

Research Article

Enhancement of Cultural Legitimacy for Climate Change Mitigation and Adaptation

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Abstract: The current scientific stance of Inter-governmental Panel on Climate Change (IPCC) on global climate change is even stronger than in prior assessments, rendering the contrarian arguments anachronistic with focus now on the effectiveness of State proposed adaptation and mitigation strategies in checking cultural erosion. Strategies proposed so far by governments and non-governmental organizations (NGOs) are sources of problems to the cultures of indigenous peoples and their existential realities than upholding equity and cultural legitimacy. This paper investigates the culture-related challenges associated with current climate change adaptation and mitigation strategies and to propose best practices for the enhancement of the cultures of indigenous Baka and Mbororo in Cameroon while striving for climate change adaptation and mitigation. Secondary data used were gleaned from State policy documents, websites of conservation NGOs, while primary data were collected from officials representing government ministries, international civil society organizations and Indigenous Peoples through semi-structured interviews and informal conversations. Additional data were from Indigenous Peoples through questionnaire, focus group discussions (FGDs) and observation. The findings reveal that State and NGOs carbon sinks conservation strategies neither integrate ancestral lands and cultural preservation nor accommodate existential realities of Pygmies and Mbororo. Similarly, REDD and REDD+ projects, though still in the pilot phase are conceived and implemented in ancestral lands without consent of indigenous peoples and cultural regards. Culture-sensitive climate change mitigation and adaptation strategies have been proposed.

Keywords: Ancestral lands, climate change, conservation, cultural legitimacy, equity, existential realities.

INTRODUCTION

A growing number of multi-disciplinary scholars shares the view that global climate is changing and impacting many cultures adversely (Dietz, T. *et al.*, 2005; Dietz, T., *et al.*, 2007; Kahan *et al.*, 2005; IPCC, 2007; UNFCCC, 2007; Dunlap and McCright, 2008; Hamilton and Keim, 2009; Adger *et al.*, 2012 and McGlade¹, 2016). The current stance of IPCC on contemporary human-induced climate change is even stronger than in prior assessments (IPCC, 2007 and 2012). Though climate change impacts the entire human history and evolution (Tauli-Corpuz *et al.*, 2009), the Surrey International Law Centre (SILC) held that impact of climate change on the cultures of indigenous peoples is overwhelming and should serve as a driving force towards the mapping out of culture-sensitive mitigation and adaptation strategies (SILC, 2011). The

culture of a people is its identity and it is founded on a given physical and human environment, which when modified affects the culture (Adger *et al.*, 2012).

Before Industrial Revolution man was living in harmony with nature and changes in global climate were slow and were determined by the natural process of greenhouse gas (GHG) emission into the atmosphere (Maslin, 2004). These emissions were necessary for the absorption and retention of infrared radiations sufficient to keep the earth warm for human habitation (Tauli-Corpuz *et al.*, 2009). Their concentrations in the atmosphere were checked by natural processes of carbon sequestration. With the advent of Industrial Revolution, dominant economic development models oriented towards massive consumption of carbon-based fuels disrupted the harmonious relationship with nature, a situation compounded by incessant depletion of carbon sinks in the tropics (Oginni and Adebamowo, 2013). Some developed nations exercise tepidity in

¹ Executive Director of the European Environment Agency (EEA)

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reducing emission rates and rather politicise climate change issues with ensuing wedge that derails attention (Hamilton, 2010).

Governments in developing countries are not helping the situation either. They are overwhelmed with the euphoria surrounding technical and regulatory solutions to climate change (Bigombe, 2003). Such an approach is attuned to economic quantification and conventionalities grounded in policy analyses while undermining the fact that society’s response to every dimension of climate change is mediated by culture (Adger *et al.*, 2012). National approaches to climate change in countries of the Congo Basin Forest are based on eco-centred conservation of carbon sinks, and are devoid of indigenous knowledge, local tenure and existential realities of indigenous peoples for environmental resilience and climate change mitigation and adaptation (Forest Peoples Programme, 2003). In Cameroon de jure protected area creation, pilot REDD and REDD+ projects, and fauna classification into categories A, B and C where category A animals are totally protected, are State prerogatives (Egute *et al.*, 2015) with no contents-wise inputs from and without the consent of indigenous peoples who are lured into passivity by conservationists for purposes of assistencialism (Selener, 1997). Cameroon’s 1994 forestry and wildlife law that introduced notions of permanent forest, non-permanent forest, forest management units or *unités, d’aménagement forestière* (UFAs), forest exploitation concessions (FECs) and community forests (CFs) in country level forestry literature distorted the cultural heritage of Pygmies and Mbororo and their existential realities. Climate change has rendered them victims of radical and fundamental shifts in socio-cultural, political, economic and ecological structures.

