The mount Cameroon Hazard Prone Littoral Slope Population: Victims of a Poor History or Poor Planning of Urban Development Space?

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Abstract
A topical urban development issue of the 21st century in developing countries is how to sustainably provide for more than half of its burgeoning populations. Development geographers have focused on mitigating floods, urban land degradation and spontaneous settlements. This study examines the plight of the urban disadvantaged persons that occupy disadvantaged sites exposing themselves to site environmental risks and hazards around the maritime and continental contact point of Cameroon. The problem of urban poverty and hazard interplay especially landslides defies the quality of urban life and environment and therefore justifies the assumption that in the course of history, there has been a direct relationship between the scarcity of appropriate urban development space and the degree of vulnerability to site related hazards. Field and documentary techniques were used to collect and treat data and the results indicate that the relationship is directly proportional and lack of space for past and contemporary historical reasons requires urgent attention. This study aims at creating awareness on the existing poverty situation and to those already settled in low class residential areas, as well as urban dwellers in such landslide prone areas to know the risks they are exposed to.

Keywords: Vulnerability, urbanization, poverty, landslides, hazards

Introduction

Aggravating disasters, risks and vulnerabilities affect areas where fast growing populations combine with rapidly expanding urbanization. The greatest effects those of global warming and landslides recurrent where intense rainfalls are severe. The toll from such hazards on life and property is high in developing countries. Sub-Saharan Africa witnessed the transformation of its urban landscapes structures and activities. This puts its urban population at the unprecedented risk of geological, geomorphological and climatic hazards. The Limbe in Cameroon witnessed one such uncontrolled city expansion through the quick colonization of disaster-prone zones as squatter settlements have repeatedly triggered hazards such as floods, landslides and coastal erosion. These negatively affects poor migrants populations located in precarious urban environments (Fogwe and Lambi, 2001) despite the deadly blows inflicted by such no constructible environments. Urban poverty has in the course of time pushed and glued these have-nots unto these formerly declared no-go zones for years as a glaring majority pitifully have no other locational alternatives after socio-economic constraints have forced them a visa out of rural misery and deprivation. Hopeful Cameroonian towns located along the volcanic line such as Bamenda, Fundong, Santa, Buea, Nkongsamba, Dschang and Limbe (Ndenecho, 2007) have offered these rural out-migrants glimpses of hope with the little social, economic and infrastructural lights they have offered, in their abilities. When the take-off hopes of these muscle-powered migrants are overwhelmed by the lack of mental and intellectual competences of integration into the urban production wheel system, survival of the fittest begins to naturally select and relegated them out of the urban social upper class whose affluence and sometimes influence can

afford them what it takes to inhabit safe urban sites. The emotionally derelict new-comers become "unwanted and unfitting urban strangers" and what they know how to do best begins in the urban setting. Urban rurality in forms worse than their source regions are often initiated in the pious hope of a better future. In the meantime, they encroach into virgin unstable areas of steeply slopes or colonise urban channel beds. Initial and successive losses they and their property incurs is considered as a risk worth taking fanned by the "nothing good comes easy philosophy" since the rural return option should not be an option to be tabled.

Progressively such environments in Limbe begin to offer them, in reaction or retaliation (Fogwe and Asue 2016) to their actions, an equal and opposite reaction, unleashing landslide and flood risks and hazards of different magnitudes and intensities. The lethal weight of such hazards since 1988 has been some 5 people are killed in Cameroon each year with a huge effect on infrastructure and the economy. In all areas there is the destruction of farm land, subsistent, cash and food crops, disruption of transport networks, damage to infrastructure and biodiversity loss. Notwithstanding, these migrants have since historic times of Limbe and its environs, colonised the ecological marginalized areas as swamps, valley floors, hill slopes, earthquakes and volcanic activity prone areas.

This makes the hazard track record of Limbe built up and neighbouring territory to be rich and diverse in time and space. As such, its pioneer landslides date back to the Cassava Farm quarter landslide of September 1989. Slope failures associated with floods date to June 27, 2001 in Mabeta New Layout, Towe, Unity Quarters, Livanda Congo, Bonjo, and Mukuka (Ayanji 2004) where toll was 3,000 persons homes lost, 23 lives lost, 50 sustained wounds, and about 120 homes wrecked alongside community infrastructure (roads, water and electricity supply line, communication systems, schools, and churches) and farmland worth 1.5 billion FCFA (Ayanji, 2004).

