

Food Marketing and Unhealthy Urban Markets: The Cases of Boundiali and Tengrela in the North of Côte d'Ivoire

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ABSTRACT

Located respectively at the southern and northern ends of the Bagoué region, the towns of Boundiali and Tengrela are home to the busiest markets. These are the central markets of Boundiali and Tengrela. These two commercial centres are ideal for reconnecting agricultural and livestock products with urban demand. The marketing of food crops is therefore one of the dominant activities. Notwithstanding the fact that households use urban markets to obtain supplies, these two trading centers are characterized by the insalubrious nature of the areas used for the food trade.

The aim of this study is to analyze the impact of food marketing on the environment of the Boundiali and Tengrela markets.

The methodology used was based on documentary research and fieldwork using a questionnaire and interview guide. Statistical processing of the data was carried out using Excel version 2013 and sphinx version 4.5. QGIS version 3.32.2 was used to produce the maps. This study, which looked at capacity, the socio-demographic characteristics of food traders and the food products on display, revealed that the deterioration in the environment of the Boundiali and Tengrela markets is inherent in the trade in food products.

Key words: Côte d'Ivoire, marketing, food products, environment, markets

INTRODUCTION

Boundiali and Tengrela are the two leading towns in the Bagoué region in terms of population, with 651191 and 50997 respectively, or 12.63% and 9.89% of the regional population (RGPH, 2021). Located at the southern and northern points of the region, these two cities owe their influence to their commercial activities. However, economic life and trade depend on the existence of markets. Indeed, the physical sites of commercial exchange are public places where goods and services are sold (Adegnandjou, 2021, p. 180). They are meeting places for buyers and sellers. Markets therefore act as relays between production and consumption.

They are a mechanism by which buyers and sellers interact to determine the price and quantity of a good or service (Paul Samuelson and William D. Nordhaus, 2000, pp. 3-4). In short, they are a focal point for economic and human flows (Zoma et al., 2022, p. 2). The possibility of trade is indebted to the market. These two market towns each house a market. These places of transaction are a driving force in the structuring of urban space. They are the medium for various types of product. The urban market is the place where the urban population obtains supplies of manufactured goods, foodstuffs and basic necessities (Wilhem, 1997, p. 20). The Boundiali and Tengrela markets are areas for the collection, distribution, supply and wholesale and retail trade of manufactured and food products. While maize, millet, sorghum, yams, plantain, vegetables, rice, animal resources and fisheries attract the attention of market players, it has to be said that capital goods are a factor in consumer purchasing choices in the markets of the research block. They are vectors of unbridled consumption (Zoma et al., 2022, p. 6). For example, the Kassoua-Allah market in north-east Benin offers a range of agricultural

products to retailers in the towns of Benin and Togo (Ale, 2020, p. 1). According to the author, market stalls also contribute to the production of waste. An examination of the facts reveals the almost permanent presence of foodstuffs, which occupy more than two-thirds of the areas devoted to trading. The sale of food products in these areas generates waste of all kinds. In other words, the goods are sold in unhealthy areas (WHO, 2001, p. 32). As a result, food traders occupy the most degraded sectors of the markets (Paulais & Wilhem, 2000, p. 30).

In these two markets, the diagnosis reveals the defective state of the living environment, especially in the area allocated to the marketing of food products. These blocks are characterized by sewage, rubbish dumps, food residues and other waste. These findings on the deteriorating environment of the two markets are unequivocal. They lay bare the thorny problem of the correlation between trade in food products and environmental degradation in the Boundiali and Tengrela markets. The main objective of this article is to show the links between the marketing of food products and the deterioration of hygiene in the markets of Boundiali and Tengrela.

MATERIALS AND METHODS

Presentation of the Study Site and Equipment

The town of Boundiali is the capital of the department in the Bagoué region. It is 100 km from the town of Korhogo in the north-west, and straddles parallels 9°29 and 9°32 north latitude and 6°27 and 6°29 west longitude (Figure 1). It covers an area of estimated at around 33 km² (Google Earth/satellite image, 2022). On the other hand, Tengrela, the departmental capital, is located in the extreme north of the country, precisely 8 km from the Ivoir-Malian border, preferably between latitudes 10°.14 and 10°.40 north and longitudes 6°.24 and 6°.55 west (Figure 1). Covering an area of around 18 km² (Google Earth/satellite image, 2022), this northern Ivorian city has a composite and cosmopolitan demographic landscape due to its geographical location.

