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# FOOD SELF-SUFFICIENCY AND COMMERCIAL AGRICULTURE: A STUDY BASED ON FARMING PRACTICES AMONG AGNI-BINI IN COTE D'IVOIRE

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Summary: The issue raised by this study is related to the availability of food products and the actions of its sustainability in order to ensure current and future sufficiency. Indeed, in this context of the essential functioning of the structural elements of a socio-economic system, the strategies of actors are part of a subtlety requiring a minimum of conscious manoeuvring. The use of the same product feeding at the same time as a source of monetary income or of several food and commercial products describes a situation that deserves to be delicately explored in an area where the actors practice agriculture to a large extent. This study mobilizes a qualitative approach through its phenomenological perspective with regard to the understanding or meaning that resource actors give to food availability in a context of survival as well as resilient actions whose temporality induces a questioning on vulnerability in a situation of sustainable development. The institutional context of the practice of non-directly edible cultures influences the cultural behaviour of populations. It should also be noted that the apprehension of food self-sufficiency is linked to an awareness of security.

**Keywords**: Agriculture - Availability - food security - behaviour – availability

## I. INTRODUCTION

The era of independence was marked by the increase and diversification of agricultural production as an imperative to boost economic development in most African countries (MINAGRI, 2007). In this economic context, the question of restructuring and diversifying agricultural production in modern countries in order to make the main sectors of financing national development programmes profitable, supported by several theories, especially after the Second World War (1945-1949), where the reconstruction of a Europe in ruins should be considered (Koffi, 2015). The injection of public capital will be accompanied by institutional reconstruction, resulting in the establishment of international institutions, most of which are set up following the Bretton Woods agreements. This is how the IMF, the World Bank, and international trade management institutions were created (Lefebvre, 1977). Indeed, these forms of organization respond to a need for action strategies in order to achieve a certain social ascendancy of the peoples of part of the global operating system. Relations with African countries are based on the value of the currency through export cultures and according to the expression of needs (Lefebyre, idem). It is therefore obvious that for a requirement reduced into a product type, the monetary value is reduced. This is linked to dependency, in a quest for similarity in the ways of doing and acting. The State, which groups together several territories on which individuals live in an authentic, local way, becomes Europe's substitute in the dissemination of new actions on the agricultural level in general and in a particular way on dietary behaviour.

In Côte d'Ivoire, the practice of coffee and cocoa cultivation is part of the national dynamic of the expansion of exogenous crops. As highlighted below, the introduction of these crops has brought about some changes in existing farming practices that focus mainly on food crops (KOFFI, idem). In the context of this study, despite their existence through their position in the agni-bini socio-economic system, coffee and cocoa nowadays structure the socio-cultural relationships of populations less. The more obvious type of cultivation highlights the introduction of cashew nuts, the main source of foreign exchange in the study area. In addition to cashew nuts, there are rubber, teak, oil palm and cucumber. The last ones are already in production and participate in the financing of family expenses. Thus, important elements in the system of functioning of the social and economic institutions of the Bini people now constitute important elements, raising the question of social regulation based on yam as the main food product. Yam is an inseparable part of the daily diet of the people, which from the time they settled on the current site was the main activity that occupied the most time. This study therefore deals with the understanding of the phenomenon of sectoral extension of inedible crops,

which has an effect on the organizational possibility of the populations of Kouassi-datékro in the system of maintaining the productive dynamics of edible agricultural products.