The Problem

Limbe and territory on the western flanks of Mount Cameroon is laden with distinctive peculiarities that accentuate its vulnerability to meteo-geomorphic hazards such as floods and landslides resulting of natural and anthropogenic mishaps on the weathered fragile hill slopes suffering from sustainable planning lapses and human interference. These hazards become most marked at the peak of the wet season (June, July and August) from the Atlantic Ocean through Bonadikombo to Towe (362m); Mile Two (890m); Caterpillar Hill (76m); Coconut Island (46m); Ambas Bay (152m); Mabeta New Layout (295m) and Mawoh (153m). These ecologically marginalized environ have in recent times witnessed varied and accelerated construction of houses and infrastructure. The human colonisation of such areas does not seem show real awareness of the risk exposure as there is wanton inadequate application of urban land use and zoning regulations. The aftermath is the emergence of a direct proportional relationship between urbanisation through the upshot of houses, infrastructure and service and the frequency of related hazards in the area. Complex landslides have stemmed from origin from archetypical traits of this territory being combination of earthquakes, topographic surface reversals (Fogwe, 2016) technological failure, unfavourable geologic structure and heavy precipitation. The brunch of these disaster tolls has been borne most by the urban poor.

Poverty-driven substandard housing infrastructure out of wood 'carabot' mark the urban space of Mile Two, Towe, Cassava Farms, Mabeta, Coconut Island, Unity Quarters, and Makuka. Infrastructural poverty signatures on this public space is punctuated by uncompleted concrete buildings that are in complete disregard for building codes or regulations on parcels of land that have been questioningly acquired. The recent influx of the population into this area for its opportunities has worsened the

situation of limited suitable land for settlement hemmed by the Atlantic Ocean to the southwest, active volcanic Mount Cameroon to the north east and palm plantations of the Cameroon Development Corporation.

This reality apart the bulk of in-migrants brought along too few skills from the inland territory so inability to fit into the conventional development mainstream could only eject then unto the vulnerable sites. From 51 000 inhabitants in 1976 to over 80,700 inhabitants in 2000 (Cameroon Statistical Year Book, 2000) the poor have learnt and mastered the art to colonize hazard prone areas with increasing pleasure and impunity with multidirectional growth fronts encroaching onto marginal marshes and steep slopes of this territory (Mile Two, Towe, Livanda Congo, Unity Quarter, Makuka). This sprawl is in contravention of the Limbe Master Plan of 1974, that established that areas for expansion were limited by steep Mount Cameroon slope gradients, drainage and above all because most suitable land had been occupied by the C.D.C plantations. This makes it a difficult territory for settlement and human activities faced with constant hazards of vulcanicity, landslides, floods and coastal erosion yet no strict urban laws prohibiting people from settling in risk areas or that they respect building codes especially those who construct on steep slopes like in the Mabeta and Mile Two hills. The only left-over space in this territory for the urban poor was the risk prone zones or in hazardous areas on deeply weathered and unstable scoriaceous cones of Mawoh, Motowoh, Coconut Island, Livanda Congo and Mabeta New Layout. Colonising these areas for whatever goal could only but increase the recurrence of landslides in Mabeta, Bonjo, Makuka, Towe, Mandoli, Unity Quarters, Livanda South, and Kie Village. This has pushed the Limbe City Council to mark them as risk zones for evacuation. This objective of this study is to investigate the link between landslides hazards and the colonisation sites of the low income population and how such poverty exacerbates vulnerability to the hazards.

Methodology

The study area and sampling techniques

Limbe and its environs is chosen for its high vulnerability and exposure to landslide risk potential and hazards as in Mile Two, Livanda Congo, Mabeta New Layout, Towe, Unity Quarters, Bonjo, Makuka, Kie Village, Coconut Island, Mbende and Mbende West where poverty can best be matched with vulnerability. Data for the study dates three decades back to correspond to unprecedented population growth rates. Focus was landslide hazards though reference was made to flood hazards when need be.

Limbe covers about 674 km² (Limbe Town Planning Office, 2013) linking the Atlantic Ocean and continental segment of the Cameroon Volcanic Line (CVL) where the Cameroon Mountain extends into the Gulf of Guinea (Fig. 1). Limbe was founded by Reverend Alfred Saker in 1845 from a 19.2km land called Victoria. Limbe has an average rainfall of 4000 which causes floods in June, July and August and are accompanied by landslides due to heavy orographic rainfall on the weathered materials from the steep slopes. The arc topographic configuration contains hillocks of about 300 m above sea level that enhance landslides in most sloppy areas. These areas are chosen because tropical monsoonal rainfall combines with uncontrolled anthropogenic activities as deforestation to trigger mass movements.

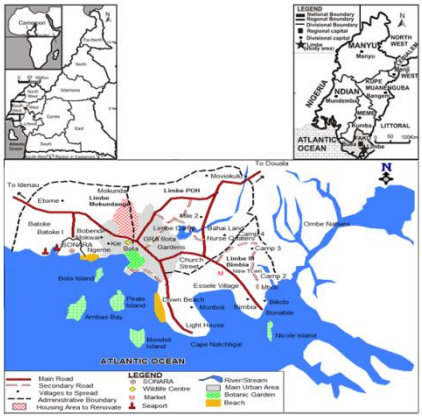


Figure 1: Map of the Limbe territory vulnerable to hazards. Source: Limbe City Council, 2012

Data collection and treatment techniques

Data was collection for this study from primary and secondary sources stratified random and purposive sampling techniques. This study considered the target population to be those living in landslide risk and evacuation zones. The target respondents were heads of households in Mabeta, Bonjo, Makuka, Towe, Mandoli, Unity Quarters, Livanda South, Coconut Island, Cassava Farms, Mbende, Mbende West, Mawoh, Motowoh and Kie Village (Fig. 2).