The government and NGOs such as World Wide Fund for nature (WWF) and Birdlife International resort to showing proof of better stewardship to funding bodies by combining law enforcement and community participation as conservation strategies. Such strategies nurture a missing link in the collective effort towards climate change mitigation and adaptation (MINEF and GTZ, 2004). Forceful eviction of Baka from their ancestral lands to make way for protected areas (Hurlimann and Dolnicar, 2011) and apprehension of those who advocated for the killing of just an elephant a year for Njengi cultural rites or complained against loss of land and resources on which to survive instil doubts of the rationale for conserving the forest (INADES² & Geovic Cameroon, 2011 and Orozco *et al.*, 2016).

Though indigenous peoples in Cameroon are most vulnerable to droughts, resource decimation, reduction in the volumes of water bodies and an upsurge of

climate change-related diseases, they are shunned from issues of climate change and are, therefore, stifled to respond to it. These adversities, coupled with the denial of access to the resources they use in accomplishing traditional rites, estrange them from their cultures (Adger *et al.*, 2012), a situation needing redress.

The Study Area

This study was carried out in two sites in Cameroon. One of the sites is found in the southeast forest zone of Cameroon and forms part of the Congo Basin Forest. It is rich in biodiversity and constitutes a conservation hot spot dominated by the Lobeke, Boumba-Bek and Nki National Parks, the Dja World Heritage Reserve, UFAs and (FECs). The site is inhabited by Bantu and Indigenous Pygmies (fig.-1) and is located between longitudes 12°30’ and 16°11’ east of the Greenwich Meridian and between latitudes 2°05’ and 3°30’ north of the Equator (WWF, 2009).

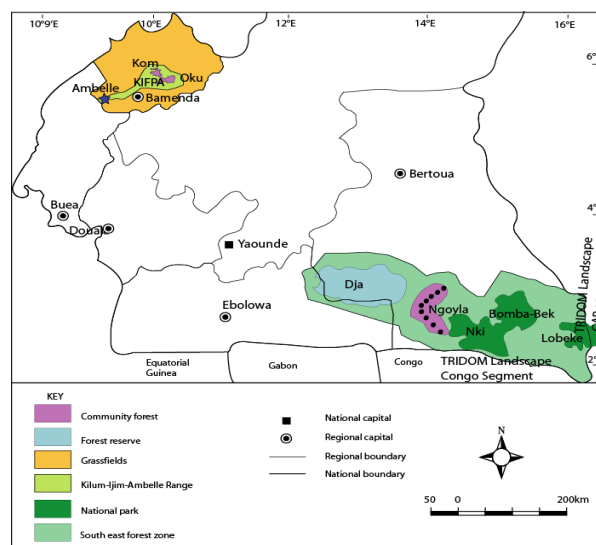


Fig.-1: Location of the study sites in south of Cameroon

Source: Adapted from the 2007 administrative map of Cameroon.

The other site is found in the Western Grassfields of the North West Region of Cameroon and stretches from Kilum-Ijim Mountain Range in Oku and Kom land to Etay-Begwat Range in Ambelle Clan. It is located approximately between longitudes 9°35’ and 10°34’ east and between latitudes 5°50’ and 6°19’ north (Coulthard, Demarco, Edwards, Gardener and Nurse, 1995). The site is inhabited by Mbororo Indigenous Peoples and semi-Bantu. The vegetation is predominantly montane forest and grass in the whole of Kilum-Ijim area while the Ambelle Clan constitutes a transitional zone with grass in the north and tropical forest in the south (Enchaw, 2002).