## II. METHODOLOGY

Grawitz (1984) defines the method as a concerted set of operations implemented to achieve one or more objectives, a set of principles governing all organized research, a set of standards for selecting and coordinating techniques. It constitutes in a more or less abstract or concrete, precise or vague way, a work plan according to a goal. The treatment of the question raised in this study reveals several orientations that could provide analytical data. In this study, as mentioned above, people are involved in the cultivation of several products. The majority of respondents grow at least eight (8) crops (yam, plantain banana, manioc, taro, but, cashew nuts, coochu, cocoa, palm oil...). One of the strategies of the populations in order to satisfy the needs is the cultivation of several products in the same area. There are sometimes more than 6 products on the same plot (yam, taro, but, plantain banana, cashew nut, manioc), as well as the exploitation of a previous plot. From this perspective, the organizational and strategic question becomes essential. Crozier and Friedberg (1977) defined a strategic analysis model based on collective action analysis and also used in evaluation as a change analysis model. It is a model of organizational analysis that focuses on understanding the relationships between interdependent actors, both rules-based and rules-based. The use of rules is part of the set of strategies that different actors use to achieve their goals. According to the authors, any collective action structure is constituted as a system of power. Power is the ability of an actor to structure more or less sustainable trade processes in its favour, by exploiting the constraints and opportunities of the situation to impose terms of trade favourable to its interests. It is the natural and even normal manifestation of human cooperation, which always implies a mutual and unbalanced dependence of the actors. (Fridberg, op. cit.). The study of power relations therefore makes it possible to identify relatively stable stakeholder strategies. This strategy represents their position, their party whose game depends on their interest but also on their resource. Resources can take the form of knowledge, expertise, status and legitimacy depending on the perceptions of the different actors (Klijn, op. cit.). "Strategic analysis therefore makes it possible to explain the opportunistic behaviour of actors. The latter can be analysed as the expression of a rational strategy whose aim is to increase personal gains gained through power relations, defined as the ability of each actor to make himself relatively unavoidable in the functioning of the organisation and thus to impose his requirements in the negotiation that forms the basis of cooperation. "(Kouassi, 2009, p.108).

In this study, farmers practice both perennial and food crops and each at its own level adopts a strategic behaviour regarding daily food availability. This type of behaviour leads to the plurality of consumer products and reduces the degree of attachment to yams as a preferred food. But also defines representation schemes around producers who regularly have yams. The strategic analysis is mobilized to understand the speeches of 22 actors, heads of households, 01 extension agents as well as 01 agricultural agents. An interview guide was administered over a period of 02 weeks in Kouassi-datékro.

#### III. RESULTS

## III-1- Construction of representations related to the development of industrial crops

Always in line with the profitability of quality production, ANADER's agents constantly encourage agricultural populations to adopt new farming techniques. ANADER's action is an extension of SATMACI's activities, which since its creation has been responsible for supervising farmers in coffee and cocoa cultivation and agricultural extension, with the specific task of carrying out or having carried out all development and equipment operations relating to the development and improvement of production. We are talking about the adoption of intensive agriculture, respecting a minimum distance between the plants grown and the use of inputs to prevent and treat diseases. At this level, almost all respondents replied that they were aware of the fact that the condensation of cashew tree plants is a factor in reducing production, but "the proportion of those who apply the new techniques taught remains beyond our expectations", underlines one of the agents. Nevertheless, awareness continues as shown in the image below.

Indeed, this development organization wants to move on to an experimentation phase of the distance between trees related to the quantity of production. A selection of producers has been made for the implementation of this policy. To this sample of farmers, a 10m2 plot will be delimited before the cashew nuts are collected, from the first day to the last. At the end of this period, each producer will evaluate the production quantity obtained, which the agent will compare to the actual production if the 10m distance between the cashew trees is respected. From this experience, producers will see the need to distance the plants. This action followed as part of the cashew tree practice will have an effect on the quantity of production and will affect the monetary value resulting from the sale. We insist on the cashew tree, because as mentioned above, it is the most common type of export crop. Another important aspect in the process of obtaining a quality production remains the drying conditions of the nuts. One of the officers said this: "As regards the drying and sorting of bad nuts,

the awareness of drying nuts on racks has always been effective and it has been requested to remove rotting and germinating nuts. However, producers have still not respected this technique. This year, with the repeated rejection of productions due to a lack of quality, we dare to believe that next year they will follow our advice. Innovation is accepted after negative consequences produced by our habits. The acceptance of florido was linked to this fact. There was a year when a disease attacked the beast species. It was like a constraint to consume the florido, rejected because of its color for some and its perfume for others.