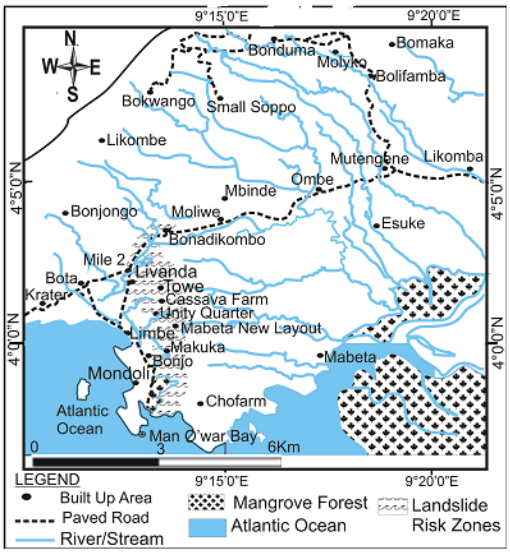


Figure 2: Sampled hazard prone areas in Limbe and its environs.
(Source: Modified from map of Limbe risk and evacuation routes)

Primary data was collected from the inhabitants of landslide and flood risk zones where the majority are poor with only a few are rich. Primary data started with a reconnaissance survey, interviews and administration of questionnaires administered to the indigenous population so as to confirm whether urban poverty is a key determinant of occupation of hazardous areas. In the Limbe I Council area, 10 questionnaires each in Livanda Congo, Towe, Cassava Farms, Mabeta, Makuka, Mandoli, Unity Quarters, Mbende, Mbende west and Coconut Island In the Limbe II Council area, 5 questionnaires each in Kie village; and same in Limbe III Council areas of Bonjo and Chopfarm. Accurate primary and secondary data was collected about the topography of the risk zones and housing standards of the urban poor and rich in Limbe and its environs in the months of September and October 2012 and the

second phase between the months of March and April 2013.

In these phases, the socio-economic characteristics of the urban poor were matched with the vulnerability to hazards. The first set variables were assumed to change as a function of the socio-economic status of the population of Limbe that determined their level of vulnerability to hazards and this included the place of birth as opposed to the place of residence, causes of rural out-migration, length of time the respondent has stayed in town, employment status, profession, income levels, educational level, marital status, family size and access to health facilities, land ownership status, land acquisition process, land certificate status, longevity of respondent in the risk zone, relative cost of land in hazardous areas, risk awareness of occupying hazardous areas, nature of building materials. The second set of variables sought to understand why Limbe and its environs in the course of its development history has been faced by the problem of limited access to suitable land for habitation which has forced the urban poor to reside in such unfriendly terrain making them vulnerable to landslide hazards and thus suffer from the negative impacts of landslide on the upper slopes and flood hazards on the lower slopes. In this category, this study evaluated relative areal extent of Cameroon Development Corporation plantations, the nature of land for housing, the form of slopes and their angles which determine the activities of man through settlement, deforestation and plantain farming.

Presentation of Results and Discussions

The organisational dynamics historical development of the Limbe territorial space

An organisational pattern has emerged from the occupation and transformation interaction of the urban and peripheral space of Limbe in the course of its history. The pattern portrays artefacts, mentifacts and sociofacts that fieldwork categorised as residential, economic, and socio-political patterns.

Residential and settlement structuration of space

History of systematic human occupation has permitted the creation and growth of quarters that represent different level of opportunity and fortunes. Limbe covers some 25 villages with a 3.2 percent annually growth rate. Limbe population has thus evolved rapidly: 15 800 in 1953; 27 016 in 1976; 27 000 in 1976; 44 561 in 1987; 74 000 in 1998; and 85 000 inhabitants in 2005 (National Census Headquarters, Yaounde). Limbe population was projected at 111 000 inhabitants by 2020 based on the annual growth rate of 4.7 percent and may double or triple mindful of the numerous attractions that go beyond the built up zone of this territory (Fig. 2). What pulls national and foreign people to Limbe goes beyond the petroleum oil industry (SONARA). This area is one of the best combinations of fishing and tourism recreation (Botanic Garden, Limbe Wildlife Centre magnificent hotels as Atlantic Beach, Guest House, Miramar, Trinity, Holiday Inn Resort and Fini Hotel), natural deep sea port being developed, head office Cameroon's largest companies - Cameroon Development Corporation (C.D.C) – since 1947, and countless mega projects to enhance Cameroons 2035 emergence.



Figure 3: Diverse and attractive migrant opportunity of the Limbe territory. Source: Limbe City Council, 2012.

