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Cocoa production sector: Constraints and effects on livelihoods in the Mbonge Sub-Division, South West Region of Cameroon

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Abstract

In Cameroon, cocoa production is the most profitable economic activity for rural communities particularly in the Mbonge Sub-Division. This sector provides a vital source of income and employment opportunities for numerous small-scale farmers. Despite their crucial role, cocoa farmers still struggle to earn significant income, leaving them unable to meet their basic needs or achieve a good standard of living. This study seeks to examine the constraints to cocoa production and their effects on rural livelihoods in Mbonge Sub-Division. To achieve this objective, descriptive and explanatory research designs were used with both primary and secondary data collected and analyzed using descriptive and inferential statistical techniques. A random sampling was employed to select a sample of 368 respondents including all stakeholders involved in cocoa production process within the study area. The results revealed that the constant fluctuation in cocoa prices, inadequate access to credit facilities, insecure land tenure, poor infrastructural development like roads, poor storage facilities, climate variability and change were the major constraints to cocoa production observed in the study area. These constraints have resulted in a 50% fall in the total production and revenue. There is a drastic drop in income from approximately 18,700,000,000-billion-franc C.F.A in 2011-to-9000,000,000-billion-franc C.F.A in 2020. The overall effects of the constraints on rural livelihoods on the inhabitants of Mbonge is the difficulty to access quality health care, feeding, decent housing, clothing, toiletries, household utilities, education, socialization, and savings. Purchasing power of farmers has remained very low, in addition to a high rate of inflation. The study recommends farmers to improve on cocoa certification, encourage savings and diversification of their sources of income and activity. The government is recommended to improve on integrated rural development projects, cocoa extension services and more efforts to solve the socio-political crises plaguing the area. Given the pivotal role of the cocoa sector, agricultural policies should be favourable to small farm holders amidst the constraints to ameliorate and improve cocoa production, thus improving rural livelihoods.

Keywords: Constraints; Cocoa Production; Livelihoods; Farmers; Mbonge Sub-Division

1. Introduction

The cocoa tree known scientifically as Theobroma cacao (Food of the gods), named after Carl Linnaeus a Swedish natural scientist originated from the Amazon rainforest region of South America (Livingstone *et al*, 2012). Its native range extends from southern Brazil to eastern Peru, Columbia, Ecuador and parts of Venezuela. Today it is widely cultivated in Mexico, Central America, foot of the Andes and the Orinoco basin of South America. The cocoa tree is grown in limited geographical zones in the world which have the hot tropical climate from latitude 20^0C north and south of the equator (Wood et al, 2010).

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Over the years, the cultivation of cocoa trees has spread to other tropical regions around the world, including West Africa, Southern Asia and Central America. The credit of having cocoa tree was first brought from the new world to the Africans tropics undoubtedly goes to the Portuguese, followed by the European colonizers, primarily British, French and German. The Portuguese are reputed to have planted cocoa on the island of Sao Tome as far back as 1822. Ghana and Nigeria were the first places in Africa where cocoa was introduced (Oluwasegun, 2021).

The planting of Cocoa in Cameroon was first introduced by the Germans in 1886 (Fule, (2014) and grown on large plantations with the aim of supplying their local factories with raw materials. They owned large cocoa plantations and brought contracts and forced labourers from other parts of Cameroon and Nigeria to work at the plantations. Workers were forbidden to take any cocoa seeds from the plantation but some would swallow seeds and then would excrete them once they returned home. During this time, cocoa slowly and secretly spread around the area. When the French and British took over the management, cocoa farms were increasingly being owned by peasants but were still maintained for export purposes (Ruf *et al,* 2015).

The cocoa sector plays a great role in the world international trade between countries. Bilateral and multilateral trade has increased between nations due to the cocoa sector especially the north-south flow. Cocoa is a highly competitive and lucrative cash crop ranked highest in terms of income generation amongst other agricultural activities (UNCTAD, 2004). West Africa produces about 70% of the world's production by small holders. Cocoa production increased by 50% in the first decades of the 21st century from 2.000.000 tons to 3.000.000 tons in 2010 (FAO, 2010). Production by 2017 stood at 1.8million tons with Ghana, Nigeria Togo, and Cameroon producing 1.55 million tons. This accounts for much of the international trade and GDP of these West African Nations (ECOWAS, 2012).Cameroonis amongst the leading world cocoa producers with annual production of 285,000metric tons occupying the 5th position (FAOSTAT, 2020). Since independence, the cocoa sector has played a vital role in the country's Gross Domestic Product (G.D.P) and total annual revenue and remains the main source of rural income in cocoa producing communities (Tcharbuahbokengo, 2005, FAO, 2007).Compared to other agricultural activities, cocoa has been a leading sub-sector in the Cameroon's economic growth and development and it remains the main cash crop to more than 75% of the population. (Ngoe et al, 2016). Cameroon generates approximately 250billion CFA francs annually from cocoa exports, constituting roughly half of the country's primary sector exports. As of 2011, cocoa was the highest-earning agricultural export, significantly contributing to the national income. In 2022, Cameroon produced 300,000 tons of cocoa beans with 149,200 tons being exported (ICCO, 2022). As a crucial crop, cocoa plays a vital role in Cameroon's economy, driving export earnings, employment and GDP. Despites its importance, the industry faces several challenges, including aging cocoa trees, low productivity and the threat of diseases like black pod diseases. Additionally, issues related to deforestation and child labour has been reported (Statista Research Department, 2022).