Tools and methodology

A descriptive survey method was used. Secondary data were gleaned from State policy documents in the Ministries of Forestry and Wildlife (MINFOF),

² African Institute for Economic and Social Development

Environment, Nature Protection and Sustainable Development (MINEPDED), WWF, Mbororo Social and Cultural Development Association (MBOSCUDA) and Google search engine. Field survey was limited to two phases of two weeks per site due to the long distance separating them. In each site, 10 villages close to protected areas, and inhabited by indigenous peoples, were selected for study and these constituted a cluster. Data on population and household numbers were from the national census office (BUCREP) in Yaounde. The household was the unit for questionnaire administration and both men and women responded to the survey instrument. A random approach was used to administer the questionnaire to household members since the indigenous people are very mobile. Effectively, 240 persons responded to the questionnaire while 6 men and 4 women responded to the semi-interview guide.

Additional data were gathered through FGDs with members of men and women cults, but who were also hunters/gatherers, crop farmers, livestock rearers and fisherwomen. Informal discussions were held with some custodians of the cultures of the Pygmies, Mbororo, Bantu and semi-Bantu, the representatives of MINFOF, MINEPDED, WWF, MBOSCUDA and local administrative officials, traditional authorities, group leaders, and field observation. Two case studies, drawn from each cluster focused on the impact of climate change on the traditional rites of men and women.

Questions asked focused in part on, knowledge of climate change, the suitability and effectiveness of government's strategies to mitigate climate change such as eco-centred conservation and eviction from ancestral lands, REDD and REDD+ projects, and fauna classification. Other questions focused on cultural and religious rites, access to resources used in accomplishing rites, seasonal variability, droughts and transhumance, cattle drinking points and volumes of water bodies, rainfall, temperature, quality of rainfall and diseases, agricultural calendars, inter-community dialogue and farmer/grazier conflicts.

Quantitative data were processed statistically by computing frequencies of responses per variable of cultural and climate change relevance. Qualitative data were processed through open coding of cultural and climate change related themes expressed by informants, and emphasis was on *in vivo* codes, which are descriptive in nature and make use of informants' own words (Strauss, 1987; Gilbert, 1998 and Cope, 2003).

FINDINGS AND DISCUSSION

The findings show overwhelming climate change impact on the cultural and religious practices of indigenous peoples in Cameroon and their existential realities (Table-1). The findings also reveal limitation of climate change mitigation and adaptation to a technical and statutory approach that evaded indigenous peoples in the climate change arena (Table-4). It was observed

that State classification of elephants into the totally protected class A animals has grounded Njengi cultural and religious practices. Men and women case studies attested to the fact that response to environmental challenges such as climate change is mediated by culture. The findings show that Pygmies were unable to correlate contemporary resource decimation and climate change and could not differentiate between conservation that led to their relocation and REDD and REDD+ conservation projects for climate change mitigation.

Manifestations and effects of climate change in the study sites

Increasing global average air and ocean temperatures, widespread melting of snow and ice, rising global mean sea level and reducing volumes of streams and rivers are among conspicuous manifestations of climate change (IPCC, 2012) and are breaching cultural and religious lives of indigenous peoples with greater magnitudes. In the study sites, all the respondents were familiar with the elements of weather, alternation of rainy and dry seasons, and the evolution of rainfall and temperature in their localities. They were also unanimous that the manifestations of these elements of weather were being modified as the years go by. During a focus group discussion with Baka women in Mebang, the participants alleged that in their community it has become difficult to say when the dry season ends and the rainy season starts. One of the elderly Baka women with the title of *Kobo*, and through whom Njengi (god of the forest) communicates to the community, corroborated this assertion by saying that in the course of time, they have discovered that the dry season starts earlier than usual and the rainy season starts later than previously, distorting agricultural calendars. During an interview with a Grassfields Paramount Ruler of Kom land in Laikom, it was gathered that planting seasons and the return of Mbororo from transhumance valleys usually started when traditional rites had been performed in a shrine (photo 1) found in a sacred forest called *Akua-fichua* in Laikom after the first rains (Fon Vincent Yuh II, 25 October, 2007 pers. comm.).