Limbe can be ranked first in its legendry historicity inscribed in its German/British annals with some maintained for historical purposes and others for daily use as the Senior Divisional Office, Senior Divisional Officer's Residence (1890), Ebenezer Baptist Church (1877), Old Presbyterian Church Cameroon (1891), the Bridge of the Limbe River that leads to the Senior Divisional Officer's Residence (1890), Presbyterian Church Primary School (1927), Cape Nachtingal Light House (1903), and the Botanic Garden set up by the Germans as a Centre for Development of Tropical Agriculture. The implantation of these structures on choicest sites strongly accounts for why Limbe territory is faced with the problem of limited access to suitable land, thus forcing the urban poor to reside on marginal lands being unable to afford bid-rent for safe sites. These migrants have for lack of sufficient white-collar jobs survived on that has in some measure absorbed the huge influx into the territory bordered by plantations and natural barriers like the sea or difficult terrain (slopes).

Based on their internal morphologies and sociological structuring over space, the quarters of Limbe range from low to medium and high residential areas. Satellite Google image of 2016 coupled with field survey permit a generalised classification of residential traits of New Town, Half Mile Cassava Farms, Mbende, Gardens, Coconut Island, Mile Two, Motowoh, Unity Quarters, Towe, Mbende West and Mabeta New Layout considered as dominantly areas of low class. Not only are the building substandard (uncompleted, old, of plank, poorly serviced, overcrowded, degraded, and poorly sited without plans) they are overloaded and overcrowded with an irregular mixture of residential, commercial and other tertiary sector. The room occupancy is very high and informal sector functions are interwoven with residences. The most appalling of these are the degraded buildings of Bota Middle Farms. These C.D.C camps are inhabited by plantation labourers though a few have been refurbished for rent to the public. This contrasts with the spacious, architecturally well planned executive residential area of Bota inhabited by senior government and C.D.C officials. The Government Residential Area (G.R.A.) is a much higher class residential quarter was built between 1978 and 1981 for the staff of SONARA. These residential areas have squeezed out the excess migrant population to peripheral areas like Isokolo, Mukundange and Ngeme zones from where they effect daily pendula movements to the city centre.

Economic and commercial activity spatial organisation

Economic activities and the commercial set up of this territory is anchored around palm plantations, farms and gardens on hill slopes cultivating crops for subsistent purposes. The most industrial is the National Oil Refinery located some 10 kilometres west of Limbe. Industrial set ups and enterprises are scarce for lack of space as much of the town's suitable land had long been occupied by plantation farms. In terms of commerce Limbe lost its boom days since the closure of the Bota wharf. There are nonetheless some commercial activities like the fleet of hotels along the West Coast such as Miramar, Atlantic Beach, Fini, and Holiday Inn; banks along Down Beach such as BICEC, Bank Atlantic, BEAC and remarkable number of transport services, and law chambers. Eco-tourisn resources are many and diverse ranging from picturesque coastlines and beaches with harnesses and exploited points like Batoke, Mile Six and Seme at West Coast; Limbe Wildlife Center, Botanic Garden, and volcanic cones and craters that align in a South West North East around Bakingili. There are equally a number of health structures like Limbe, Fako, and Standard Pharmacies.

Organisation of political and administrative space in the Limbe territory

Political and administrative services in Limbe are localised in the Down Beach area where they have grown since the pre-colonial history. Some of these still showcase the colonial relics like the Senior Divisional Office, Presbyterian Primary School, and Ebenezer Baptist Church and Saker Baptist College. Social infrastructures like schools and colleges, medical and recreational centres are not spatially localised. Primary schools in Limbe are mainly in Down Beach with Presbyterian, Government and other private schools. New Town also has schools such as the Baptist and Catholic primary schools amongst many other private schools just as there are in Gardens, Bota and Middle Farms where there is the Chantal Biya Foundation School. Many colleges have emerged in the course of time like the National Comprehensive College, Government High School and the Nursing Aid School. Two hospitals exist in Limbe with one at Mile One and the other in Middle Farms, in addition to two clinics.

Social and economic characteristics of the respondents

The Town Planning Statistical Survey of January 1973 revealed that only 16 percent of the Limbe adults are of Fako Division origin. Fieldwork in 2013 revealed that Limbe was 91% in-migrant population with a history of resource base over rural areas attracted for better job opportunities at 80% (as compared to 15% for social reasons) including foreign nationals Nigeria. These in-migrants were 87% educated only to primary level and made worse by the educational system in Cameroon that has historically not been oriented towards the job market (Sikod, 2001). The missing link between training and employment has created a large "new poor" group of university and secondary school hopeful graduates residing mostly in urban areas. These have often been (re)converted into the male dominated informal sector operators, who constitute a large proportion of slum and squatter settlement dwellers (vulnerable sites avoided by those employed in the formal sector). Che *et al.* (2011) confirmed that most inhabitants of Limbe are low income earners engaged in subsistence and cash crop production (cassava, banana, cocoa, maize, palm and peanut), fishing and petty trading rendering urban poverty very acute.