There are two main cocoa production basins in Cameroon; the South West Basin and the Centre-South Basin. The South West produces over 150 000 tons of cocoa (MINADER, 2013). The total production in 2012 was 256000 tons (FAO, 2014), indicating that South West Region produces over 58% of cocoa produce in Cameroon. This puts the South West Region at the forefront as far as cocoa production in Cameroon is concern. Cocoa farming in the South West Region of Cameroon tends to be grown on smallholdings of around 3 hectares (Gockowski et al, 2010). There are four main cocoa producing basins in the South West Region of Cameroon which are the Kumba basin, the Mount Cameroon basin, the Konye and the Mamfe basin. Currently, the Kumba basin is the highest producing basin in the South West Region of Cameroon (Klarer, 2014). But lately the physical and human constraints have led to a drastic reduction in cocoa yields in Mbonge Sub-Division the hub of cocoa production in Meme Division (MINADER, 2020). This has affected Cameroon not attaining its objective of producing 600,000 metric tons of cocoa by 2020 (World Bank, 2022). Since the outbreak of the socio-political tension in November 2016 Meme division is suffering from the horrors with Mbonge Sub-Division the seat of the separatist activities. Production has dropped to 28,800 metric tons with Mbonge Sub-Division producing 14,300 metric tons (MINADER Meme, 2021).

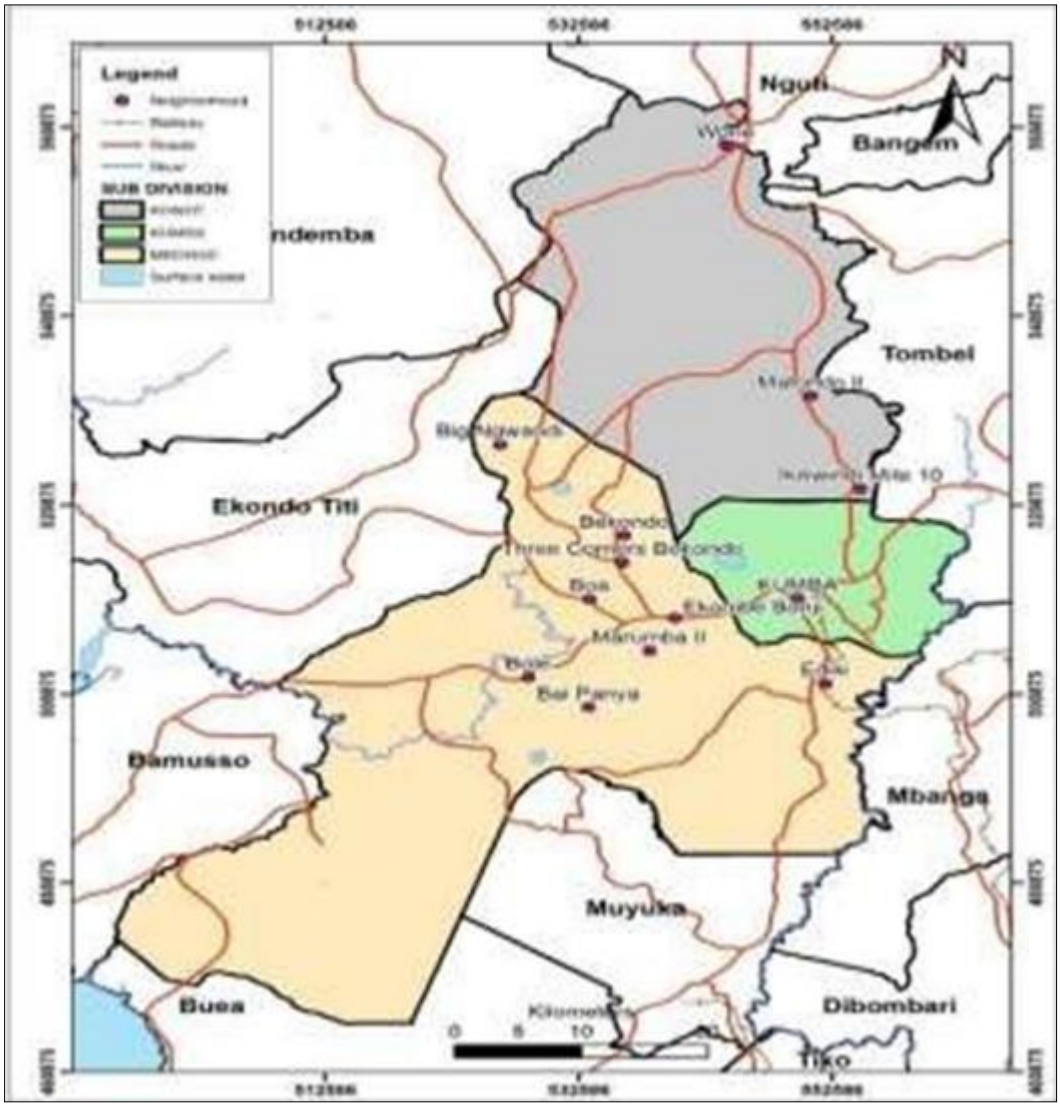
The problem with the cocoa sector in Mbonge Sub-Division can be traced back in the 1980s with the economic crises that began as a result of the fall of commodity prices in the world market due to its inelastic demand. Prices of cocoa fell from 450 to 150 FCFA in the 1990s in Mbonge Sub-Division (Tcharbuahbokengo, 2005). This forced the government into the privatization and liberalization of the cocoa sector with the closing of the Cameroon Cocoa and Coffee Marketing Board (CCMB). This resulted in the overall fall in the quality and quantity of cocoa production in Mbonge Sub-Division. Certification standards felt drastically as farmers became careless due to the low price per kilogram and did not respect the fermentation procedures and drying of the cocoa beans thereby producing smoky cocoa beans. Some farmers abandoned cocoa production, and some resulted to mix crop farming in Mbonge Sub-Division.