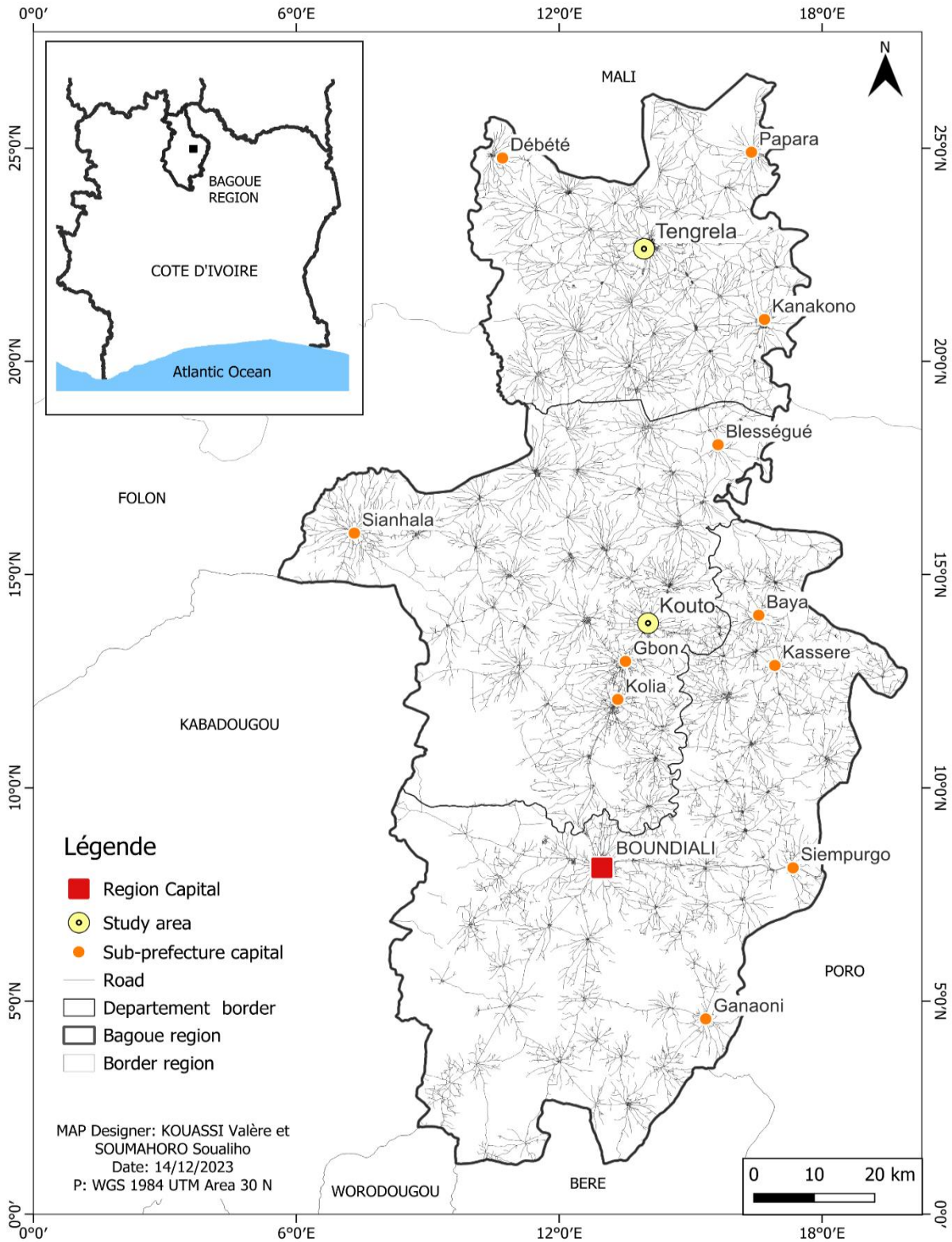


Figure 1: Location of Boundiali and Tengrela

Source: Field works, 2021-2022

Methodological Approach

A rigorous scientific approach was adopted in order to achieve our objectives. Documentary research in libraries and documentation centres, namely the central library of the Peleforo Gon Coulibaly University of Korhogo (UPGC) and the Korhogo municipal library,

were the means and tools used to carry out this study. The Bureau National Technical Study and Development (BNETD) and the National Institute of Statistics (INS) in Korhogo were also used to consult cartographic documents. Internet search engines such as Google scholar were also of great help. Additional information came from interviews conducted in the technical departments of the town halls of Boundiali and Tengrela regarding the number of markets. This includes data on the players operating in these markets, their gender, nationality and level of education. In addition, a field survey was carried out over a period of thirty days, including 20 days for the Boundiali market and 10 days for the Tengrela market. The fieldwork took place throughout June 2022. For greater efficiency in conducting the study, a questionnaire was used to cover the entire study area and to question the shopkeepers. Given the impossibility of conducting an exhaustive survey given our resources, a sample was drawn up. The size of the sample was determined on the basis of the assumptions made for identifying the target markets and people. The research framework encompassed two markets in this case the Boundiali and Tengrela markets, which have had 952 and 789 traders respectively according to the INS and the town hall since 2014 for a regional total estimated at 3848 (RGPH, 2014). The formula developed by Dakouro and Koulaï (2015, p. 68) was used to serve as a basic principle for the constitution of the sample namely:

$$M_i = a (C_i/C_t) \times 100$$

Where M_i =Number of traders to be surveyed per market; C_i =Number of traders present in the markets; C_t =Total number of traders in the region's markets, a =Constant to enlarge.

Example 1: Number of traders to be surveyed in the Boundiali markets.

$C_i=950$ traders, $C_t=3848$, $a=0.5$, $M_i=0.5(950/3848) \times 100=12,34$ approximately 12 people.

A total of 22 traders, including 12 in the Boundiali market and 10 in the Tengrela market, out of a total of 3,848 at regional level, were interviewed in the Boundiali and Tengrela markets. Particular attention was paid to the food sector. A number of criteria were used to select the food traders in the research area. These included gender, nationality, level of education and number of years spent in the markets. Thus, at least one year of existence was retained.

RESULTS

Presentation of the Boundiali and Tengrela Markets

Boundiali market, the largest commercial centre in the Bagoué region

Located between latitudes $9^{\circ}.52$ and $9^{\circ}.44$ north and longitudes $6^{\circ}.75$ and $6^{\circ}.47$ west, the Boundiali market was built in 1985. It describes a rectangular shape 210 m long and 185 m wide (Figure 2). In fact, this commercial building covers an area of 38,850 m², with 10,002 seats, or 3.90 m² per seat.

