocks or stock pens to ensure proper confinement of cattle in their pen to check the straying of cattle at night. The pens are poorly constructed, fall off or are burnt down by bush fires and in some cases cattle are not corralled so break through them and devastate farms in Mbufung, Mbeluh, Koppin, and Bossa. In 1986, crop damage from this was estimated at 11,825,000 FCFA with the greatest ruin in Koppin, Mbeluh, Mbufung where cattle-proof fences erected by crop farmers were vandalized by herdsmen. Some cattle-proof fences are of small sticks, raffia and Indian bamboos tied with ropes from raffia bamboos or barbed wires or simply nailed to confine cattle. Some crop farmers infringe into grazing land and plant permanent and temporary crops like plantains, pears, mangoes, yams and maize. The dearth of cattle bathing and drinking points in pasture land instigated cattle to wander for drinkable water the many valleys and streams in the dry seasons. In this downstream movement the hungry and thirsty cattle break into farmland. In such a situation, most farmers attacked the cattle using knives, spears, cutlasses and guns whenever crops were damaged as at Wosing and Kopndeng in 2010.
The fourth germ of agrarian conflicts in Bali was the advent of commercial crops as a strategy to diversifying the colonial agriculture from subsistence to revenue earning crops and the building of large herds by Fulani and indigenous populations. Two species of coffee (robusta and Arabica) were introduced in 1928 and early 1930s providing new patterns of individual enterprise and capital accumulation. Income from the sale of coffee accrued to the farmer as an individual and lineage. Coffee production was lucrative and earned more revenues to farmers than food crops such as beans, cassava, yams, maize, cocoyams and plantains. From the 1930s to the 1980s some farmers started paying less attention to food crops cultivation in favour of the cultivation of coffee. Many males were thrilled by coffee income and invaded compound farmland with coffee in Ti, Sang, Chiaboh, Bossa, Beisen and Tikali and far off virgin land at Beisen, Koplab, Top, Kopndeng and Bossa. This innovation thus caused major land use changes as observed by Lambi and Balgah (2010). The ensuing competition for land use gave rise to conflicts between food crops farmers, coffee farmers and livestock raisers. Farming and grazing was carried out concurrently and so the tussle for the use of the same piece of land between graziers and farmers led to fighting, riots, open warfare, destruction of crops and cattle among other negative incidents as recorded at Koppin, Mbeluh and Bawock areas in the 1980s.

The last germ is an intrinsic site advantage of Bali consequential of the mutual effect of climate, relief and hydrology. The physical milieu is a contributing conflict factor. In the hilly Koppin and Ngwandikang the water table is deep and the vegetation disappears with the approach of the dry season setting in transhumance which refers to the cyclical seasonal migrations of stockmen and their livestock for water and pasture resources for the cattle as noted elsewhere by Tata in 2008 (Fig. 2). Livestock is moved to fertile plains like Mbufung, Top and Mantum where there is an ever-rich green vegetation. Cattle on transhumance comes in from Ashong in Batibo, Mbengwi, Pinyin, Santa, Baba II, and Bafoussam to Wosing, Bossa, Top, Kubad, Kutane, Mudum, Kombela, Mbeluh, Ndian, Ngwandikang, Beisen, Gwenjang, Gungong, Kopndeng and Koppin. During such movements crops that were cultivated along cattle tracks were often damaged by cattle thus causing problems with farmers. This has been recurrent in the localities of Koppin, Beisen, Ngwandikang, Mbufung and Mbeluh.

The reported conflicts occur because of a poor application of transhumance laws. Such movements occur without the supervision of cattle control officers and the administrators concerned supposed to ensure that the movement took place in an orderly and controlled manner so the cattle occasionally eat up crops on the farms as at Top, Kubad, Kutane, Koppin, Mudum, Kombela, Mbeluh, Worsing, Ngwandikang, Beisen, Bossa, Gwenjang, and Kopndeng. In Mbeluh and Koppin transhumance was sometime carried out in the wrong seasons as cattle descending from Koppin and Mbeluh near the Bali-Pinyin frontier crossed into already cultivated farms of maize, groundnuts and cassava among other crops. Such damages on crops between 1985 and 1986 were evaluated at 11,784,000 CFA. This is likely to be on an increase considering that cattle are not human beings who can distinguish between weed and foodstuff.
Adapted from 2005 monographic study of Bali Rural Council, Babila (2013), Fieldwork 2014

Figure 2: Map of transhumance routes and zones in Bali

Agro-environmental tangible effects of the agrarian conflicts
These are in the form of agrarian and environmental losses. Devastation of crops and livestock has visible ramifications. There are conflicts between large-scale breeders of livestock and extensive crop cultivators in the form of written complaints and petition writing to the administration for which evaluation reports are written (Table 2).