More so, adapting cocoa farming to modern farming practice is still a problem due to inadequate use of improved tools (Amungwa, 2013). In addition, the farmers in Mbonge Sub-Division faced physical constraint of increasing pest and

diseases due to climate variability and change which has direct impact on the plant physiology, yields, host pathogens and host resistance. The overall effects of the constraints are its negative effects on rural income and rural livelihoods making it clear that relying solely on cocoa production for livelihood is unsustainable (Forgha and Tosam 2013). A livelihood should provide a decent standard of living, enabling individuals to meet their basic needs and improve their well-being (Chinsinga et al, 2012). This research aims at examining the constraints on the production of cocoa and analyzes their effects on rural livelihoods in Mbonge Sub-Division.

2. The study area

Geographically, the study is limited only to three villages out of the 86 villages in the Mbonge Sub-Division of the South West Region of Cameroon, namely, EkombeBonji is 8km, Kombone 13km and Bole Bakundu 17km respectively from the main urban town of Kumba which is the chief town of Meme Division. The South West cocoa industry is based in Kumba the main base for many license buying agents (LBA), the National Institute of Cocoa and Coffee (NCCB), the Institute of Agricultural Research for Development (IRAD) Barombi Kang Kumba. Mbonge is located between latitude 4° 31' to 59 99° N and longitude 9° 13'0" to 9° 49'0"E. Mbonge Sub-Division is bounded to the North by Nguti, to the South by Muyuka Sub-Division, to the West by EkondoTiti, to the East by Tombel, to the Northeast by Bangem, to the Northwest by Mundemba to the Southeast by Mbanga and Dibombari and Southwest by Bamusso as seen on Figure 1.



Source: Adapted From the Administrative Map of Cameroon, 2016 and Fieldwork, 2023

Figure 1 The Location of Mbonge Sub-Division and its environs

Mbonge Sub-Division is found in the equatorial climate domain in Cameroon dominated by two air masses which are the North East Trade winds and the South West Monsoons winds which converge at the inter tropical convergence zone

(ITCZ) causing changes in atmospheric pressure and causing the two main seasons which are the rainy season and the dry season. Annual rainfall is quite high in the South West Region averaging from 2000mm to 3000mm depending on the location and is spread over an average of 156 days (MINADER, 2013). The rainy season normally starts in March-April and ends in November, Rainy season lasts for 9 months while the dry season lasts for just three months. Humidity is rarely below 60% and the height surpassing 80% with averages temperature 23^0 and 28^0 (degree Celsius). This climate provides ideal conditions for cocoa production, making it one of the main cocoa-producing regions in Cameroon.