Photo-1: Neglected shrine

A: The *Akua-fichua* sacred forest shrine.
B: Surrounding forest

These rains were normally believed to mark the end of the dry season and the beginning of the rainy season. Unfortunately, for some years running they have been witnessing unprecedented distorted seasons though the cause was unknown. The informant noted with dismay that the priest of the good harvest shrine could not reconcile the fact that since 2009 they have been performing their usual traditional rites in *Akua-fichua* shrine after the first rains only to notice the re-emergence of the dry season, a few weeks later. The sudden reappearance of the dry season lures the priest of the shrine and the entire institution into error as the traditional rite loses its credibility (table 1) while crops and livestock are affected, thereby undermining food security and imposing economic hardship.

All the respondents were unanimous that it was expected that after such sacrifices in the shrine, the gods

of the land brought abundant rain, good climate and fertility for crop farmers and green pasture for livestock of Mbororo graziers who lived in enclaves. With a steady quantitative and qualitative dwindling of pasture lands, it has been observed that Mbororo people are disproportionately affected by the adverse effects of climate changes (MBOSCUA, Laimaru Network and CAEPA, 2013). The early start of dry season in October is unprecedented and puts a bearing on graziers who have to either precipitate transhumance to the valleys and perpetrate crop destruction and farmer/grazier conflicts or face cattle decimation due to pasture and water scarcity as in Zimbabwe in an attempt to respect 1st of January proscribed by Articles 1&2 of Decree No 76/420 of 14 September 1976, modified by Decree No 86/755 of 24 June 1986 for transhumance. Attempt to shift from cows to sheep and goats rearing to check voracity requires new adjustments in species management.

Table-1: Responses on the impact of seasonal distortion on traditional rites

	Villages	Respondents to questionnaire	What was expected after the rites in <i>Akua-fichua</i> shrine		What happens now after the rites in <i>Akua-fichua</i> shrine	
			Rain and good climate for agriculture	Dry season	Rain and good climate for agriculture	Dry season
Grass fields Cluster	Elak	11	11	0	0	11
	Mbesa	7	7	0	0	7
	Simonkoh	10	10	0	0	10
	Abuh	7	7	0	0	7
	Laikom	5	5	0	0	5
	Mbororo Enclaves	15	15	0	0	15
	Anjake	8	8	0	0	8
	Egbeachuk	6	6	0	0	6
	Olorunti	10	10	0	0	10
	Tanka	9	9	0	0	9
Total	10	88	88	0	0	88
Percentage	100	100	100	0	0	100

Source: Field work, May 2018

Akua-fichua shrine served both cultural and ecological functions relevant for climate change mitigation. An interviewee alleged that no cutlass is used to clear or cut whatsoever in *Akua-fichua* sacred forest and the road leading to the shrine and the surrounding forest are cleared with sticks. Firewood from this forest serves only the Palace and it is harvested only when the shrine is visited by the community. This abode of their gods and the spirits of the forest must not be depleted and people are prohibited from entering there on unauthorised days in order to check disturbance of the gods and spirits when they are busy interceding on behalf of the community.

The use of less sophisticated tools in *Akua-fichua* sacred forest is not only a traditional symbol, but an eloquent conservation strategy since limited damage is

inflicted on the forest. As noticed in the field, trees in *Akua-fichua* sacred forest were among the largest in terms of height and girth in all the forest compartments visited in Kom. The taboo on firewood from *Akua-fichua* sacred forest limits the chances of the population invading the forest for the fuel as in other forest compartments where fresh trees are harvested for burning (Enchaw, 2009). This observation confirms the fact that cultural revival and preservation are indispensable vectors of climate change mitigation and adaptation.

Alluding to a missing link in the modern conservation approach, the Fon expounded that Kilum-Ijim forest has been carved into CFs under the authority of forest management institutions (FMIs) manned by some young people who believed that tenure over the

forest has been transferred to them. They are unwilling to collaborate with the traditional socio-political institutions that make decisions on the ownership, use and management of natural resources at the grassroots level. Activities of members of these FMIs are riddled with clientelism and covert arrangements. They harvest *Prunus africana*³ bark from the forest during the day for the FMIs and at night they connive with illegal exploiters to harvest for their private benefit. The illegal exploitation is unsustainable as many *Prunus africana* trees in the forest die (photo-1).

