



Research Paper

Impact of covid-19 on food security in the sub-prefecture of vavoua (Côte d'Ivoire)

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ABSTRACT: Located in the central-western part of Côte d'Ivoire, the sub-prefecture of Vavoua, like other rural localities in the country, has been suffering the consequences of COVID-19 since 11th March 2020, the date of the first case in Côte d'Ivoire. In response to the shock created by this disease, several measures have been taken by the government, including the Emergency Support Programme for Agricultural Industries Impacted by Covid-19 (PURGA). The objective of this article is to show the impact of this programme on the food security of the beneficiary populations of the sub-prefecture of Vavoua in a Covid-19 context. To achieve this, the methodology adopted is based on documentary research, interview guides and a questionnaire survey. Our study shows that PURGA has contributed to the food security of beneficiary populations in the sub-prefecture of Vavoua. Indeed, PURGA has contributed to the availability and accessibility food products exclusively used for human consumption, both physically and economically.

KEYWORDS: Côte d'Ivoire, Vavoua, COVID-19, impact, food security

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I. INTRODUCTION

The year 2019 was marked by an event of global significance. It is the Coronavirus disease called COVID-19. COVID-19 is an infectious disease that is transmitted by droplets of saliva emitted by an infected person through coughing, sneezing or breathing in air. Of animal origin, the coronavirus disease was discovered in China precisely in the city of Wuhan in December 2019 (Ivorian Monitoring and Evaluation Network, 2020, p14). Starting in Wuhan, COVID-19 spread throughout China to become a global pandemic. It spread very rapidly through the different countries of the world with the movement of travelers between localities.

In Africa, COVID-19 emerged with the first case detected in Egypt on February 14, 2020 [1]. The 54 countries of the continent are now affected by the coronavirus including Côte d'Ivoire.

Located in West Africa, Côte d'Ivoire, like most countries in the world, has been affected by COVID-19 since the first case was confirmed on March 11, 2020 [2]. The appearance of this disease has created a serious crisis that has affected all sectors of activity. To deal with this crisis, the government set up a crisis committee as soon as the disease broke out. Also, to stop the progression of the disease, a series of measures were adopted. Despite the quarantine and the application of barrier measures, the number of cases has continued to increase. From 1 confirmed case on March 11, 2020, when the first case of COVID-19 appeared, there was a resurgence of COVID-19 on June 4, 2020, with 152 confirmed cases [3]. From this date, the number of new confirmed cases has continued to increase until reaching 258 cases on February 7, 2021.

Faced with this resurgence of the disease, all sectors of activity are paying the price either through restrictive measures such as distancing, hand washing ... and even partial or total closures. To avoid the collapse of the economy, the State will put in place palliative measures. The PURGA (Emergency Support Program for Agricultural Sectors Impacted by COVID-19) is one of these measures. It was created by Order No. 678/PMMBPE/CAB of June 24, 2020. Indeed, in view of the recovery of the economy from the effects of COVID-19, the CIMP (Interministerial Committee on Raw Materials) proposed the PURGA. Its objectives include reducing the impact of the pandemic on food security. Indeed, the food situation in Africa is one of the most alarming. The African continent is currently the only one where the increase in vegetable production remains lower than the population growth. This food shortage is a major concern [4]. In the current context of

regression, the concept of food security is potentially fruitful but remains a source of ambiguity in its meaning and practical application. However, three main dimensions can be retained. These are the availability of foodstuffs, the stability of supplies in time and space, and access for all individuals to the available foodstuffs. In order to meet the definition of food security, two options are available to public authorities, namely, to produce sufficient food or to have their own financial resources, well distributed, which will meet the criteria of this security. Therefore, three parameters are sufficient to characterize this notion. These are the demographic balance, agricultural production and the financial wealth of the country [5].