The study area is found along the Cameroon Volcanic Line having rich volcanic soils and ferralitic soils with high humus content. The soils result from the disintegration of crystalline rock such as granite, gneiss and schists. The soils here are known to be young and fertile and particularly rich in potassium and other volcanic materials (Iyabano, 2012). This area has been historically known for plantation crops like rubber, cocoa, banana and oil palm. The topography of the Mbonge council area is generally low with some areas below 100m above sea level. The main river which flows into this area is the River Meme (the longest river in the South West Region) which cuts across many of the villages interspersed with many streams and springs. The main river which runs in the area has a lot of different fish species and contains sand which the local use for the construction of their houses. Timber and non-timber forest products offer a lot of money to the villagers like Eru, bush mangoes, bitter cola, snails and njansanga.

The South West Region in general is lagging behind in terms of road infrastructure with only few stretches of paved road network linkages which are the stretch linking Tiko-Douala created in the 1960s; Limbe-Mutegene-Buea stretch, Kumba-Mamfe and Bamenda created by the Chinese company in 2016 and the 80km stretch from Mamfe –Ekok (MINADER, 2013). The main economic activity of the inhabitants of the Mbonge council area is farming with cocoa being the main cash crop farming. From the 2005 national population census in Cameroon, Mbonge Sub-Division was made up of a total population of about 15,086 inhabitants distributed as follows EkombeBonji 9781, Kombone 3083, and Bole Bakundu 2,222. Before the social unrest in 2016 the total population of the study area was close to 20,000 inhabitants and has dropped to about 9000.

3. Research methodology

The research design used for this study is the survey, descriptive and explanatory design. A combination of primary and secondary data was used in this study. Primary data were gotten from questionnaires with a total of 368 cocoa farmers within three selected villages (150 farmers from Ekombebonji, 118 from Kombone, and 110 from Bole Bakundu). The study describes the constraints to cocoa production from cocoa farmers' perspective through their demographic characteristics of age, sex, gender, religion, marital status, and occupation using descriptive statistics. The survey research design was used to get the different opinions of the farmers on constraint on cocoa production from well-defined sample population. Also, explanatory techniques were used which explains how the constraints affects cocoa yields and rural livelihoods. The target population of this study consists mainly of cocoa farmers in Mbonge Sub-Division, cocoa buyers, extension officers, and cocoa researchers were also used for the study to solicit their views on physical and human constraints on cocoa production.

The study made use of two sampling techniques that is the purposive sampling technique and the simple random sampling technique. The purposive sampling technique was employed in the identification of the respondents and arranging times for meeting them. Farmers were chosen on the basis of the number of years they have farmed and the size of their farms. However, the researcher endeavored to obtain an even distribution of the respondents across the cocoa growing areas to ensure fair representation. Cocoa license buyers, extension workers from the Ministry of Agriculture and Rural development at Post during the time of the survey were interviewed in Kumba. The simple random sampling technique gave a fair representation of all the farmers involved in cocoa production in the three selected villages in Mbonge Sub-Division. The instruments designed for data collection in this study were principally guided interviews, questionnaire, observations and focus group discussions. The focus group was made up of 12 participants who included the various stakeholders involved in the cocoa production sector in the study area. They included agriculture extension officers, license buying agents, local village administrators, farmers, and members of civil society organization to give their opinions about constraints affecting the agricultural production sector. The information obtained was written down and tape recorded for analysis. Secondary data sources were obtained from documents (magazines, published and unpublished sources, and internet and text books) carried out on the constraints of cocoa production sector in the South West Region of Cameroon. With regards to the ethical consideration, the research was carried out in full compliance with local customs, standards, laws and regulations. Consent was obtained from all respondents. The data generated from this study were represented using graphs, tables and maps.

4. Findings and discussions of results

4.1. Constraints Affecting Cocoa Production Sector

The constraints plaguing the development of the cocoa sector in Mbonge Sub-Division are grouped under physical, economic and socio-political constraints. These constraints limit production capacity and have negative effects on total output and revenue. From Field investigations, the following were found as the main constraints plaguing Mbonge Sub -Division namely; land tenure, fluctuations in cocoa prices, inadequate access to credit facilities, ageing famers and farms, poor infrastructural development, change socio -political constraint and climate variability.