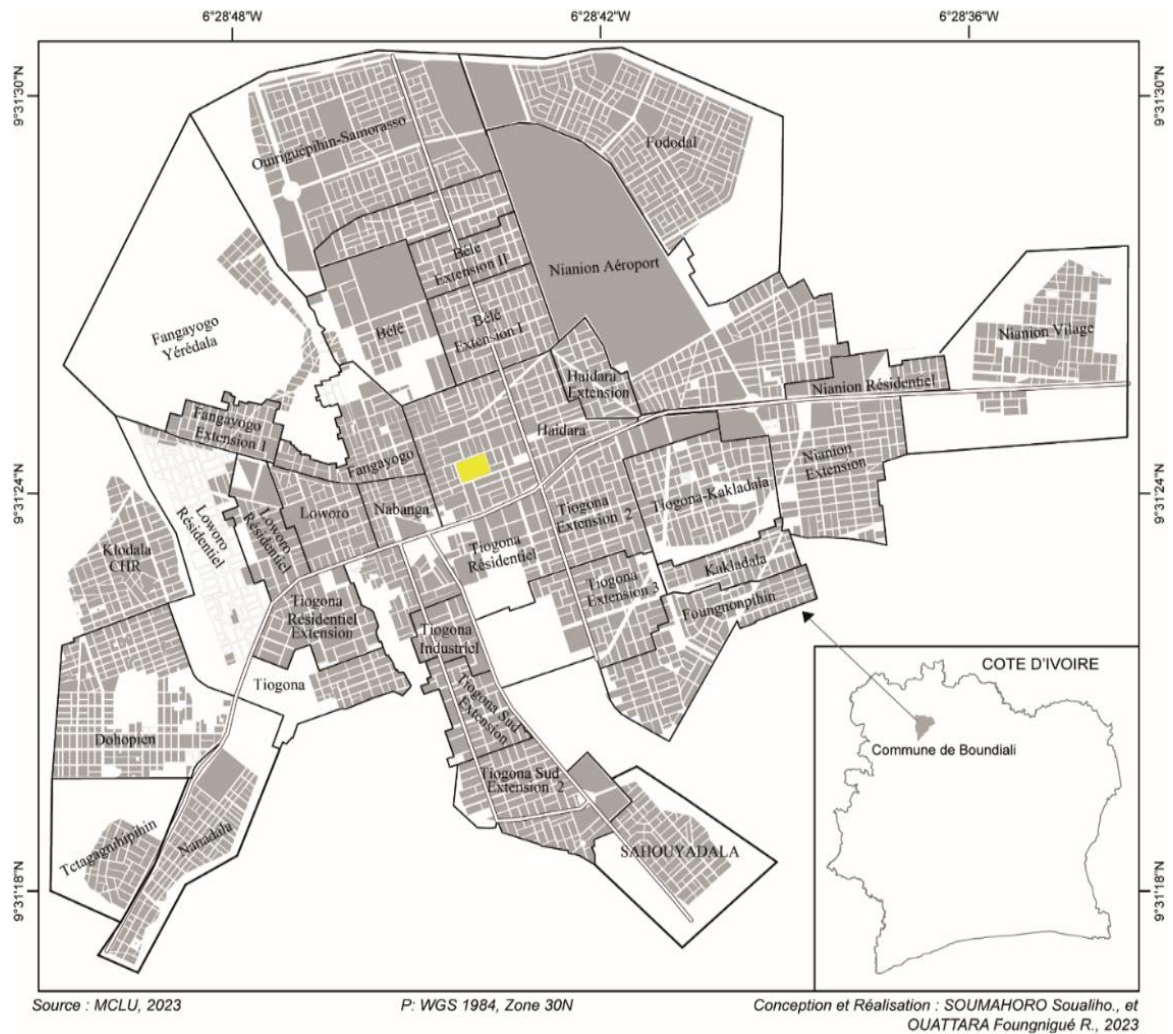


Figure 2: Location of the Boundiali market

Source: Field works, 2021-2022

Tengrela market, a cross-border commercial hub

The Tengrela market was built in 1978. This trading space, located between latitudes 10°.76 and 10°.48 north and longitudes 6°.88 and 6°.40 west, is set within a rectangle 120 m long and 108 m wide. It covers an area of 12,960 m² and has around 750 seats (Figure 3).