Table 2: Crop Damage Evaluation Report of 2005

<table>
<thead>
<tr>
<th>Nº</th>
<th>Crop Type</th>
<th>Number</th>
<th>Age</th>
<th>Unit Price</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beans</td>
<td>2400</td>
<td>Medium</td>
<td>0.96</td>
<td>2.304</td>
</tr>
<tr>
<td>2</td>
<td>Maize</td>
<td>2600</td>
<td>Medium</td>
<td>1</td>
<td>2.600</td>
</tr>
<tr>
<td>3</td>
<td>Sweet Potatoes</td>
<td>1200</td>
<td>Medium</td>
<td>4</td>
<td>4.800</td>
</tr>
<tr>
<td>4</td>
<td>Irish Potatoes</td>
<td>800</td>
<td>Medium</td>
<td>4</td>
<td>3.200</td>
</tr>
<tr>
<td>5</td>
<td>Vegetables</td>
<td>200 sq. Ft</td>
<td>Medium</td>
<td>4</td>
<td>800</td>
</tr>
<tr>
<td>6</td>
<td>Cocoyams</td>
<td>300</td>
<td>Medium</td>
<td>4</td>
<td>1.200</td>
</tr>
<tr>
<td>7</td>
<td>Pumpkin</td>
<td>400</td>
<td>Immature</td>
<td>6</td>
<td>2.400</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.304</td>
</tr>
</tbody>
</table>

Some of the conflicts are in the form of public manifestations and open warfare between fulani graziers and farmers like in July 1988 when an incident occurred between the Bali and Bawock and also in September 1988 when cattle in Koppin wrecked over three hectares of maize and groundnuts. Conflicts between breeders of small ruminants and local farmers also resulted in either written complaints to the administration, trap farming, immediate killing or wounding of ruminants and even the use of the use of poison on the animals. There are also attacks on Fulani families and destruction of Fulani dwellings in Mantum, Koppin, Mbufung and Mbeluh, Fulani women were sexually assaulted and raped while the possessions of some Fulani returning from the markets were seized. Tension between Fulani and native farmers in 1988 triggered the demolition of over sixteen Fulani huts at Koppin, Mantum, Mbufung and Mbeluh.

Some damaged Fulani houses at Mbufung, and at Kopndeng

**Source:** Field work, December 2010 Author’s Collection

Shut with gun on leg       Shot with gun on leg and tail       Stabbed with knife on hip

**Source:** Fieldwork, January 2009/Author’s collection

Some Fulani cattle harmed by farmers

Maize farm devastated by cattle in Bossa       Young eucalyptus plants trampled upon in Kopndeng

**Source:** Fieldwork, February 2010/ Author’s collection.

Some crop losses by farmers due to cattle activities
Plate 1: Agrarian casualties of farmer-grazier conflicts

The devastation of crops occurred in Ngwandikang, Koppin, Wosing, Top, Koplab (Kunja), Mbeluh, Mbufung, Beisen, Kutadntsí, Kontan, Jangman, Kopndeng, Tamndap and Bossa. These were maize, beans, cocoyams, yams cassava, pineapples, plantains, banana, sugar cane as well as young eucalyptus plants. The repercussions were loss of income, reduction of revenue, poverty, low purchasing power and the inability to provide family needs and education.

Another effect was that of displacing farmers and graziers from the conflict zones. In 1988, dubbed the “year of farmer-grazier war,” some 316 people migrated to Koppin, Mantum, Baforchu Pinyin and Santa causing a fall in agricultural production and a generalised hike in prices on the local market (Table 3). Between 1983 and 1988 resettlement of the displaced population costed 14,746,000 FCFA raised NGOs like Heifer Project International, Sustainable Livestock Foundation, and INADES Formation, rural co-operative and rural council amounting to 4,861,000 FCFA.

Table 3: Market price fluctuation of agricultural products in the Bali market (1987-1992)

<table>
<thead>
<tr>
<th>Type</th>
<th>Units</th>
<th>Prices (F CFA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried corn</td>
<td>15 litres</td>
<td>1400</td>
</tr>
<tr>
<td>Garri</td>
<td>15 litres</td>
<td>2200</td>
</tr>
<tr>
<td>Fresh groundnuts</td>
<td>30 litres</td>
<td>1800</td>
</tr>
<tr>
<td>Dried beans</td>
<td>15 litres</td>
<td>3400</td>
</tr>
<tr>
<td>Plantains</td>
<td>15 kgs</td>
<td>1000</td>
</tr>
<tr>
<td>Pineapples</td>
<td>3 kgs</td>
<td>150</td>
</tr>
<tr>
<td>Mangoes</td>
<td>5 litres</td>
<td>75</td>
</tr>
<tr>
<td>Fresh tomatoes</td>
<td>5 litres</td>
<td>550</td>
</tr>
</tbody>
</table>

Source: Bali Rural Council Archives, MINAGRI, Bali, Nyonga, Files on Marketing Information.