4.1.1. Physical Constraints

The climate in Mbonge Sub-Division is generally suitable for cocoa production due to it warm temperatures and plentiful rainfall. However, climate variability and change has been the most challenging physical factor regarding agriculture in Cameroon (Moloua, 2007). Variation in climatic elements like rainfall, temperature are very crucial due to sensitivity of the cocoa crop to weather vagaries as their changes can negatively impact the growth, flowering, fruiting processes and post-harvest processing. Although most of the farmers interviewed did not understand the concept and science of climate change, their observations on the effects of decreasing rainfall, increasing atmospheric temperature, increasing sunshine intensity and seasonal changes in the onset, duration, intensity and frequency were very incisive. The farmers were asked to identify the effects of changing climate on cocoa production and to indicate if the effects are increasing, decreasing or no change in their observation. Simple descriptive statistics were used as shown on Table 1.

Table 1 Effects of Climate Variability and change on Cocoa Production

Climatic occurrences	Increase	Decrease	No change	Total
Poor germination and growth of cocoa plant	300 (81.5%)	10 (5.4%)	58 (15.7%)	368 (100%)
Earlier ripening of cocoa pods	316 (85.8)	40 (10.8)	12 (3.2%)	368 (100%)
Increase cocoa disease	280 (76.0%)	70 (19.0%)	16 (4.3%)	368 (100%)
Increase expenditure on spraying	350 (95.35)	13 (3.5%)	5 (1.3%)	368 (100%)
Reduced earnings from cocoa	340 (92.3%)	25 (6.7%)	02 (0.5%)	368 (100%)
Increased evapotranspiration	360 (97.8%)	06 (1.6%)	02 (0.5%)	368 (100%)
Reduced yields	344 (93.4%)	19 (5.1%)	05 (1.3%)	368 (100%)

Source: Fieldwork, 2024

Farmers opined that the effects of climate variability have led to expansion of suitable habitats for pests and diseases that affect cocoa trees. This has resulted to increase crop losses and increase expenditure on spraying and re-spraying, especially during the months of July and August with unexpected rainfall. Combating cocoa diseases and pest remains a great challenge to farmers in Mbonge Sub-Division as it adds to production costs and limits their earnings. Heavy rainfall promotes incidence of black pod disease which normally accounts for the bulk of annual production losses. The damp climatic environment makes the processing of cocoa bean very difficult. As high humidity slows down the drying process, which result in mold growth, off-flavors and lower quality cocoa beans. The inadequate drying also makes cocoa more susceptible to pest infestation during storage.

According to field investigation, climate change has led to increase temperature variability exposing cocoa trees to temperature extremes that exceed their optimal range. High temperatures can cause heat stress, reduced photosynthesis and increased evapotranspiration which lead to decrease yields. Warmer temperatures usually accelerate the development of pest like the cocoa pod borer, while wetter conditions promote the spread of fungal diseases such as black pod rot. Some pathogens and pests adjust well to host resistance through genetic mutation. This often results in complete resistance to chemical control; this ultimately affects the quality of processed cocoa beans and generated revenues. This is in line with Kimengsi and Tosam (2013) who revealed that climate variability and change has negative effects on coca production. Thereby causing havoc to cocoa pods and trees as seen on figure 2.

Source: Fieldwork, 2024

Figure 2 Effects of Climate Variability on Cocoa Pods

In addition, inadequacy of good infrastructure is another physical challenge affecting the cocoa sector. The findings revealed that 99.9% of the sampled population revealed that the states of the roads are very bad which contributes to the total production cost and post production loses. The development of roads in 1960s between Victoria, Kumba and Mamfe which gave the South West access to North West and Nigeria was one of the main factors that boosted cocoa production in this area. Today the South West region remains one of the most enslaved regions of the country (Figure 3). This is due to the fact that the existing roads are poorly maintained, with potholes, erosion and landslides that are common occurrences. Many roads in Mbonge are unpaved, narrow and winding, making them inaccessible during the rainy season. Also, the existing contract of 60km stretch of road that was awarded in 2017 between Kumba-Mundemba passing through these villages could not be realize due to the socio-political instability in the region. This has made it very difficult for farmers to transport cocoa from farms to markets, processing facilities or export hubs. The poor road infrastructure also results in the deterioration of cocoa beans during transportation due to delays caused by poor road conditions thereby increasing cost of transportation, limited access to market consequently reducing incomes, food security and economic stagnation. The poor nature and state of roads within the study area is presented on Figure 3.