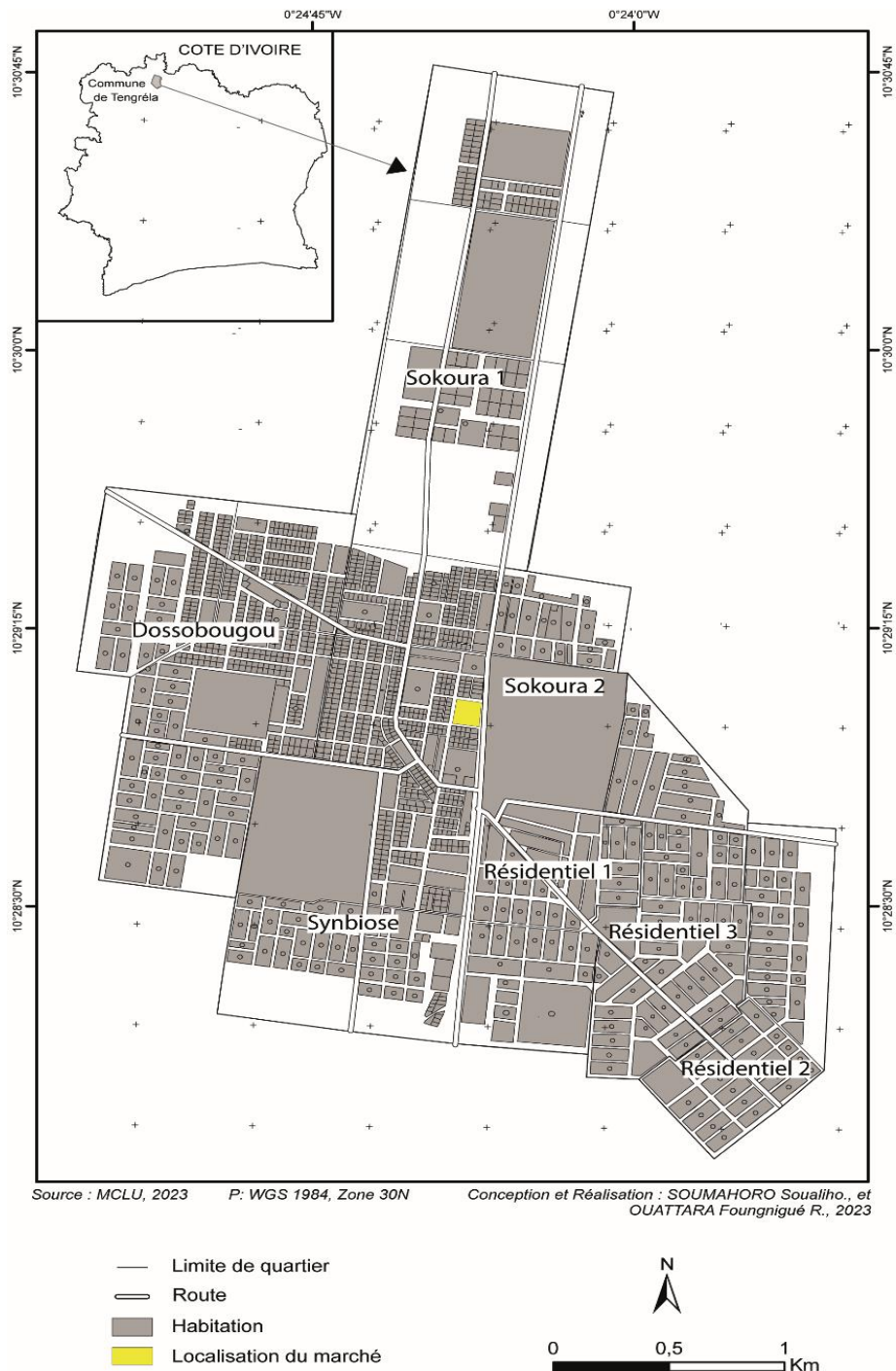


Figure 3: Location of the Tengrela market

Source: Field works, 2021-2022

Ultimately, the two markets bring together agricultural and non-agricultural food products. These different products are arranged in an orderly spatial fashion in the market areas, even if they are scattered. This discipline observed in the arrangement of goods on the trading areas could be due to the socio-demographic profile of the players.

Social and Demographic Profile of Food Sellers

Women's food trade

The majority of food traders are women, compared with men. Figure 4 shows that 68.00%, or 15 food traders out of a total of 22 for the two markets, are women compared with

32.00% men. In the Boundiali market, 66.7% of those surveyed were women, compared with 33.30% of male traders. As for the Tengrela market, our field surveys showed that food traders were mainly women.

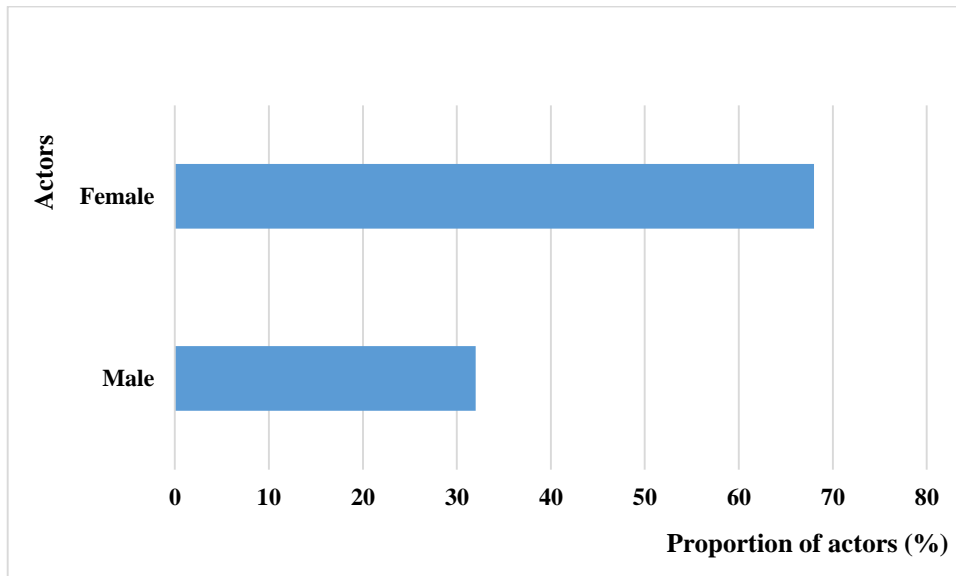


Figure 4: Distribution of food traders by gender in the two markets

Source: Field works, 2021-2022

In addition, the markets in the research block are run by traders from a variety of backgrounds.