In a related dimension, the informant attested that there are many conflicts between the local population and KIFP staff and between the members of the FMIs. The informant remarked that people have been farming and grazing in the forest against the will of the project and all attempts to send them out even through court action proved futile and the more indigenous defaulters are apprehended, the more the forest is invaded and the more the local people become aggressive to the forest and its resources.



Photo-1: Withered *Prunus* trees
Clientelism has led to unsustainable exploitation of Prunus africana in Nchiy CF

Evolution of Rainfall, Temperature and Droughts

All respondents were unanimous that rainfall has been reducing and that temperatures have been rising with time. This assertion was in consonance with climatic data in weather stations close to the study sites and elsewhere in Cameroon (Table-2).

Table-2: Mean number of days of rainfall in Cameroon

Station	1940	1960	1980	1995
Bamenda	213.5	204.3	195.0	188.0
Kribi	209.0	205.1	201.1	198.2
Mamfe	248.4	222.4	196.5	177.0
Maroua	72.8	71.8	70.8	70.1
Total	743.7	703.6	663.4	633.3

Source: Adapted from Ayonghe, N.S (1999).

Table-2 shows that mean number of days of rainfall have been on a steady decrease in the whole country from 1940 to 1995. From a mean number of 743.7 days of rainfall in 1940, the number dropped to 633.3 in 1995. Graphs of total number of days of rainfall per year showed erratic trends and the amount of rainfall from 1940 to 1995 decreased by 282mm, equivalent to a decrease of 43mm in a decade (Ayonghe, 1999). The observed decline in rainfall was accompanied by increasing temperatures (Table-3).

The data on table 3 shows fluctuating but increasing temperatures from an annual mean value of 16.4°C in 1995 in Elak, to 20°C in the year 2005. While in the Fundong station, it rose to 21°C from 17.2°C in 1995. This steady rise in temperature is aggravated by frequent and prolonged droughts events in parts of Cameroon. For instance, in 1984, generalized drought events were experienced in the country, while in 1997 and 2005, the Sahelian zone was hit by severe droughts causing crop failure and livestock decimation that engendered hunger and triggered external relieve intervention (Njakoi and Taboh, 2009). Table 3 shows that in 1997 and 2005, the temperature values reflected drought situations in the two stations. This means that the droughts reported in the northern regions of Cameroon during the Pan African Summit by Dr Henry Njakoi and Dr Humphrey Taboh were not only common there but in the whole country though disproportionately.

Although higher temperatures of up to 26°C were common in the forest zone, daily cultural practices in the Grassfields were noticed to be very sensitive to temperature changes. The mean annual temperatures in the Grassfields have been increasing rapidly affecting the dressing, marital and burial rites of the local populations, an informant in Fundong noted. Grassfields culture is founded on cold weather conditions and increasing temperature imposes cultural adulteration (Tim Fidelia, 19 May 2011, pers.comm.).

Informants in Ijim alleged that warmer temperatures have influenced parents who usually received blankets as first gifts from their male children, as a sign of maturity, have started receiving lighter coverings such as bed sheets. They further noted that fathers-in-law have also started receiving lighter coverings from their sons-in-law for similar reasons, and the practice of burying elderly persons with blankets is fading out. If warmer temperatures have started influencing traditional wears of Grassfields peoples, it could be expected that as global warming intensifies, the official dressing of traditional rulers in the Grassfields, which is made up of thick and warm embroidered regalia will be affected. It is feared Fons may start putting on simple shirts, when presiding over important ceremonies, which does not reflect the culture. Such unprecedented cultural attire will not only be considered ridiculous by

³ A medicinal plant whose bark is used for the treatment of prostrate cancer.

the Council of Elders, but will imply cultural adulteration.

In the forest zone, effects of rising temperature and reducing rainfall were alleged to impose exceedingly hot climatic conditions, drying up of springs and

wetlands, and a reduction in the volumes of streams and rivers. Other effects of climate change on them included distortion of hunting and gathering seasons and the disappearance of the wild flat leaves used in the forest as pots and for the construction of huts known as *mongulu* (Abega, 1998)(photo-2).