The sub-prefecture of Vavoua, located in the central-western part of Côte d'Ivoire, is affected by the PURGA program. The sub-prefecture of Vavoua is bordered to the north by the sub-prefectures of Braza-Nattis and Dananon, to the south by the sub-prefecture of Daloa, to the west by the sub-prefectures of Seitifla and Kéto-Bassam, and to the east by the sub-prefectures of Bédiala, Kanzra, and Zanzra (Figure 1).

The measures taken in the framework of the fight against COVID-19 have affected the living conditions of the populations. Our concern is the following: what is the impact of PURGA on the food security of the beneficiary populations in the sub-prefecture of Vavoua?

Our study will consist of describing the PURGA program in the sub-prefecture of Vavoua and show its contribution to food security in the sub-prefecture of Vavoua.

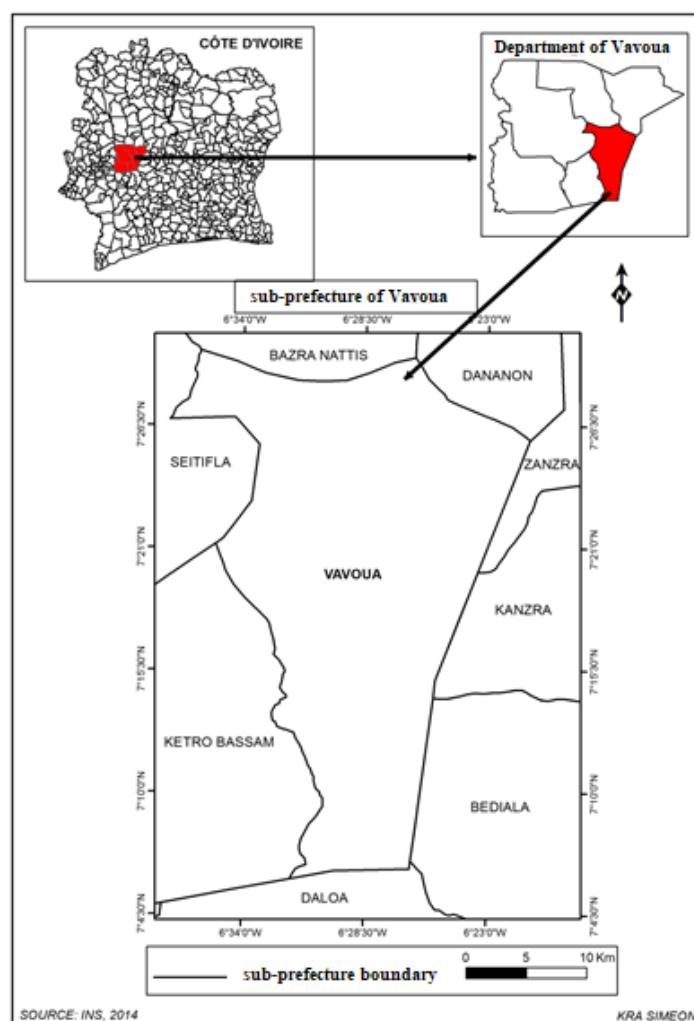


Figure 1: Location of the study area

II. MATERIALS AND METHOD

Several collection techniques were used. These are documentary research, interview guides and the questionnaire survey.

2.1 Documentary research

The literature search focused on works related to COVID-19 and data concerning the study area. This technique allowed us to have an overview on the COVID-19 pandemic.

2.2 Interview guides

They were directed on the one hand to health personnel in the Haut-Sassandra region and on the other hand to ANADER. We were able to obtain information from health personnel about the evolution of COVID-19 in the locality. As for ANADER, it is the body that piloted the program at both the national and local levels. It therefore provided us with information on the implementation of the project, the beneficiary populations, the nature of the intervention and the results obtained.

2.3 The questionnaire survey

This survey focused on the beneficiary populations. We used a 1/5 sampling. The survey therefore covered 80 people. We randomly interviewed these actors at the various extension centers. Table 1 shows the distribution of the surveyed population. The questionnaire focused mainly on the level of knowledge of the surveyed population related to the Coronavirus disease, the products, the results obtained in the framework of the program and especially its impact on their economic situation.