Dominance of traders of Ivorian nationality in the sale of food crops

The population of traders in the study area is composite and cosmopolitan. However, national players hold the activity with 92.00% of assets compared to 4.00% for Malians and 4.00% for Mauritians (Figure 5). These spaces of exchange are places par excellence of cultural mixing.

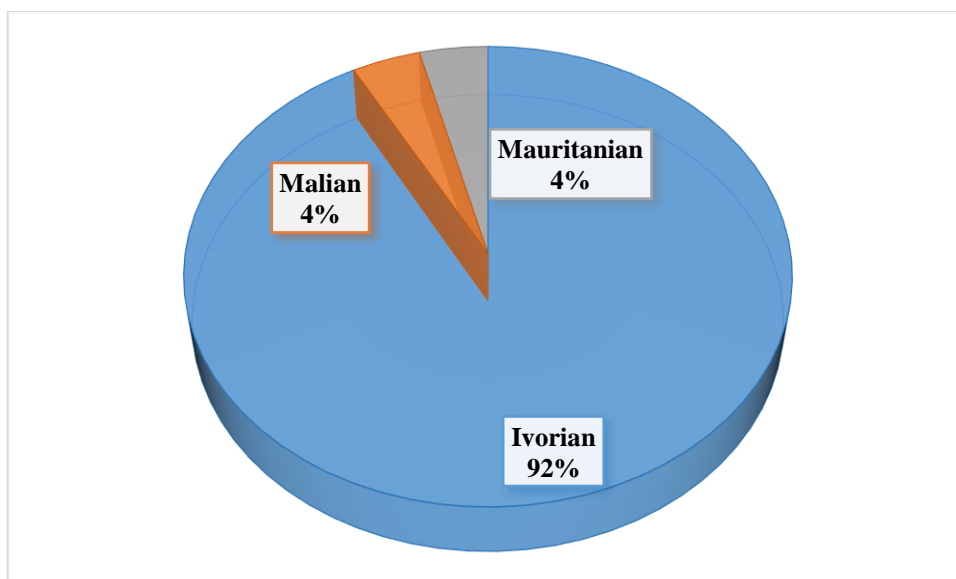


Figure 5: Distribution of food traders by nationality

Source: Field works, 2021-2022

Doesn't this cultural diversity influence educational levels?

Trade in food crops by those not attending school

Traders in both markets are educated to primary and secondary levels. Figure 6 shows that 72% of foodstuff traders are illiterate, i.e. 16 out of a total of 22 traders, compared with 16.00% of traders with primary education and 12.00% with secondary education. The socio-demographic characteristics of traders could have a positive or negative impact on trading activity.

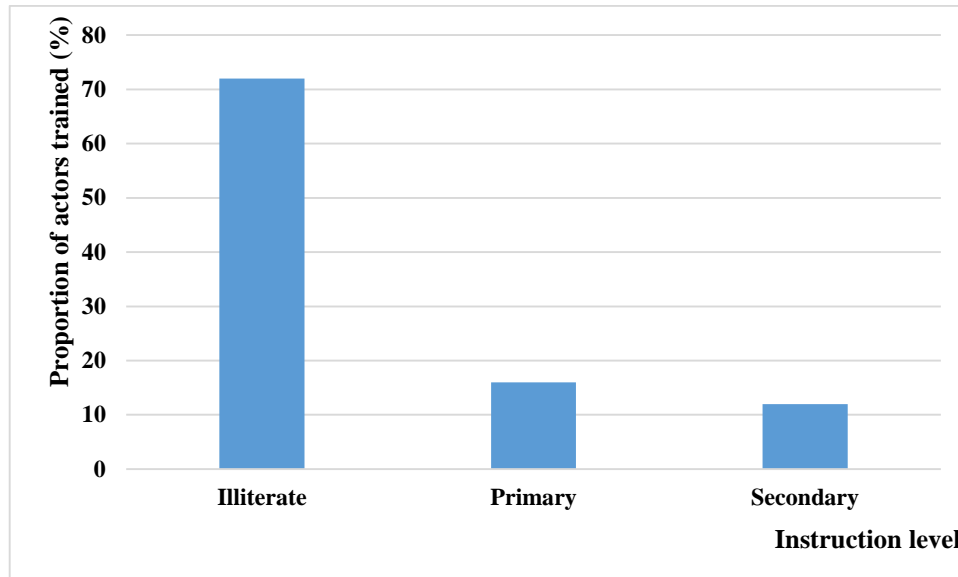


Figure 6: Distribution of food traders by level of education

Source: Field works, 2021-2022

Spatial Distribution of Food Crops in Markets

Disparate spatial distribution of food products in the Boundiali market

The central market in Boundiali offers users a varied range of food products. These products are concentrated in well-known sectors, even if they are disparate. The analysis in Figure 7 shows that food sellers display their goods on the periphery of the market. This organisation close to the roads is in response to the need to make their products accessible and visible to consumers. The results of the fieldwork revealed three levels of product exposure: the agricultural food level, the fish and animal level and the manufactured level. Figure 7 shows that manufactured products are stored in shops. The display of foodstuffs next to alleyways could lead to unfair competition with regard to the payment of taxes. Many vendors refuse to pay taxes because of this situation, which drastically affects the council's revenue.