Table-3: Increasing mean annual temperatures in KI area (1995-2005)

Station	Average annual Temperature	Year						
		1995	1996	1997	1998	1999	2000	2005
Elak	T°C	16.4	17.4	18.5	18.1	18.4	18.2	20
Fundong	T°C	17.2	17.6	19.4	19.7	19	19	21

Source: KIFP area data for Elak and Fundong stations



Photo-2: Mongulu

Huts constructed with leaves by Pygmy women in Minko’o II. Photo by Enchaw, G.B., May 2018.

The informants said that they preferred these *mongulu* (dome-shaped house built with young tree stems and leaves) because they maintain colder temperatures in their interior. *Mongulus* were observed to be a common dwelling even in larger communities where improved dwellings are dominant as each family owned at least two.

**Climate Change and Cultural Breach
CASE STUDIES**

Climate change manifests in various forms, threatening the cultures of indigenous peoples and their existence. From a gender-baseline, it was observed that cultures are impacted differently and communities’ response to climate change dimensions bear a gender colouration as elucidated with two cults.

Nkochung Cult

Nkochung, a socially tolerant male cult, is among the first in Ambelle community to suffer major setbacks from effects of climate change. During a mixed FGD in Egbeachuk, the participants confirmed that women shared in some activities of Nkochung such as singing, dancing, eating and drinking as do initiated members. An interviewee who was the Priest of *Nkochung Cult* noted that males are eligible to the cult, but they must be initiated. Women are not eligible and together with

non-initiated men do not enter the temple where the members gather. This informant opined that the binding factor of Nkochung cult is a ritual synonymous to the Sacrament of Holy Eucharist as a colocassia paste constitutes the ritual bread while slimy juice from a liana known as *eloate-nkochung* found in marshy areas serves as its wine. The two form the spiritual ingredients of the cult. The rite cannot be performed in the absence of any of these, reasons for which Nkochung has not talked in Ambelle land since 2005 and no young people have been initiated. Habitat modification by climate change led to the decimation of the liana and attempts to domesticate it did not solve the problem as polluted rain fell in February 2010 in Cameroon destroying colocassia needed for the rite (Ojuku, *et al.*, 2010) (photo-3). Not only was colocassia destroyed, the soils were also polluted, and the effect kept persisting, making the crop vulnerable and compromising the fate of the Nkochung cult.



Photo-3: Colocassia

Withering colocassia in the month of May in Egbeachuk village. Photo by Enchaw, G.B., May 2010.

Yeyi Cult

The impact of climate change on the culture of Baka women is preoccupying. The Baka woman, worth the name, is one initiated with *nbwahka* fish into the *Yeyi* cult. Such initiation enables her assume womanhood as she becomes imbued with potentials to carry out incantations, procreate, sing and dance with dexterity, and serve for gathering in the wild. Eviction of Baka from the forest to make way for forest conservation has exposed their cultures to effects of climate change. An interview in Minko'o II, expounded on the socio-cultural importance of *nbwahka* fish to the indigenous Baka woman in Cameroon and how global warming has affected the sources of ingredients for their traditional rites. The elderly Baka woman (*Kobo*) elucidated that *nbwahka* is a species of fish that was usually used as the main ingredient in initiating young girls upon maturity into *Yeyi* cult, which was a fundamental stage of Baka womanhood. The initiation usually took place during the annual Libanji Festival in the forest and was performed by Baka traditional chiefs and *Kobo* on girls of age 15-23 years. According to her, initiated young girls were imbued with strong vocal cords that empowered them to invoke the spirits of the forest through incantations. This was the rare moment during which the Baka woman communed with the ancestors as the young initiated girls were capable of singing and dancing to the rhythm and for the pleasure of Njengi Deity. It is believed among Baka that whenever Njengi was pleased with the incantations, it came out and showered blessings upon the land. Unfortunately, the volumes of the streams to which they have access in their relocation sites have reduced due to logging that accentuates climate change making it difficult for them to catch large-size *nbwahka* fish for their traditional rites since 1997. No young girl has been initiated in Djoum area since then and this marked a breach of tradition. The *Kobo* opined that while as wanderers in the forest, they were accessing all the resources of the rivers and streams therein. But once sedentary life was imposed on them following forceful resettlement along main road axes for the creation of Lobeke, Nki, Boumba-Bek National Parks and World Heritage Dja Reserve between 2001 and 2005, many logging