Educated or not, these urban poor are needed and have been the very backbone of the urbanisation history of Limbe. They offer low class services, informal services or unskilled labour to some formal sectors; services which cannot be rendered by the urban rich. They are those who fell down palms, pick up the nuts and carry them to tractors before factories. These urban poor serve as cleaners as well as day and night watch men and other home services to the urban rich as house keepers, cooks and baby sitters. The farm produce of the urban poor farmers is food to the urban rich.

Formal city structures like the C.D.C, SONARA, BICEC, and wealthy people use the energy of the urban poor people by exploiting their low class/wage services. They have throughout history occupied most suitable/good land for settlement yet, still wanting the poor and their low wage labour services. Yet for all this historical and mental colonisation of the poor, just for their lack of education, the Limbe urban reward to the poor for the informal nature of their services is such low wages.

These urban poor in Limbe are therefore left with no choices other than to cling to these cheap marginal hilly sites. After finding themselves in a poverty situation worse than those of rural areas they turn to selling cheap items, bike riding, and doing call-box along the streets of Limbe. Their predicament is not unconnected to the current decline in the profitability of rural livelihood activities like the sustained fall in commodity prices as well as scarcity of farmland (Kometa, 2012). The choice of those trapped in urban poverty and with low incomes was reduced to living in cheap precarious risky zones which make them vulnerable to natural hazards such as floods and landslides.

Some 87% of the respondents are married with 93% having household numbers greater than 5 persons of primary nuclear family with the head as the only breadwinner. Besides is a secondary nuclear families eagerly waiting and dependent for their accommodation and feeding; needs that cannot be postponed in the African context of the historical meaning to the family as a social ensemble. The Limbe Planning Statistical Survey of January 1973 gave an average residential density of about 10-11 households per hectare and a population density of 125 persons per hectare. The housing need in Limbe has not been identified. The inability of both the private and public sector to provide housing has been demonstrated by the number of people who live in a room. The housing shortfall is likely to increase vulnerability to landslide hazards among three specific social groups. First, to those who live in squatter sites where there is no formal physical or social infrastructure available and where tenure in insecure. Secondly, the low value of rentals obtained relative to maintenance costs have meant that households in both public and private rental sectors may suffer from poor physical sites or environments. Thirdly, housing demand has encouraged house owners to sub divide properties leading to the creation of vulnerable “top houses.” As these areas have become over crowded new comers (27 % unemployed, 60 % temporarily employed) are forced to encroach into the marginal hilly sites which were historically avoided by the urban dwellers. Under these circumstances and constraints, the occupation of space becomes an avoidable tragedy of the commons, whatever is born of it.

Most of them are engaged in subsistence farming cultivating food crops to feed their families and raise money for bills, payment of school fees. A greater percentage (60%) are temporarily or self-employed whereby they are involved in seasonal jobs They find themselves residing in such risk zones because some of them inherited the land and houses from their parents as well as for the fact that generally suitable land for habitation is scarce in Limbe. Notwithstanding, such houses are constructed and adapted to the occurrence of hazards such as the construction of embankments and retaining walls. Some 56% of the respondents allege to monthly incomes of less than 30 000 FCFA, and 32% between 31 000 and 50 000 FCFA (Table 1).

Table 1: Urban poverty assessment of Limbe based on 2012

Household monthly income (FCFA)	Number	Percentage	Poverty status	Category	Development remark
< 30,000	65	57	Abject poverty	Farmers	Irregular and very small income to sustain urban life
31,000 to 50,000	37	32	Average	Informal sector	Manageable but not enough
50,000 to 100,000	8	7	Rich	Formal sector	Regular
> 100,000	5	4	Very affluent	Civil service andb b white collar jobs	Regular and self-sustaining to pay good rents and bills
Total	115	100			

Source: Field work (2012)

Mindful that the Guaranteed Minimum Wage in Cameron is 32 500 FCFA, some 65 of the sampled urban dwellers who reside in such risky zones live in abject poverty, 37 are averagely poor, 8 are rich and 5 are very rich.