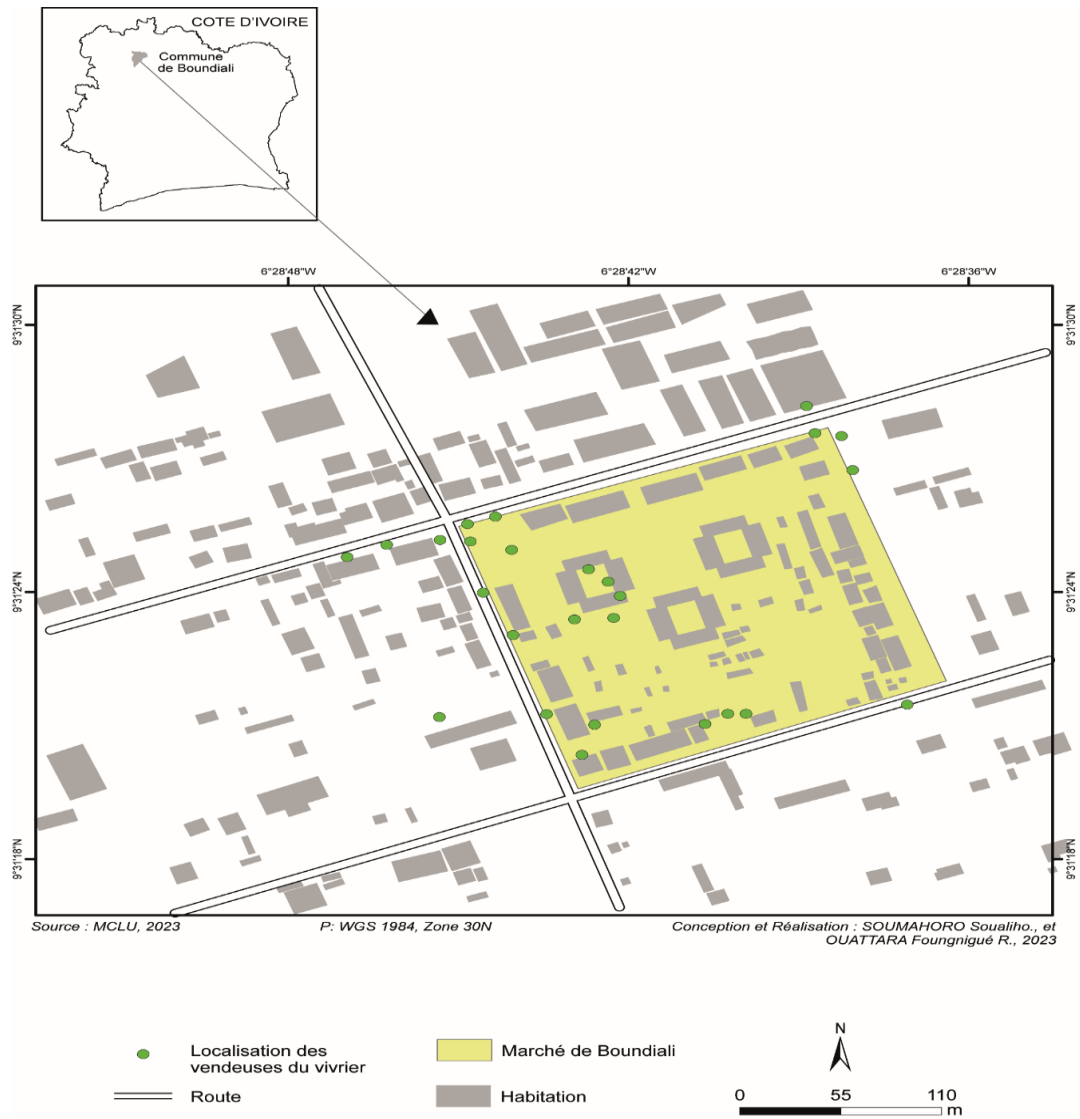


Figure 7: Spatial layout of food crops in the Boundiali market
Source: Field works, 2021-2022

Saturday is the highlight of the Boundiali market. Sellers and buyers from all over the world gather here. As a result, the natural selling space becomes extremely narrow, forcing some players to use the pavement to display their goods (Photo 2).



Photo 1: Fish on a shelf



Photo 2: Vegetable sector at the Boundiali market

Source: Photo SOUMAHORO 2022

The various shelves stocked by traders at the Boundiali market offer consumers a mosaic of foodstuffs, particularly fish products (Photo 1). This diversity of food products follows a structured organisation in terms of spatial layout. Does the arrangement of foodstuffs in the Boundiali market have any similarities to that in Tengrela?

Spatial organisation of food products in the Tengrela market

The Tengrela market reflects a cosmopolitan mix of products from a variety of backgrounds due to its border location. In addition to national traders, it receives vendors of Malian origin because of its proximity to that republic. Figure 8 shows a disparate display of foodstuffs in the market. However, along the roads, the centre and the periphery of the market are the most popular places to display goods. An analysis of figure 8 shows that foodstuffs occupy two-thirds of the market space. Vegetables, cereals and yams are the main food products sold (photo 3). According to the shop assistants, using expressions typical of their environment, these sectors are made up of the "sauce sector" for vegetables (Photo 3), the "fish sector" and the "baka sector" for cereals.



Photo 3: Vegetable sector at the Tengrela market

Source: Photo SOUMAHORO 2022

The appearance of the market area shows the presence of capital goods, which are generally grouped together in shops. The study revealed that hygiene in the food sales areas is much poorer than in the manufactured goods sectors.



Figure 8: Spatial layout of food crops in the Tengrela market

Source: Field works, 2021-2022

Like Boundiali, the Tengrela market is a daily market, with Friday the day that attracts more people and goods. The influx of people and the fact that traders are unable to pay their taxes means that the streets are occupied in an anarchic fashion, displaying their goods to customers. These transactions, which fall outside the law, are likely to cause economic and environmental problems.