Extension centers	headcount	number of people interviewed
Bahoulifla	8	3
Bonoufla	46	10
Vavoua	263	53
Yuala	62	14
Total	379	80

Table 1: Distribution of respondents by extension center

III. WRONG UNDERSTANDING OF THE CORONAVIRUS DISEASE

3.1 Knowledge of the causes of contamination

It appears from our analysis that 77% of the respondents have a limited knowledge of the causes of contamination of the coronavirus disease. Only 23% know very well the causes of the coronavirus disease. Among the causes cited were a virus (23%), witchcraft (28%), western countries (17%), divine punishment (15%), bush animals (12%), and dirty hands (6%). The localities that have a good knowledge of the causes of coronavirus contamination are Vavoua and Bonoufla with 41% and 39% respectively (figure 2).

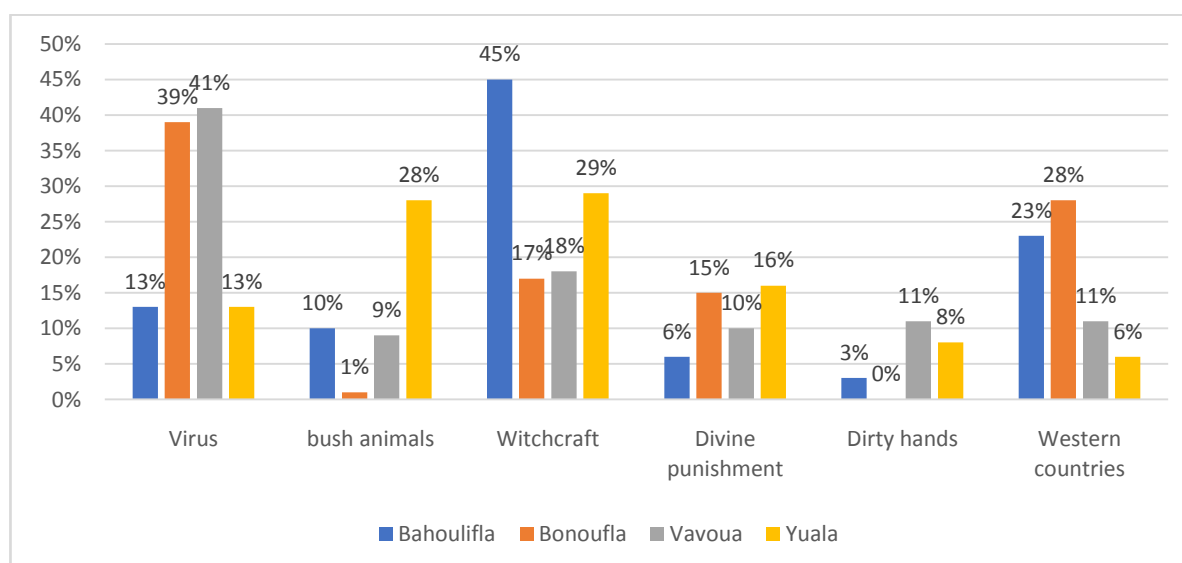


Figure 2: Knowledge of the causes of contamination of the coronavirus disease by locality

For the majority of respondents in Bahoulifla (45%) and Yuala (30%), the cause of the coronavirus disease is witchcraft.

3.2 Knowledge of modes of transmission

All the localities have a good knowledge of the modes of transmission of the coronavirus disease (figure 3).