concessions, access to these rivers was denied them by law. Only springs, streams and marshes are in their new found resettlement sites and the drying off of these water bodies as climate change accentuates instigated all large-size *nbwahka* species of fish to follow the streams downward and escaped into the bigger rivers found in their ancestral lands. It did not, therefore, take long for large-size *nbwahka* fish in their surrounding streams to become rare. Using a small-size *nbwahka* fish for traditional initiation rites of young girls is a mockery to Njengi and is sanctioned with damnation to the community. Cultural mainstreaming of the Pygmy woman has been compromised and the social fabric has been permeated by iniquities. The *Kobo*, however, ascertained that some latent hopes of revamping the initiation of young Baka girls still loom following scientific revelations that the volumes of their springs and streams could be restored by planting raffia palms at catchment areas to mitigate climate change.

Mitigation and Adaptation Strategies among a People Shunned From the Climate Change Arena

Climate change mitigation and adaptation strategies adopted by the personnel of MINFOF, MINPEDED and NGOs with public utility status such as WWF impact the cultures of indigenous peoples. *In situ* carbon sinks conservation strategies through a network of national parks, forest reserves, CFs, and REDD and REDD+ projects were state construct and devoid of cultural legitimacy and equity (Table-4). A percentage of 88.8 shows a direct correlation between the non-involvement of indigenous peoples in conservation and REDD and REDD+ projects, and their limited knowledge of climate change mitigation and adaptation strategies. The same percentage confirms the non-provision of incentives to these indigenous peoples for climate change mitigation and cultural resilience. An 11.2 percent of the respondents, however, did not know whether the government was providing conservation incentives or not. In their views, if some incentives and/or forestry royalties were provided, then, they were being confiscated by Bantu authorities under whose villages Baka have been subsumed.

The issue of tenure rights of indigenous peoples was observed to be a source of many problems faced by Pygmies, Mbororo and their cultures. The respondents were unanimous that incentives that could enabled them mitigate effects of climate change on their cultural practices included maintaining them in their ancestral lands, given access rights to resources therein, and providing alternative income streams. But their relocation breaches their place attachment as grounded in socio-geographical analysis (Twigger-Ross & Uzzell, 1996; Hidalgo & Hernandez, 2001) and therefore, estranged Baka from their ancestors and rendered them culturally inane as Njengi cultural practices are predisposed to erosion. Worse still, improvised Njengi sacred forests in their current resettlement sites are termed *defacto* and were being destroyed and

desecrated with impunity by Bantu populations and logging companies, thereby imposing

acultural discontinuity among younger Baka generations.

Table-4: Response on culture-related climate change mitigation incentives.

Cluster	Villages	Respondents	Are you aware of REDD and REDD+ projects or provided forest conservation incentives?			If no, what type of incentives do you prefer for the forest and your culture to survive?			Do you know how to fight climate change?		
			Yes	No	I don't know	Financial	Food and drinks	Tenure and access rights to resources, sacred forests and shrines	Yes	No	No idea
Forest	Ando'o	9	0	7	2	9	5	9	0	7	2
	Mebang	7	0	6	1	7	4	7	0	6	1
	Minko'o	9	0	8	1	9	6	9	0	8	1
	Doumzock	13	0	11	2	13	6	13	0	11	2
	Etekessang	17	0	13	4	17	8	17	0	13	4
	Malea Ancien	20	0	18	2	20	9	20	0	18	2
	Ngatto	25	0	24	1	25	10	25	0	24	1
	Kika	18	0	16	2	18	10	18	0	16	2
	Mambele	20	0	19	1	20	11	20	0	19	1
Yenga	14	0	13	1	14	8	14	0	13	1	
Total	10	152	0	135	17	152	77	152	0	135	17
%	100	100	0	88.8	11.2	100	50.7	100	0	88.8	11.2

Source: Field work, May 2016

Over 50.7 percent of the respondents acknowledged the need for food and drinks in order to collaborate with those who come to get information from them, besides tenure rights and money. The Kobo of Minko'o intimated that after many years of providing information to researchers their situation has not changed and if their cultural values are eroding, they should not also lose what to eat. As observed during field work, without sachets of whisky of any of the brands Lion D'or, King Arthur, Kitoko and Fighter, Baka will seldom collaborate.