House site implantation traits and hazard vulnerability in Limbe

There are variable site choices in the implantation of houses in Limbe and this indirectly determines housing standards/conditions of the urban poor rendering them vulnerable to hazards. Some 77 % of the sampled population that reside in risk the zones are landlords and 23% are tenants in mostly single rooms. The development history has made the in-migrants incapable to afford for suitable costly land in the town and so re-migrate within the urban space to such risky sites where 90% acquired land from individuals (informal market), 4 % bought theirs from the then Limbe Urban Council and 6 % inherited. Some of such informal market lands were given out by the then municipal authorities in error and ignorance of the risks involved in areas like Mbende and Mabeta. These migrants cling to these cheap marginal lands where there are no strict urban laws prohibiting these people from settling in risk areas. This is why when landslides and floods occur, it is mostly the urban poor who suffer. The poor history of urban governance has increased the vulnerability since the Limbe municipal administration remains largely lukewarm to allow people colonise risk zones with little or no sanctions. Field control exercises carried out by town planning officials is ineffective. People do not respect basic building codes especially those who construct on steep slopes like in Unity Quarters, Mabeta and Mile Two hills. The demolition exercises carried out on landslide prone zones as well as other hazardous zones such as floods has not been completely successful as most of the population return to demolished houses, do little renovations on them and continue to live therein without corresponding sanctions from the municipal authorities. In anticipation of Council reaction to their colonisation some 36 % of the sampled population houses built wood “carabot”, reflecting the double expectation philosophy of loss reduction risk if demolition were to follow and real maximum infrastructural aptitude held down by poverty. The latter often not painted and constructed with no strong foundations which accentuates their vulnerability to landslides and flood hazards. The 53 % that attempted to build with cement did not have them painted, fit louvers and concrete the floors for long period of time (over 5 years). This is what the Limbe Town Planning Statistical Survey of 1973 considered as 32% low standards and 46% medium standard respectively (Fig. 3). Fieldwork in 2013 observed that these houses are built on slopes without solid foundations and with poor irresistible material.



Plate 1: Hazard space colonisation by houses in Limbe. Poor quality of buildings (wooden houses) "carabot" without stabilization measures (above), uncompleted buildings located on slopes (below), Source: Field work (2013)

Within these risky zones only some 37% of the sampled population has lived in after 2008 while 50% have been there since 2003, and 13% were there before 2003. In the course of the recent urban history, these areas had a scanty population but contemporary historical events of urban development accelerated rural exodus coupled with low incomes as well as limited suitable land for habitation, has made these areas to be encroached upon by these low income earners and job seekers from Mile Four, Mutengene and Tiko. There is a near unanimity as some 95% of the sampled population concord to the fact that land in the area is cheaper as compared to the other areas in the town. Though perceived as cheap, the cost of building in such inaccessible sites is very costly because transportation constraints of building materials across such hilly terrain.

Such terrain is a clear reminder to the 99% sampled population of the risk level to which they are exposed. These are natural hazard risks include landslides, floods, or possible eruption of Mount Cameroon with lava flow like the 1999 Bakingili ash and cinder. All are aware of the high possibility of a tsunami which might result from an earthquake in the Atlantic Ocean. Technological risks are potentially noted with exposure to fire explosions from the SONARA. These make of Limbe and its environs potentially liable to assorted risks and hazards: industrial, volcanism, flood and landslide risks. The Limbe Council identified such risky zones after the occurrence of the Mabeta flood and landslide catastrophic hazards in 2001 killed over 14 persons and destroying much property with no early warning systems despite of the rain gauges of the C.D.C in Krater (Limbe 2) and Bimbia (Limbe 3) Council areas.

The Limbe City Council used clear scientific procedures to identify the risk zones including the use of satellite images matched with field verification to ascertain landslide and flood prone areas, in which soil strength tests were conducted by the LABOGENIE civil engineering company. Though, risk areas identified, Limbe in the

course of its post-colonial history not been accompanied by a clear demarcation by the Town Planning Officials of the Limbe City Council as would be expected since this would morally stop them from issuing building permits and by implication loss a vital source of revenue into the coffers of the city council. Moral logic of governance has thus resulted in immorality in governance inaction in the wake of encroachment unto these marginal lands for which "unofficial payments and unorthodox settlements" into private pockets of such officials are made behind smoked screens cannot be ruled out.

The population has therefore continued to wave the risk and brandish low cost as the *de facto* reason for inhabiting risk zone despite awareness of the risks involved. Some 73% of the sample attribute this low cost to the land acquisition and 19% to affordably low cost of rents. Field observation not only portrayed poverty but some 8% well-constructed and owned by wealthy persons who have been unable to get suitable land in acceptable areas, so their wealthy houses disvirgins the slopes as an invitation to others to come for an unholy marriage and colonisation of fragile areas (Plate. 2).



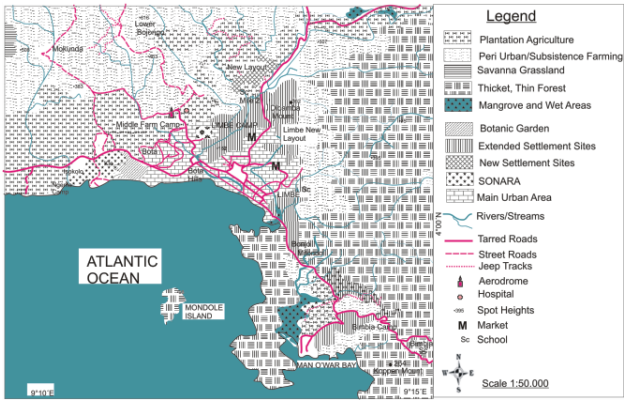
Plate 2: Raping of marginal hilly slopes by a houses of the affluent, © Fogwe, 2013

Suitable Limbe land grabbed at the detriment of safe settlement

Perhaps nowhere in Cameroon's history and space, was extensive land acquisition without the understandable and total consent of its pioneer owners through force or luring, that this study terms as land uses for the little available good space

land grabbing was as clear and as remarkable as in the bakweri lands of Limbe and its environs. The development history has put in place a multiplicity of land uses in the study area such that there are undeclared battles for dominance from the respective

(Fig. 4).