Source: Fieldwork, 2024

Figure 3 Bad State of Road during the Rainy Season in Mbonge Sub-Division

4.1.2. Economic Constraints

From field investigation, 99% of the farmers affirmed that constant fluctuation in prices of cocoa affect farmer's income. The constant fluctuation in cocoa prices since 1980s has always had a negative balance of trade on Cameroon cocoa export trade. This constant fall in cocoa prices affects farmer's earnings leading to financial difficulties and reduced investment in farm maintenance and long-term improvement strategies in Mbonge Sub-Division. More so, when cocoa prices are low, farmers struggle to afford labour, fertilizers and other necessary inputs. This corroborate the finding of Bosambe et al, (2018) who opined that the fall in cocoa prices has resulted in low purchasing power of farmers as their income level is always small to meet basic subsistence needs coupled with high inflation rate in the country. Results revealed that fluctuation in coca prices was influence by global demand and supply, seasonal variations, middlemen traders, government policies and regulations. This has resulted to instability in income, investment uncertainty, inability to manage labour and input costs, difficulty to access bank credit and increased poverty. Consequently, price fluctuation has led to reduced livelihoods of farmers, limited economic growth and decrease food security. This is in line with the study of Baye and Douya (2004), who confirm that the greatest human problem affecting the agricultural sector for decades is the fluctuation in commodity agricultural prices in the world market. Looking at global markets, world trade growth has slowed significantly since 2012 for developing countries since they mostly export agricultural commodities.

The inadequate access to credit is a major constraint in the development of the agricultural sector particularly in the cocoa sector. Currently, access to credit by cocoa farmers especially medium- and long-term finance is limited in Cameroon. The outcome of access to financial capital is represented on Table 2.

Table 2 Access to Credit

Capital	Frequency	Percentage
Social capital	100	27.1
CAMCCUL	10	2.7
Borrowing	200	54.3
Njangi	18	4.8
Savings	40	10.8
Government support	00	00
Total	368	100

Source: Fieldwork, 2024

There are many sources of capital depending on the amount of money, the need for money and the time of the year the money is needed. Majority of farmers do not save money in banks which they can have access to. Only few large-scale farmers have accounts in CAMCCUL Kumba. This makes it difficult for lenders to assess their creditworthiness. Also from result, some lenders complaint that the hesitant to lean to coca farmers was due to the perceived risk associated with agricultural production. Most of the farmers depend on the borrowing system which is sometimes exploited by unscrupulous business men or people with shylock ideas. These people operate the borrowing system of 100% interest rate (locally known as 10 born 10). There is no government support to small scale farmers. At times most of the farmers struggle to raise their capital through savings in meeting houses and Njangi. The limited access to capital hinders the adoption of modern cultivation techniques, farm expansion; productivity improvement, lack of diversification and reduce farm maintenance. Similarly, Bemieh (2013) revealed that limited access to credit has been seen as a hindrance to production and productivity among cocoa farmers in Nyong and Mfoumou Division in the Centre Region of Cameroon.

The ageing farmer population and farms in Mbonge Sub-Division pose significant constraints to cocoa production. From field investigations, as farmers age, their physical ability to work on their farms diminishes, leading to reduced labour productivity. It was also gathered that older farmers were less likely to adopt new technologies, practices and innovations which could improve cocoa production efficiency and quality. In addition, some aging farmers do not have clear succession plan, which lead to loss of traditional knowledge and skills, land fragmentation, disputes over land ownership and lack of clear property rights. In addition, aging farms were also seen as a constraint since cocoa trees have a productive lifespan of about 25-30 years. As farms age the productivity of the cocoa tree declines leading to reduced yields and incomes for the farmers. Results affirmed that ageing farmers and farms pose significant challenges to the cocoa production sector in the study area.

In line with the ageing aspect, some cocoa farms were planted as far back as 1970s, making more than 40 years while some farmers inherited their farms from their parents resulting in low productive. Rehabilitation or replanting of cocoa trees requires significant investment and time which is challenging for ageing farmers as it is seen as a long process since their livelihoods solely depends on the farm. Coupled with the ageing issue for most farmers, productive labour has been reduced considerably. The situation has now gotten worst because of involuntary migration from youths due to the socio-political crises in the Mbonge Sub-Division. In addition, farm succession from ageing farmers to next generation is challenging due to issues such as unclear land rights, conflicts within families and lack of interest from the younger generations in pursuing cocoa farming as a livelihood.

Land tenure insecurity is a significant constraint to coca production in Mbonge Sub-Division. Land is often held under customary tenure with traditional privileges giving people land or family inheritance. The findings revealed that 111 (30.1%) is rented land while 129 (35%) of the land is sharecropping, 21.0% is inherited and just 3.5% is under mortgages as shown on Table 3.