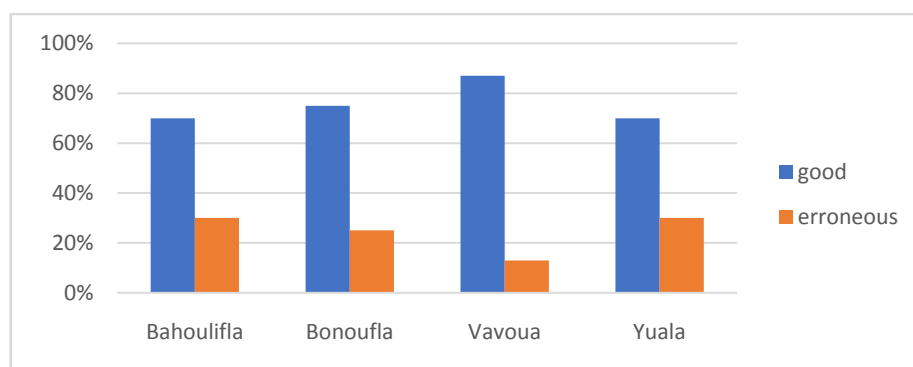


Figure 3: Knowledge of the modes of transmission of COVID-19 infection by locality

The localities that are good performers in terms of correct knowledge of the modes of transmission of the infection are the localities of Vavoua (87%) and Bonoufla (75%).

3.3 Knowledge of preventive measures

The preventive measures include regular hand washing with soap or hydroalcoholic gel, coughing or sneezing into the elbow or into a single-use handkerchief, always staying more than one meter away from each other, greeting each other without shaking hands, stopping hugging, avoiding touching the face, especially the nose and mouth, and wearing a mask when the one meter distance cannot be respected. They are known by 75% of the respondents. Respondents in Vavoua and Bonoufla have a good knowledge of preventive measures with 85% and 82% respectively (Figure 4).

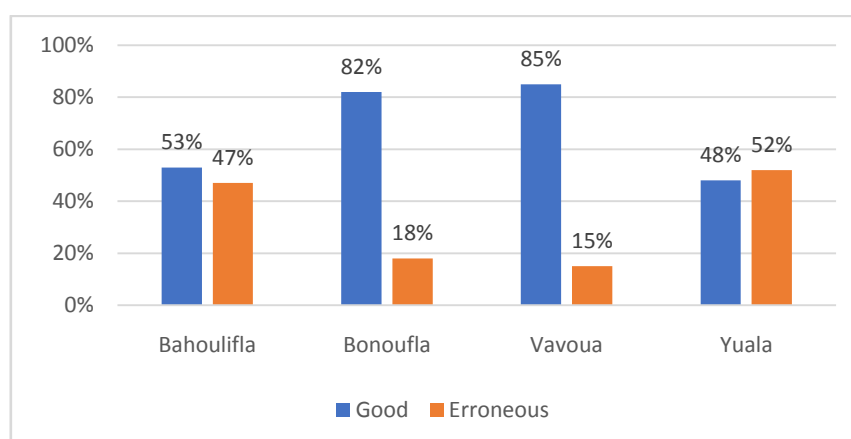


Figure 4: Knowledge of COVID-19 prevention measures by locality

The populations of the different localities surveyed constitute a group at risk of coronavirus infection because of their behavior and their low level of knowledge of the disease. Knowledge was erroneous, particularly with regard to the causes of contamination and the modes of transmission of the infection. The food, health and nutritional security of rural populations was not compromised by the pandemic despite their low knowledge of the coronavirus disease thanks to the implementation of PURGA.

IV. IMPLEMENTATION OF THE PURGA PROGRAM IN THE SUB-PREFECTURE OF VAVOUA

4.1 Localities impacted.

The program covered the entire sub-prefecture of Vavoua. It had 4 extension centers (Figure 5).