In this bakweri land issue, our concern is the clear need for suitable settlement space expansion *vis a vis* suitable land

that the C.D.C palm plantations occupy hemming the town of Limbe at its east and west. The southern part is the Atlantic

Ocean and a series of hydrographic systems like the Limbe and Djenguele streams that empty into the Atlantic Ocean (Plate 3). This caging of Limbe by the C.D.C. plantations has led to the population exhausting the strip of land between Dockyard and New Town, East of the Ring road (round.



Plate 3: Limbe settlement expansion physical constraints. , © Fogwe, 2013

The area found on the Eastern sector are composed of steep mounds (hilly terrain) extending from the Atlantic Ocean to Bonadikombo including Chopfarm, Bonjo, Makuka, Motowoh, Mawoh, Mabeta, Cassava Farms, Towe, Mile Two and Livanda Congo. Also, the Western section of the town is flanked by a chain of volcanic cones including Mbende West, Gardens (Caterpillar Hill), Mbende and Unity Quarters. Coconut Island is in the Half Mile area situated in the heart of the Valley. These factors have constrained settlement expansion in these parts of the town and has led to refuge settlement encroachment of marginal scoracious and hilly terrain. There was a concluding observation during fieldwork that the most suitable areas for habitation are those occupied by the C.D.C plantations (albeit ongoing C.D.C land retrocession to the indigenes.



Plate 4: Refuge settlements diving into scoracious hill slopes around Limbe
© Fogwe, 2013

The current rush for building land on these slopes results from lack of adequate suitable land for development and expansion. The rapidly high population increases in Limbe town history encouraged to a greater extent by the presence of the plantations and more recently by the presence of the oil refinery at Cape Limbo, has made the cost of land and rents in Limbe to rise remarkably.

If the population has to avoid the natural barriers to expansion and subsequent

development, then the most suitable lands for expansion no doubt, would have long been the northern parts of the town (towards Bonadikombo at Mile Four) and western parts of the town (at West Coast). Here again history holds on record that since the discovery of the town by the early English missionaries and eventually the Germans. The town started to grow with the creation of Down Beach quarter, followed by the resettlement of the natives of the Down Beach quarter to New Town which was followed by the creation of a high residential quarter for senior service plantation workers in Bota and two camps for lower class employees in Middle Farms followed by the Limbe Camp.

Concurrently, plantations were created as far back as 1900 so these quarters marked the limits of earlier anticipated town growth because after them no suitable or and/or adequate land (being either too swampy or hilly slopes) for further free expansion existed due to the presence of engulfing plantations. Limbe town since independence hardly expanded any much beyond its present limits so people live in Mile 4 (Bonadikombo), Moliwe, Ngeme, Mukundange, Batoke or even as far as Mutengene and Buea and work the formal service sector in Limbe for lack of accommodation or the high cost of housing generated by the consequent lack of space for expansion. The areas which hitherto seemed to have been heavily detested for settlement but suitable for agricultural purposes are now choosy areas occupied by the poor inhabitants such as the precarious hills which have been demarcated as risk zones by the city council. Encroachment of settlement onto the marginal hilly sites has become the order of the day in one can cite the following areas North/East of New town (Mabeta New Layout), North of Gardens (Mbende), Half Mile quarters (Coconut Island), the area behind the National Comprehensive College (Mile Two), the area behind the Limbe General Hospital (Unity Quarters) and the area behind the Limbe Wildlife Centre (Mbende West)

Landslide hazards occurred at Cassava farm in September 1989 following heavy rains. Several other landslides have been produced in Limbe since the dawn of the 21st Century (Table 2).