Table 3 Access to land

Access to land	Male	Female	Total
Mortgages	10 (76.9%)	3 (23.0)	13
Bought land	30 (81.0%)	7 (18.9%)	37
Inherited land	60 (79.9%)	18 (23.0%)	78
Share cropping	100 77.5%)	29 (37.1%)	129
Rented land	90 (81.0%)	21 (18.9%)	111
Total	290	78	368

Source: Field Work 2024

Many cocoa farmers in Mbonge Sub-Division do not have secure land rights. They often cultivate land that belongs to the state, traditional chiefs or other landowners, making them vulnerable to eviction or loss of land. A relatively small percentage of the population owns a disproportionately large share of the productive land, while the large proportion of the productive age group owns little or no land. Most energetic youths who have the ability to increase production lack access to productive land. In view of access to farm land, the customary tenure in Mbonge usually results in unclear boundaries disputes, and insecurities. In addition, many farmers do not have formal titles of their lands, making it difficult to access credit, investment in their farms or make long-term plans. This has resulted to land conflicts, reducing farmer's incentives to invest in their farms. Intra-familial disputes are also common within families over land inheritance thereby reducing farm productivity. The insecure land tenure in in the study area has led to reduce investments by farmers, limited access to credit and increase poverty of farmers.

Findings further revealed that amongst genders, 76.9% of inherited lands are owned by males as against 23.0% for females. This indicates discrimination against women right to land ownership and non-involvement in cocoa production despite their role in preparing food for the workers, assist their spouse as labourers in cocoa production, removing the cocoa beans from the pods and transportation. Moreover, women are often excluded from decision-making roles in coca production, including planning, planting and harvesting, training and education on cocoa production. This therefore confirms land tenure system as a problem with the cocoa production sector in Cameroon.

4.1.3. Socio -Political Constraint on Cocoa Production

The intractable socio-political instability in the North West and South West Regions of Cameroon ongoing for more than 8 years, known as the Anglophone Crisis has had a significant impact on the cocoa production sector in Mbonge Sub-Division. The crisis has led to the displacement of many farmers, disrupting cocoa farming activities and reducing the overall production capacity of the region. It has also led to reduced access to farms. This has resulted in disruption of the supply chains, economic hardship and limited access to extension services. This has made many farmers to migrate out of the region for safety reasons. This is due to the insecurities, roadblocks, curfews, burning of houses, farms and properties, cross fire exchanges between separatists' fighters and government forces, rampant killing from both government and separatist fighters, exploitation of farmers and scaring of potential investors in the sector (Figure 4).

Source: Ayah 2022

Figure 4 Displacements of inhabitants as a result of burnt farms and houses in EkombeMbonji, Bole Bakundu and Kombone Mission

4.2. Analysis on the Effects of the Constraints on Rural Livelihoods

Findings from the study indicate a decreasing trend in total cocoa production and revenue over the past years. Table 4 presents result on the annual cocoa production and revenue obtained within the sector in the study area.

Table 4 Total Annual Production and Total Annual Revenue in the three Selected Villages

Years	Total population	Average annual production 15 bags 1000kg	Ekombe total annual production kg	Kombone total annual production in kg	Bole Bakundu total annual production in kg	Total Annual production tons per output, price 1000	Amounts (Total Annual Revenue)
2011	18,700	1000	10500000	4500000	3700000	18700000	18,700,000,000
2012	18,750	1000	10550000	4500000	3700000	187500000	187500000000
2013	18,800	1000	10800000	4700000	3300000	18800000	18800,000,000
2014	18,900	1000	10900000	4700000	33000000	18900000	18,900,000,000
2015	19,000	1000	11,000,000	4800,000	3,200,000	19,000,000	19,000,000,000
2016	16,800	1000	9,700,000	3,900,000	3,200,000	16,800,000	16,800,000,000
2017	10,000	1000	5,500,000	3,900,000	3,200,000	16,800,000	10,000,000,000
2018	7,000	1000	4,100,000	1,900,000	100,000	7,000,000	7,000,000,000
2019	7,500	1000	4,300,000	2,100,000	1,100,000	7,5000,000	7,500,000,000
2020	9,000	1000	4,800,000	2,600,000	1,600,000	9,000,000	9,000,000,000

Source: Compiled from field data 2023

Fluctuation in cocoa yields and prices as well as challenges in accessing markets has resulted in reduced income for cocoa farmers, limiting their ability to meet their needs and invest in their farms. From table 4, the total output and revenue has fallen from about 19, 000,000,000 FCFA at its peak in 2015 to 9,000,000,000 FCFA in 2020. This represents almost half the total income. This shows the worst devastating effect of the political crises and other constraints. The table also represents the production situation before the crises, during the peak of the crises and a slowdown of tension in the study area.