Up to 2007, Cameroonian Baka believed that observed reductions in the volumes of surrounding springs, streams and wetlands, and the disappearance of large-size *nbwahka* fish in these water bodies were associated with the wrath of *Komba* (Creator). Two Kobo confirmed that the disappearance of large-size *nbwahka* was progressive and the rate varied with stream as the latest caught around Djoum was in Lele stream in 1996. But in 2007 some researchers made them to understand that the unusual occurrences were the effects of climate change and not the wrath of *Komba*. They acknowledged having told that, such effects could be mitigated by preserving and planting trees (reafforestation and agroforestry) such as raffia palms in catchment areas. "That was strange to us because tree planting had never been part of our livelihood, which until our resettlement along the roads was based on gathering and hunting", the Kobo of Minko'o stressed. Upon maturity the raffia palms were

going to use their roots to raise the water table, restore the volumes of the streams and large-size *nbwahka* could find them habitable again. The ecological, economic and cultural services of raffia palms convinced them and their peers to believe in what the researchers said.

FGD participants in Mebang threw more light on the attachment of the Baka woman to her culture and how the quest for the preservation of her cultural values spurred her to become involved in the fight against climate change. The participants explained that it was difficult for them to initiate any reafforestation and agroforestry projects on their own. They acknowledged their lack of expert knowledge in tree domestication and their inability to get improved seedlings. Following those difficulties the Baka community negotiated to be part of an association initially called *Action de gestion durable des forêts* (AGEFO), which later became known as *Action de gestion durable des forêts en intégrant les populations Pygmies Baka* (AGEFO-Baka) when the Baka became members in 2007.

Through this association Baka woman started networking with World Agroforestry Centre (ICRAF) and *Société Forestière Industrielle de la Doumé* (SFID) to get expert knowledge on the production of seedlings of raffia palms, gobo, bolongo and bush mango *peke*, which they planted both in catchment areas and in the non-permanent forest during their gathering expeditions. They said that it was difficult for them to

produce moabi seedlings but that they gather those that germinated in the wild and planted. All the respondents in the forest cluster acknowledged that the planting of trees by Baka men and women was a recent phenomenon in their community. They, however, held that the choice of where to plant which tree by men and women depended on the services that the tree will provide to the particular sex. For instance, women mostly plant raffia palms in catchment areas with the hope of restoring volumes of streams while men plant them in wetlands for tapping of wine. Moabi and *peke* or bush mango *Irvingia gabonensis* are planted by both sexes for oil extraction from moabi seeds, sale, medicinal and ecological reasons.

CONCLUSION

So far, climate change has been perceived within a limited scope that undermines the fact that its mitigation and adaptation transcend technical and statutory strategies. Too much attention is focused on impact model approaches which are attuned to economically rational adjustments to risk whereas losses of public goods such as community and place are not easily compensated by such adjustments since culture and identity are difficult to be incorporated into public policy (Adger *et al.*, 2012). Policy change to promote adaptation through relocation and migration often lead to cultural breach and are resisted by populations since they do not resonate with place attachment values (Hurlimann and Dolnicar, 2011). For instance, impact model approaches seldom explain why different groups of persons and gender exposed to the same environmental challenges display vastly different responses as observed with the Ambelle men and *Nkochung* cult, and the Baka women and *Yeyi* cult. Issues of climate change mitigation and adaptation ought to be perceived through the prism of complementarity where environmental risks, economically rational adjustments and cultural enhancement constitute a package for effective responses to climate change. Mitigating and adapting to climate change through the creation of sacred forests or economically rational adjustments associated with the creation of national parks and wildlife sanctuaries for tourism adhere to the principle of common but differentiated responsibilities. As Bernadet van den Pol observed, society's response to any environmental risk is mediated by culture, and therefore, REDD and REDD+ projects in Cameroon, will be sustainable for climate change mitigation if indigenous peoples and their cultures become integral parts of such projects. If tree planting and where to plant them among Baka indigenous people is determined by the cultural interests of gender derivatives, then enhancement of cultural values will constitute adaptive pathways for climate change rather than focusing only on technical and regulatory solutions.

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