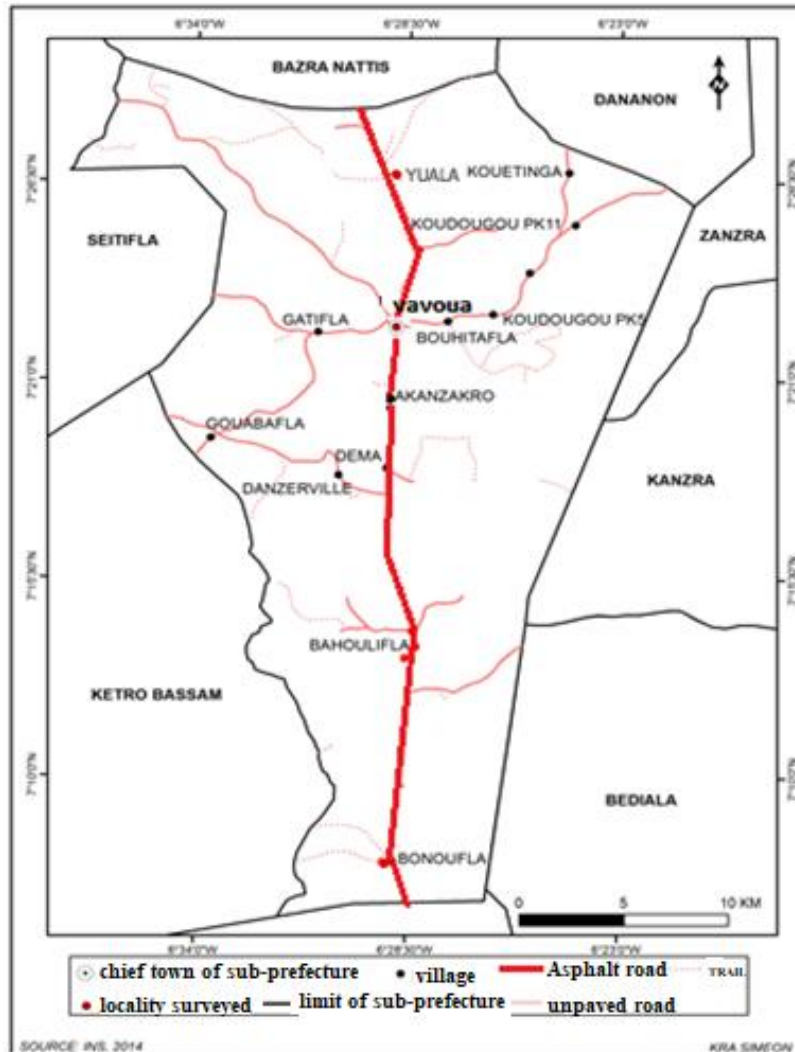


Figure 5: Location of extension zones

These centers function as core villages. Each center covers a radius of 5 km to 10 km. The program therefore covers about 20 camps. Each site has individual fields. These are generally less than one hectare in size. Photo 1 shows the description of a production site at PK 8.



Picture 1: Plaque indicating the project site in the locality of PK 8

On this picture, we have the description of the partners of the program, namely the State of Côte d'Ivoire and ANADER. We also have information on the location of the site, the speculation concerned, its surface as well as the date of its implementation. All these indications show that it is a program followed by the authorities. This indicates its importance. The actors therefore receive the necessary assistance for its implementation.

4.2 Beneficiaries of the PURGA program in the sub-prefecture of Vavoua

There are 378 beneficiaries of the program. Both sexes are represented. In fact, there are 180 women out of a total of 379. This represents 47.4% (table 2).

Extension centers	Men	Women	Percentage of men	Percentage of women
Bahoulifla	5	3	1,3	0,8
Bonoufla	36	10	9,5	2,6
Vavoua	131	132	34,6	34,8
Yuala	27	35	7,2	9,2
Total	199	180	52,6	47,4

Table 2: Distribution of beneficiaries by gender and by extension center

4.3 The nature of the intervention

The assistance was provided on several levels. There is the provision of inputs. These are mainly seeds, fertilizers, watering cans, sprayers and tricycles. It did not stop at simply handing out donations. The program has especially trained these producers on the technical itinerary of crops. This enabled them to master certain cultivation techniques, particularly irrigation, to increase yields (picture 2).



Picture 2: A farm with irrigation equipment at PK8

We see on this photo between the beds of market garden products this pipe. It is used to water the plants. This is a new technique for producers who are used to watering with watering cans, where they always have to move around to draw water.