Access to quality health care in the study area is still a very big problem. Income instability and low earnings from cocoa farming in Mbonge Sub-Division has hinders the farmer's ability to afford healthcare services, medications, and health insurance making it challenging for them to access quality healthcare. Also, most health posts have been closed down due to the political tension in the study area. This lack of access to healthcare services exposes farmers and their families to increased health risks, as they do not receive timely medical attention for preventable or treatable conditions. Access to quality health care is mainly in Kumba town. Lack of access to quality health care is the results of high infant and maternal mortality in the study area.

Food insecurity is an issue that affects rural communities in Mbonge Sub-Division. The over-reliance on cocoa as their primary source of income makes them vulnerable to fluctuations in cocoa prices and yields. This limits their ability to access sufficient and nutritious food. The low earnings from cocoa farming restrict the purchasing power of farmer's marking it difficult for them to afford diverse and nutritious foods, leading to poor diets and malnutrition. In addition the imposed lock down days by separatist fighters makes the farmers not to have access to protein food like fish and meat. Basic necessities have witnessed hikes in prices coupled with reduced income earning making live unbearable for the local population.

Due to fall in total revenue, farmers are unable to afford good and decent clothing. Most farmers are always dressed up in casual wears. Money to buy good clothing for themselves and their families remain very inadequate. Local traders used to came from far and near with second handed dresses from Douala to sell to the local population. Due to the crises, their frequencies have been reduced making it more expensive. Access to good portable water is much of a problem in the study areas. Electricity which the population enjoyed it just for a short period of time is completely cut with the destructions of the poles and no maintenance services. The fall in income has affected children education. Parents cannot afford sending children to schools. Child labour and teenage pregnancies have increased tremendously in these areas.

Most farmers face difficulties affording good houses. Most of their homes are in dilapidated and ruined forms. Before the political crises in the region farmers usually buy their building materials and do their constructions and repairs after receiving money from the sale of their cocoa. With fall in their income level and increasing prices of building materials their standard of living has fallen drastically. This is in line with the finding of Ngoe et al (2016) who observed that the cocoa sector is dominated by smallholdings farmers with an average size of 1-3ha who do not earn sufficient income to meet their needs and maintain a moderate standard of living.

Due to fall in total income, farmers are not able to meet up their social needs like playing of their Njangi, funeral contributions, hanging out with friends, marriages contribution and baby showers contribution. The farmers now live in a state of chronic poverty level. The fall in revenue has caused drastic reduction in savings in the study area. Income level remains very low for future investments and capital accumulation. This accounts for high rate of borrowing and indebtedness in the Month of March to purchase farm inputs.

5. Conclusion and recommendations

The importance of cocoa as the major cash crop in Cameroon contributes to about 20% of the total foreign exchange earnings annually and 80% as a source of livelihoods for many rural farmers in the Mbonge Sub-Division. Cocoa farming is influenced by physical conditions such as climate (rainfall and temperature) and diverse human factors which are usually in dynamism. The instability coupled with fall in world commodity prices, insecure land tenure, inadequate access to credit facilities, ageing famers and farms, poor infrastructural development, socio -political constraint and climate variability have had devastating effects on small holder cocoa farmers in the study area thereby threatening the livelihoods of many households. A reduction in household income for most farmers in the entire Sub-Division, keep on resulting to the vicious circle of poverty. In this regard, the recommendations proposed by this study are:

- Agricultural extension services and advisory services with government integrated rural development program need to be stepped up. Also the government should develop attractive schemes to attract private investors to the sector who can also equally help farmers with capital.

- Credits needs to be allocated to giant cocoa farms to encourage large scale production. The government should ensure access to credit to farmers at a very flexible rate to help them with money to buy farm inputs.
- Also, localized strategies integrated with indigenous knowledge must be identified, developed and introduced to farmers to equip them to ensure a sustainable livelihood for their households. Extension workers need to give more training to cocoa farmers to help them boost up production
- The study further recommends that farmers practice farm diversification with alternative crops such as rubber, palm oil and other food crops.
- Also, farmers should try to avoid deforestation as much as possible to reduce the effects of climate variability and change so as to improve their resilience, increase their income and enhance their overall well-being.
- Certification standard needs to be maintained throughout the processing of the produce. To have high prices they must observe the role of good certification standards and form cooperatives to benefit from inputs and better bargaining market prices.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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