Traders' General Assessment of the State of the Food Environment in the Markets

The environmental profile of the markets in the study areas was based on traders' perceptions. Table 1 shows traders' opinions on the hygiene of the food and manufactured goods sales areas.

Table 1: Traders' perceptions of the state of the food sector environment in the study markets

Market environment in the study area	Workforce	Frequency (%)
Own	0	0
Moderately clean	5	22,73
Very dirty	17	77,27
TOTAL	22	100

Source: Field works, 2021-2022

Looking at Table 1, $\frac{3}{4}$ of the traders interviewed in the markets in the research block maintain that the markets are very dirty and say that they are very affected by household waste, sewage, rainwater as well as bugs with their share of nauseating smells. On the other hand, more than $\frac{1}{4}$ of traders admit that the markets are not too dirty. However, all the traders

surveyed clearly stated that the market environment is not at all pleasant. In addition, 100% of the traders surveyed agreed that the areas set aside for the sale of food products in the markets in the study block are in a worse state than those set aside for the sale of manufactured goods. Furthermore, 76.3% of the traders interviewed in the Boundiali market deplored the deteriorated state of the environment, compared with 23.7% who supported the view that the environment was relatively clean. In the same vein, the Tengrela market is characterized by a very unhealthy environment, according to the data from the surveys, which showed that 90% of traders felt that the environment was moderately clean, compared with 10% who felt that it was moderately clean. The deterioration in the market environment throughout the research block (Boundiali and Tengrela) requires a detailed study to gain a thorough understanding of the phenomenon.

Specific approach to the unhealthy food sector in the Boundiali market

The environment of the Boundiali market is not a bright one. Figure 9 shows how unhealthy this public building is. It can be seen that the area around the market is dirty. Photo 4 shows that there is stagnant waste water in the gutters, which are clogged with sand, and unauthorized rubbish dumps of all kinds. On closer examination, more than 75% of the sellers and buyers questioned said that the market's environmental framework had deteriorated, compared with barely 20% who said that it was relatively healthy. A detailed analysis of the unsanitary situation at the Boundiali market reveals that the food products sold are the main generators of a lot of rubbish.

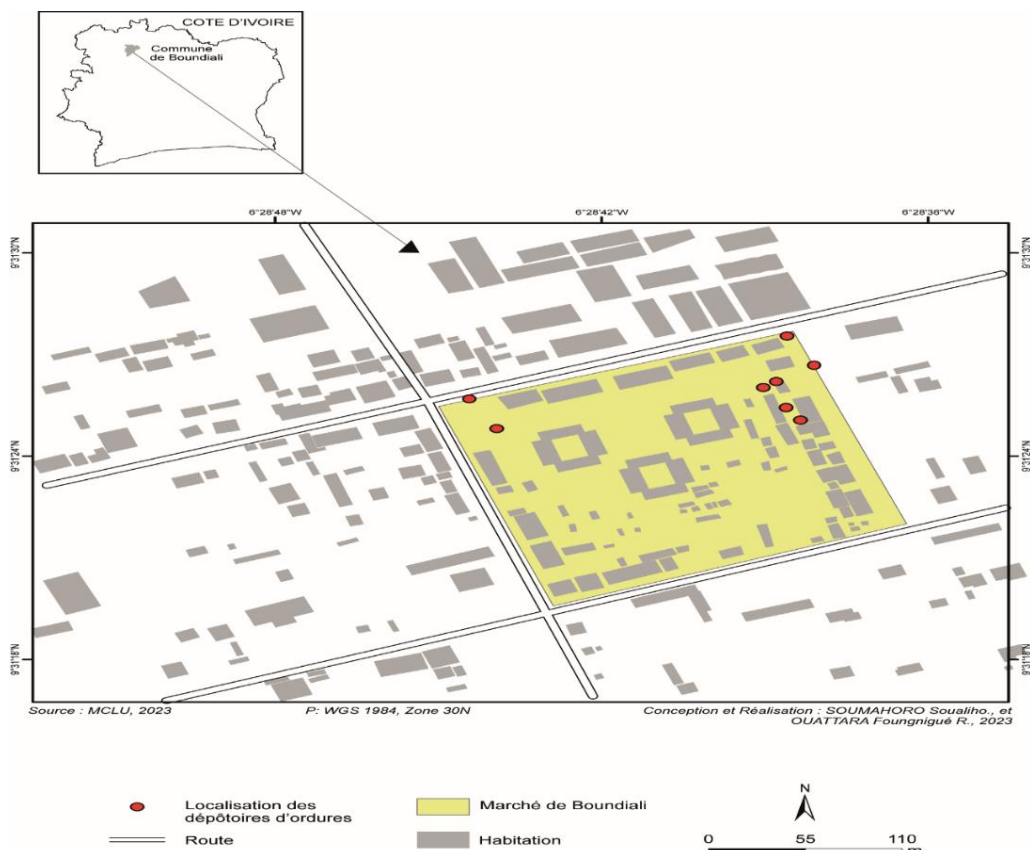


Figure 9: View of rubbish dumps in the Boundiali market

Source: Field works, 2021-2022

This waste, which is creating an environmental disaster, is essentially made up of residues of marketed foodstuffs, although field work has shown that manufactured products make a significant contribution to the degradation of the environment (photos 4 and 5). The

conclusion on the hygienic state of the Boundiali market environment is without paradox. It is an environmental hecatomb. Won't bringing this market closer to the one in Tengrela have undesirable effects on the environment by way of contagion?