Table 2: Landslide Casualties in and around Limbe since 2001

Council Area	Date	Casualty recorded
Limbe 1		
Mabeta New Layout	June 2001	21 people and 4 houses
Cassava Farms	June 2001	Unknown
Towe	June 2001	Unknown
Mile Two	2005	2 houses destroyed
Mile Two	2007	No destruction
Towe	2007	5
Unity quarter	August 2008	4 houses destroyed
Livanda	June 2009	1 house destroyed
Towe	2010	Unknown
Mile Two	2010	1 house destroyed
Mile Two	August 2012	No destruction
Limbe 2		
Kie village	June 2001	Unknown
Kie village	August 2009	Blocked road, partially buried water tank
Limbe 3		
Mandoli	June 2001	Unknown
Chop farm	June 2001	Unknown
Makuka	June 2001	Unknown
Bonjo	September 2004	No destruction
Bonjo	July 2005	Blocked road
Makuka	July 2006	None

Source: Fieldwork (2012)

Severe landslides accompanied by floods occurred on June 27, 2001 affecting 3,000 inhabitants in the neighbourhoods of Mabeta New Layout, Towe, Unity Quarters, Livanda Congo, Bonjo, and Makuka (Ayanji 2004). Approximately 23 persons were killed, 50 injured, about 120 houses completely destroyed, community infrastructure (roads, water and electricity supply line, communication systems, schools, and churches) and farmland destroyed. Total losses were estimated at 1.5 billion FCFA (Ayanji 2004).

Beating the odds of Limbe land deficit: an inclusive development model

The environmental facade of hazards in the Limbe Municipality have revealed that the urban rich and poor are interdependent for services and wages. The urban rich have employment benefits such as housing allowance and high wages and so can afford suitable expensive land within the city on which they construct standard and modern housing structures unlike the urban poor who have low wages, have no employment benefits and so find it difficult to purchase suitable land and construct standard housing structures. There is need for a harmonious management of lands returned by the CDC to native "bakwerians'. Such lands have been released in the environs of Limbe in Bimbia, Middle Farms, Mile Four, Limbola, Isokolo, Wovia and Ngeme where various local councils distribute them to the natives and the natives in turn sell them to individuals who are interested to get them. Perhaps priority ought to be given to those who have inhabited hazard prone areas.

The Bakweri Lands Claim Commission got back this land by filing a complaint against the Cameroon Government on behalf of the traditional rulers, notables and elites of the indigenous minority peoples of Fako Division (the Bakwerians). The complaint was against the Presidential Decree No. 94/125 of 14 July 1994 where the Government of Cameroon listed the CDC to private purchasers of approximately 400 square miles (104,000 hectares) of lands in the Fako division traditionally owned, occupied or used by the Bakwerians. The complaint was that the land was seized from Bakweri landowners between 1887 and 1905 by German colonial occupiers, acknowledged by the British colonial authorities and the United Nations General Assembly (UN Document 189, paragraph 16) in November 1949, and that the land in question was bought back by the British Colonial Government after WWII, and declared "Native Lands" and placed under the custody of the Governor of Nigeria to hold in trust for the Bakweri. In 1947, the lands were later leased to a newly created statutory corporation, the Cameroon Development Corporation (C.D.C) for a period of 60 years to administer and develop the land until such time that the Bakweri people were competent to manage them without outside assistance. The decision was whereby the government of Cameroon affirmed that the lands occupied by the CDC are private property owned by the Bakweri people; ground rents owed to the Bakweri dating back to 1947 be paid to a Bakweri Land Trust Fund; the Bakweri, acting jointly and severally, be allocated a specific percentage of shares in each of the privatized companies (ACHPR, 2004).

The release of these lands by the C.D.C has only partially solved the problem of limited access to suitable land for habitation because the local councils distribute these hectares of land (104,000 hectares) only to natives found in the villages of Bonangombe, Dikolo, Bonabile (Bimbia, Limbe three Municipality); Isokolo, Limbola, Ngeme, Mukundange, Wovia, and Batoke (West Coast, Limbe 2 Municipality); Mile Four (Limbe o1 Municipality). The natives in turn sell the lands to those financially capable to get them and so the tendency now is to find only the rich people build in such areas because the cost of land in these newly released lands is financially prohibitive to the urban poor who can only but continue to encroach the marginal zones.

It was noted during fieldwork that even though every son and daughter of the soil has a right to own land, each village uses a different method of sharing the leased lands. Some villages partition the land according to family (Bonabile village) and some villages partition them according to individual members of the family (Dikolo village). A site plan is also given to the individual to ensure that the modern urban planning practices perceived by the Government are being implemented. When

the indigene has acquired the land and wishes to sell part of it to an urban dweller, the buyer is taken to the local/traditional council.

Conclusion

Since rural exodus can be said to be the leading factor that leads to uncontrolled urban extension even on unbuildable areas whereby rural dwellers troop the cities in search of greener pastures. Regrettably in most of Limbe, they are met by landslides as well as other natural hazards are natural occurrences that cannot be stopped from occurring. Since the occurrence of these natural hazards cannot be prevented, their impacts can only be avoided by humans who have the power, right and capacity to control the resources which have been provided by nature for their use. Self-discipline could be the only reliable solution to solve such problems which are being faced in the complex society of today as in the past such problems as rapid population growth and limited space for habitat expansion were limited. Making the rural areas attractive for habitation would be an effective solution as it will divert the attention of the youth from migrating to cities with the perception that city life is preferable than village life because this study has shown that the unprepared quest for urban wealth land many in greater misery of living conditions and places than rural areas should have provided at all times in the history of Limbe.

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