A visit to the fields allowed us to observe cut plant feet in some parts of the fields. As justification, producers rely on distance as recommended by ANADER. In addition, to the question relating to the non-application of this technique at the beginning of the cultivation, the cross-checking of the information allowed us to find answers around the following terms: the size of the field, the lack of labour, the automatic substitution of dead plants. K. A, a young farmer in Kouassi-datékro points out that: "Even if the distance of 10m is not precise after eliminating some plants, we would have saved time during planting, because respecting a distance by the precision of the unit of measurement requires time and skill. The execution of all these operations, in the context of fulfilling a wish to possess several fields at once, is exhausting.

This perception of agricultural techniques is the basis for the cultivation practices of food products. These have not been taught for a long time in cultivation techniques known to producers. Nevertheless, in the context of yam production, a small number of respondents benefited from the instructions of the supervisors, as well as from cash crop growers.

D.B, another producer expresses it in these terms:

"Our parents lived like that without any major impact. The success of agricultural work is linked to a divine will and not to the spacing of cashew nut feet".

The new farming techniques taught by the main structure for supervising farmers are the result of several experiments carried out beforehand. Indeed, as mentioned above, ANADER is responsible for the popularization of new species that are more productive and resistant to diseases, following experiments carried out by other research structures such as the CNRA. The organization of these activities follows a method whose outcome produces verifiable and tangible results.

The perception of the respondents in this study will be a unit of appreciation of the techniques taught by the officers.

## III-2- From farming practices to food insecurity

In the study area, people grow several products. The majority of respondents grow at least eight (8) crops (yam, plantain banana, manioc, taro, maize, cashew nuts, roucou, cocoa, palm oil...). This appears to be one of the population's strategies for meeting needs (Koffi, op.cit). There are sometimes more than 6 products on the same plot (yam, taro, maize, plantain banana, cashew nut, manioc), as well as the exploitation of a previous plot. This strategy is more related to labour shortages than to the availability of arable land. The populations recognize that the multiplicity of products depletes the soil and requires a long period of fallow time before it can be re-exploited, and at the same time raises the question of the availability of assets to create plantations. Dame G.f, a member of the Kouassi-datékro women's association, expresses it in these terms: "My son, here we cultivate a little of everything. But food is often lacking because the work is based on one or two people. Look at me!! Should I go to the field at my age? I do this because all my children are in their respective homes and are concerned about their own work. Yes, they help me from time to time, but it is not enough to cover all my food and financial needs. I am obliged to carry out work that I myself am aware cannot meet my needs. And that's the way it is all over the village.

The diversity of products appears to be mandatory. Their presence on the same soil reduces the producer's working capacity. This takes enough time and requires a relatively small portion. A head of household may own large areas of land on which both perennial and food crops are grown. But in reality, how can we explain the adoption of this multiplicity of cultures, knowing that we could not have the manpower necessary for maintenance?

Price variability, extension techniques and imitation effects are the main justifications used by producers.

Indeed, the purchase prices of export products change each year, depending on the products and for a product type. This price instability is a factor in changing producers' farming behaviour, which is reflected in the adoption of several crops in order to avoid possible regrets. According to most respondents, the daily maintenance of the household in the food dynamic and the acquisition of financial resources remains the multiplication of agricultural products. While some plan to stop the expansion of industrial crops to focus more on annual crops, others plan to focus much more on industrial crops. The whole acknowledges that the creation of several agricultural fields separated by long distances sometimes reduces production capacity. This is linked to insufficient yam production, causes food diversity and places people in a situation of food insecurity (Koffi,

op.cit). Indeed, the lack of manpower for abundant production, the issue of climate change and the postponement of food enforcement periods have an impact on food availability.

#### It should be noted from the above that there is:

- -Inadequate adaptation of farming practices linked to climate change, despite producers' knowledge of the existence of this phenomenon,
- -the dependence on industrial crops that is perceived through the time spent on them. This dependence mainly modifies time management in the development of yam cultivation areas. –
- -the slow process, in the context of establishing the relationships between the actors in charge of innovations (exogenous and endogenous actors) within the operating system.

It is a set of facts that gives meaning to an uncertainty about having and guaranteeing food in the current and future context.