4.4 Speculations concerned.

The program focused on food production. In the sub-prefecture of Vavoua, the main crops are maize and market garden produce, notably eggplant, tomatoes, chili peppers, cabbage (picture 3), lettuce, cucumber and okra.



Picture 3: A cabbage field in the PK 8 program

V. THE IMPACT OF PURGA ON FOOD SECURITY IN THE SUB-PREFECTURE OF VAVOUA

Food security is a situation in which every individual has adequate food. The food security situation is assessed according to 3 main pillars. These are availability, access and utilization. The PURGA program contributes to food security in the sub-prefecture of Vavoua by acting on these different pillars. This situation is contrary to Korhogo [6]. Indeed, according to them, the certificate of origin intended to facilitate the achievement of food security is a bottleneck for the availability, stability and accessibility of food in Korhogo.

5.1 PURGA's contribution to food availability in the sub-prefecture of Vavoua

The PURGA program has contributed to food availability in the sub-prefecture of Vavoua. This is reflected in the increase in production of the crops concerned. Indeed, it has allowed for a considerable increase in yields. Maize, for example, increased from 1 ton per hectare before the program to 1.8 tons after the program [7]. This represents an 80% increase (Table 3). A client we met at the large market in Vavoua confirms the presence of large quantities of market garden produce on the market for some time.

Speculation	Yield before program in tons per hectare	Yield after program in tons per hectare	balance
Maïs	1	1,8	+ 0,8
Maraîchers	2,5	5,7	+ 3,2

Table 3: Some yields of the main crops

This availability of food products on the market contributes to the decrease in their prices. Indeed, the market obeys the law of supply and demand. This situation allows the non-producing populations to have fairly easy access to these products. This is in contrast to the situation in Korhogo [6], where the certificate of origin has contributed to an increase in the price of food products. Intended to regulate the flow of food products on the roads, to reduce the cost of marketing and to improve the availability of food on the markets, the certificate of origin created by Law No. 92-948 of December 23, 1993, reactivated in 2014, has been the subject of fierce protests by law enforcement officials on the roads. This situation compromises the availability, access and quality of food in the markets of the city of Korhogo.

5.2 PURGA's contribution to access to food in the sub-prefecture of Vavoua

Access to food concerns both physical and economic access. Physical access is ensured by the availability of food following the increase in production brought about by the program. In terms of economic access, the PURGA program has enabled beneficiaries to earn foreign currency. According to Mrs. Yaméogo Pauline (market gardener at Pk8), the program has been very beneficial to her financially. She estimates her income at 400,000 CFA francs per marketing wave. In fact, she has two production waves during the year. The same is true for Ouattara Mamadou (maize producer in Deragon in the Yuala extension center). He claims a

significant increase in his income since the program was set up. In fact, the fact that the program has contributed to the increase in his production has had a knock-on effect on the quantity sold³⁻³- Contribution to food use
The PURGA program has essentially focused on food production, which by definition are products intended for human consumption without any other form of processing. Indeed, the OCPV (Office d'aide à la Commercialisation des Produits Vivriers) defines food crops as products that are consumed without being processed. They include starchy foods (bananas, yams, taro, etc.), cereals (corn, millet, rice, etc.), fruits and vegetables.

The products of the program have 2 main destinations. These are self-consumption and sale. The sale is generally destined for local markets, in particular the cities of Vavoua and Daloa. It is exclusively for human consumption.

VI. CONCLUSION

Located in the central-western part of Côte d'Ivoire, the sub-prefecture of Vavoua has suffered the full brunt of the collateral effects of COVID-19. In the search for a solution to this scourge, the State has initiated a number of measures including the PURGA program. This project has made a significant contribution to the food security of the beneficiary populations in the sub-prefecture of Vavoua. Indeed, it has contributed to the improvement of the food situation in the locality through the availability of food products and access to a balanced diet for the population. It is also a source of foreign currency for the beneficiaries to face other food concerns and even beyond. To further contribute to this food security, the program must seek to address the fourth pillar of food security, namely stability. This will only be possible through its sustainability over time and more advanced training of beneficiaries.

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