Photo 4: Blocked gutter at Boundiali market



Photo 5: Garbage dump at Boundiali

Source: Photo SOUMAHORO, 2022

Specific approach to the unhealthy food sector in the Tengrela market

The Tengrela market is characterized by a disconcerting lack of hygiene. There are many reasons for this. For example, according to 100% of the vendors questioned, waste management is the sole responsibility of the traders. Figure 10 shows that the market entrances are the dirtiest places. The consequences of such an undertaking on the state of the environment are unequivocal. We are witnessing a laissez-faire attitude to the collection and disposal of rubbish. This sad reality for hygiene is attested to by more than 80% of the economic players present in the market, who denounce the degraded and polluted quality caused by this method of waste management. Figure 10 shows that the food-producing sectors are more exposed to pollution than those housing manufactured goods.



Figure 10: Rubbish dump in the Tengrela market

Source: Field works, 2021-2022

This attitude inevitably leads to the presence of uncontrolled dumps within the market (Photo 6). Looking at photo 6, poor waste management leads to the appearance of unauthorized dumps in and around the market. What's more, this dumping ground is in the open air and does not undergo any treatment, thus encouraging environmental pollution. It also attracts domestic animals to the sales areas. This situation reflects the level of insecurity at the market. As a result, vendors are the target of danger. These dangers are linked to the protection of the food products on display. As a result, the market environment is said to be of poor quality. They are receptacles for waste of all kinds. The undesirable quality of the living environment in these places of exchange is partly due to the trade in food products.



Photo 6: Discharge at the Tengrela market

Source: Photo SOUMAHORO, 2022

DISCUSSION

The markets of Boundiali and Tengrela receive users from a variety of backgrounds. They are the melting pot of a cosmopolitan social stratum. Both men and women are involved in trading. In this respect, there is a numerical superiority of female players to the detriment of so-called male players. The arithmetical subjugation of men in favour of women is also seen in the work of Dakouri and Koulaï (2015, p. 5) on the Abobo-Centre markets in Abidjan. These authors confirm that the food sector is a women's business, insofar as women account for 67% of traders at the central and wholesale markets in this Abidjan commune. This position is supported by Fongang Fouepe et al. (2019, p. 3). According to them, 84% of the plantain banana trade in West Cameroon is run by women. The cultural mix created by the meeting of sellers, buyers and consumers attracted our attention. The study on the origins of the various players favours nationals. In other words, the food trade in the Boundiali and Tengrela markets is concentrated in the hands of Ivorians, even though there is substantial participation by non-nationals, namely Malians and Mauritians. The unbridled configuration of players in the marketing chain in the transaction areas of the study area is in perfect symbiosis with the results produced by Moundza and Ziaoula (2006, p. 227) which show that the majority of traders and vendors in the markets of Brazzaville are of Congolese nationality. On the other hand, studies subsequent to the previous ones relating to education have challenged Fongang Fouepe et al. (2019, p. 13). These researchers argue that the educational level of actors involved in plantain banana marketing in the West Cameroon region is relatively low; barely primary level for most. This thesis consolidates the results of our work, since the majority of traders in the study areas are illiterate, thus corroborating the findings of Dakouri and Koulaï (2015, p. 5). For the latter, the dominant level of education on the markets of Abobo-Centre in Abidjan is that of the illiterate, with a rate of 55%, compared with rates of 24%, 19% and 2% respectively for

primary, secondary and higher education. In addition, the two physical trading centres of Boundiali and Tengrela are busy every day. However, on Fridays and Saturdays, there are large flows of sellers, buyers and goods from various locations. This experience is very similar to that described by Ale (2020, p. 1). For him, the Kassoua-Allah market, which is held every Tuesday and located in the north-east of Benin close to the Togolese border, represents a dynamic hub of activity and trade. The overcrowding and overuse of these commercial buildings, especially on key days, are tarnishing the quality of environmental hygiene. To this end, the perimeter subject to product transactions, particularly food crops, is identified by an unsuitable environment. It is a receptacle for all kinds of waste and wastewater. On closer examination, the areas where foodstuffs are displayed are more polluting than those where manufactured products are sold. What's more, the alleyways near the markets are much sought-after on busy days. This reasoning is borne out by various scientific studies and writings. In a pragmatic way, Bellefleur (2019, p. 54) explains that the spatial aspect of markets and asserts that the cramped nature of markets and the numerical insufficiency of spaces lead to the occupation of nearby thoroughfares. In addition to this form of pollution, Moundza and Ziavoula (2006, p. 231) show that rubbish is strewn around all the markets in Brazzaville. Ale (2020, p. 10) adds that the Kassoua-Allah market in the commune of Ouaké in north-east Benin contributes to the production of waste, which is a source of disease due to unsanitary conditions.

CONCLUSION

The markets of Boundiali and Tengrela remain meeting places for sellers, buyers and consumers. They contribute to cultural mixing. Various types of people from different social classes frequent them. They are places with multiple characteristics in terms of their size and the socio-demographic profile of the traders. They distribute a wide range of food products and capital goods.

Despite these noble attributes assigned to these two markets, it is clear that they are not kept clean. The internal and external areas of both markets are described as unsanitary. This state of affairs exposes users to various environmental risks. It was these environmental issues that prompted the relevance of this article, which set out to show the correlation between trade in food products and the defective state of the environment of the urban markets in the study area. On examination of the results, it is clear that the deterioration in the environment of the Boundiali and Tengrela markets is attributable to the food trade.

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