# III-3- From the apprehension of food self-sufficiency to an awareness of security

The general observation that emerges from people's discourse on food sustainability calls for a critical look at the behaviour of household actors. Self-sufficiency remains an individual's ability to acquire the essential daily and annual food products. Indeed, the populations project themselves on periods of food guarantee ("êhi man"; "srabia"; "Afouênouan", an expression that reflects the elaboration of any activity; the provisional programming; the mobilization of various technical, human, financial elements) daily, monthly and annual. It is clear that the question of self-sufficiency is posed to the individual from a restrictive perspective and ignoring a concern for offspring. A respondent's response to a question related to this aspect is a good illustration of this. D.B., farmer, head of household said: "Speaking of the future situation of children, it is rather imperative to focus on what is happening now. God takes care of his children at all times and according to the situation of the moment. Through the comments of this respondent, we note a lack of notion of sustainability. Food concern is an issue that requires attention in relation to the context in which it is experienced. This way of considering the facts through an attitude of breaking away from the past and the future defines the situation of food vulnerability in a future context.

#### IV. DISCUSSION

The question addressed in this study raises the organisational problems of populations in terms of food security in the present and in the future. Above all, it highlights the notion of food self-sufficiency, which raises other aspects related to food independence. If self-sufficiency must be part of a logic of appropriation based on consubstantial elements in the environment in terms of food, the absence of certain elements would lead to addressing the notion of food insecurity. In such a context, the debates fall into several directions and are important in bringing together factual elements. Diagne, R (2013) in a study defined food security as access to all to safe and sufficient food, with four dimensions: availability, accessibility, use and stability. Thus, referring to structural adjustment since the late 1980s, developing countries (DCs) have liberalized agriculture and opened trade, while developed countries maintain their agricultural protectionism. The author has set himself the objective of analysing the harms of poorly conducted and inadequate agricultural liberalisation through the reviews of agricultural reforms in Senegal and the 2008 food crisis. Thus, the root causes of this crisis lie more in the financialization of agricultural markets, their deregulation, and the inefficiency of agricultural and food policies in developing countries. The main result is that the scores of developed countries improved during this period, while those of low-income food-deficit countries deteriorated. This suggests that, as a result of the food crisis, food inequalities between developed and poor countries have increased. The study raises the real question of food autonomy. A problem addressed by Laville. E et al (2017), who point out in a study that, on average, the degree of food autonomy of the top 100 French urban areas is 2%: the local share of all agricultural products incorporated in the various food products (raw, processed, processed or cooked) consumed by local households remains very marginal. In other words, 98% of the content of locally consumed food is imported. And the reason is by no means a lack of food production in the territories in question, since at the same time, 97% of local agriculture in the first 100 urban areas ends up in food products consumed outside the territory... This situation has consequences in terms of environmental impact (intensity of road transport via trucks that sometimes import and export the same food) but also social link (loss of connection between those who produce and those who consume in the same territory). Food autonomy varies according to urban areas. These two studies have similarities with some aspects of the issue we are addressing with regard to populations that tend to use the financial resources of non-directly edible products to ensure daily nutrition. In addition, the system of production of cash crops, linked to its development policy, has an aspect of dependence that produces nonbeneficial effects for developing countries in terms of organisation in farming practice in order to guarantee food availability in the long term. On this specific aspect, it is possible to speak of a comparison of the present study with that of Diagne, carried out in Senegal. The question of food self-sufficiency is therefore strictly

linked to food insecurity and requires even more action from a theoretical perspective that must be based on both endogenous and exogenous facts.

## V. CONCLUSION

The cultural logic of populations in the practice of food crops is based on traditional knowledge. The representation of these logics as inherited knowledge is transmitted through family education. The consequence is the persistence of local techniques but also the recognition by farmers of the effectiveness of modern techniques in the practice of export products. This recognition determines the rapprochement of farmers to sustainable cultures. Especially since the time devoted to the maintenance of perennial crop plantations is considered more favourable by the majority of respondents. Farmers over 55 years of age report that they are unable to create yam fields because of difficult application techniques. They therefore devote themselves to perennial crops and feed on the income obtained. This requires a reorientation in the search for consumer products. From now on, the place of supply of food products changes. From the fields, we find ourselves on other exchange spaces such as local or foreign markets and shops. However, these are places where there is a plurality of foodstuffs that are not necessarily likely to produce a continuity of eating habits and guarantee local availability of food products.

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