In the wake of these problems, mitigation options are poorly managed because the local administrative authorities tend to favour one of the parties involved to the detriment of the other (Amungwa, 2009). Members of the Agro-Pastoral Commissions often cannot assess the correct monetary value of the crops or cattle damages so the bone of contention between the farmers and graziers is either under or over-estimation by authorities. In such recurrent deadlock, bribery and corruption of some administrative authorities and stakeholders hatch partial or biased judgments that only fan farmer-grazier antagonism. For example, from 1985 to 1992, cattle damages were 14,185,600 FCFA, yet barely 1,792,000 FCFA was paid farmers as compensation (MINEPIA, 1996).

This pitiable resolution of agrarian stakeholder hostilities is exacerbated by the negligence of existing legislation of State and local authorities. The Cameroon 1962 and 1978 laws governing farmer-grazier relations (Presidential Decree N° 78/263 of July 3, 1978) stipulate a demarcation of arable and grazing land and set financial sanctions penalties for defaulters but the Land Consultation Boards have not mapped all boundaries in areas of mixed farming as Koppin, Banjah, Bossa, Ngwandikang, Mbufung, Mbeluh, Mantum, Bawock, Beisen, Worsing, and Ngwatkang. The local administration have also not ensured that graziers put up solid pens to check cattle movements at night and that local farmers enclose patches of farmland cultivated in grazing sites. Officials of MINEPIA responsible for the sensitization of farmers and graziers on pacific co-existence and identification of cattle tracks to water points fail to do their job, acquiescent to what Tata, et al (2013) clinches as a laissez-faire attitude.
Salient environmental effects

From 1984-1988 there were adverse effects on the vegetation cover. Eucalyptus trees were ravaged by bush fires in Koppin, Mantum and Baforchu hills amounting to 15,000 hectares. Secondary vegetation now exists on 6.5 km land in Koppin and 5.4 km in Mbufung. Between 1986 and 1988 bush fires ravaged ten hectares of sugar cane and guavas farm in Mbufung, Beisen, Bawock, Ngandikang and Koppin. Another environmental effect is the destruction of soil resources and erosion which reduce family income as the low crop yields detected in Koppin, Mantum, Ngandikang and Mbufung especially like the production of corn that dropped from 5800 tons in 1986 to 1750 tons in 1988. The erosional intensity of this area was facilitated by over-grazing upslope as the loosened the soil cohesion breaking its crumb structure with their hooves. Cattle activity upland coupled with heavy rains increased pressure and the tragedy of the commons leading to landslides on the Koppin hills in 1979 that destroyed between 1.5 and 2 hectares of farmland, killed three farmers and inflicted a financial loss evaluated at 1,392,700 FCFA. Soil erosion created near bad-lands in Koppin and Mantum apart of deepening small run off channels to gullies.

CONCLUSION

The topographical traits of Bali depict a splendor of hills, plains, valleys and streams offering superb opportunities to Fulani pastoralists to be fascinated of the area. A humid tropical climate, sudano-savanna type of vegetation and fertile soil all contribute factors to a flourishing crop cultivation and livestock raising that have rather than auger in complementarity rather stiffened competition between land use stakeholders over agrarian land resources inciting sporadic conflicts in a number of localities of this geo-basin. The issues of farmer-grazier conflicts in Bali are complex encompassing political, socio-cultural, geographical, natural and economic factors, demographic pressure, traditional methods of agriculture and conservatism, nature of night paddocks, the advent of commercial crops, the mindset of farmers and graziers, land tenure system and alienation, poor communication, non-respect of transhumance calendar, xenophobia and shortfalls of the legal framework. These crises manifested a double facet between the two parties either through peaceful arbitration or violence and open warfare that breakdown of communal solidarity, loss of life, livestock, biodiversity and property, unemployment as well as refuging population to peripheral localities.

A panacea to this agrarian inter-stakeholder hostility will entail fundamental revolution their mindset and discontinue right assertions to land ownership. This is obtainable through a thorough education of farmers and graziers on risks of haphazard activity sprawl into dissimilar land use territories. Transhumance should be done as per national legislation and dry season along well defined routes. Silvo-pastoral agroforestry that combines pasture, animals with fodder trees like Callidria, Accassia, Leucaena and Erythrina be adopted in grazing sites like Koppin, Ngandikang, Koplab, Beisen, Wosing. Crop rotation and mixed cultivation enhancing farmer-grazier synchronization while restoring soil fertility would lessen shifting cultivation. It is possible to envision a zero-grazing dairy farming so that the animals are fed with fodder like Guatemala, Bracharia, Desmodium, stylosanthes and elephant grass on long term bases. Other plant fodder trees like Callindria, acassia, Leucaena and Erythrina that serve a dual purpose of enclosure and feed for animals would be the best bet to extinguish the conflicts and at the same time lessen them to the meekest manifestation in Bali.
BIBLIOGRAPHY


