

Enhancement of the energy value of cassava effluents and social repositioning of women producing “attiéké” in the Municipality of Daloa (Cote d’Ivoire)

¹N'GORAN Sylvanus Innocent , ¹KONAN Koffi , ¹KOFFI Alexis

¹Teacher-Researcher, Jean Lorougnon Guédé University of Daloa / Côte d’Ivoire

Summary

This study addresses the issue of gender approach in local development projects, initiated generally in Africa and particularly in Côte d’Ivoire. It starts from the observation that the consideration of development relating problems specifically targeting populations said to be vulnerable are insufficiently efficient, because of the multiplicity of their perverse effects. Indeed, this study is intended to help comprehend the weak mobilization and involvement of these targeted populations. It is specifically interested in the ability of women producing “attiéké” to adopt and take ownership of technological innovations initiated by the project of **Enhancement of the energy value of effluent deriving from ‘attiéké’ producing factories** and support to its long-lasting preserving (VECDA) (VECDA). From a methodological point of view, this analysis has an evaluative character. Through the mixed approach, the methodological considerations involved the use of a questionnaire and an interview guide for the collection of field data. Thus, this study is therefore rooted in a theoretical framework, which combines the theory of social change developed by G. Rochet (1973) and the one of gender advocated by V. Julliard (2017). Findings reveal that the implementation of VECDA project is faced with the reluctance of women producing “attiéké” for three main reasons. Indeed, the questioning of the evaluative indicators points out the following : (i) the VECDA project is socially unsuited to the realities of producing women (ii) the rationales behind actions developed by the Yébo-Ekon Cooperative Organization are less congruent with those of women producing attiéké, (iii) the technological innovations fostered by the transfer of knowledge are not sufficiently backed up by the social dimension that should contribute to the social repositioning of the beneficiary women..

Keywords: Effluent, Local development, Technological innovation, Attiéké, Knowledge transfer.

Introduction

The local development policies initiated in Africa in general and in Côte d'Ivoire specifically stand as one of the main chains in the present context of the new form of decentralization (B. Meunier, 2006). In fact, local development can be defined as a social action undertaken jointly and in a synergistic way by the State, local governments, development partners and local populations. This collaboration can happen through competence transfer as provided by the Ivorian Constitution and be published in the Official Gazette of the Republic of Côte d'Ivoire (JORCI). "Local governments may based on the law, transfer the exercise of their statutory powers to associations of local governments they belong to" (JORCI, 18th of August 2003, p.23).

With NGOs, local development becomes more and more gender based. Local development is now replacing the "Top-down" development model (M. Soumahoro, 2015, p. 51). This participation of NGOs, in local development, in connection with gender issue finds a favorable echo within rural and urban communities in Côte d'Ivoire. The feminization of local development based on local competence and mainly on women has already been initiated in several regions of Côte d'Ivoire, including the one of the Tonkpi, in the western part of Côte d'Ivoire, under the initiative of the international NGO, Save the Children (K. Konan et al, 2021).

Indeed, this concept of local development is based on the one hand on the partnership underpinned by a transfer of competence (J-A. P. Guiriobé, 2020), which implies detection, training, implementation and monitoring of activities. It is on this basis that the Directorate General of Decentralization and Local Development (2013, p.83), cited by J-A. P. Guiriobé, (Op. Cit., p.114), asserted that:

These powers are therefore entrusted to the various local governments on the basis of a very precise distribution made by the State because decentralized entities participate together with the State to the economic, social, health, educational, cultural and scientific development of the populations and, in general, to the constant improvement of their living conditions.

Beyond this concept of local development standing on the transfer of competence from the State to local governments, participatory and integration based local development, it is also one of the rooms of the social dimension of innovation, be it considered from an organizational, political or social point of view, but it is a “cautious” innovation because being less “transgressive” since it is based on knowledge” (Y. Pesqueux, 2009, p.2). With the aim of supporting local development in the Haut-Sassandra region in general and that of the Commune of Daloa in particular, development partners have initiated a project for the social repositioning of women producing “attiéké” in the said locality. Thus, the project of **Enhancement of the energy value of effluent deriving from “attiéké” producing factories** and support to its long-lasting preserving (VECDA) has been launched. Indeed, this project is financed by the Competitive Fund for Sustainable Agricultural Innovation (FCIAD) within the Debt Reduction and Development Contract (C2D). It is implemented by the Jean Lorougnon Guédé University (UJLoG) of Daloa in partnership with the Pan-African Intergovernmental Water and Sanitation Agency for Africa (EAA). The main beneficiary of this project is an Agricultural Cooperative, Yébo-Ekon. Yébo-Ekon is an Agricultural Cooperative Organization working in cassava production in Daloa. The project is mainly targeting women processing cassava into “Attiéké”.

The empirical observation relating to this study helped the initiators of the VECDA project notice that the processing of fresh cassava into “attiéké” is carried out in an artisanal way and very energy consuming, firewood and/or charcoal being the main sources. Furthermore, the attiéké processing generates toxic effluents with a very high pollutant load, released without prior treatment into cesspools and on empty lots. In addition, the preserving of attiéké over a long time-period remains a major concern for producers, since it can only be stored for a maximum of three days at ambient temperature.

After more than 24 months of implementation of the VECDA project, it seems appropriate to ask the following question: what are the environmental and socio-economic changes produced by the VECDA project among attiéké producers? Addressing this question means grasping the changes introduced by the project and identifying the emerging dynamics that lead “attiéké” producers in the Commune of Daloa to consider the Attiéké processing factory as a preferential place of production.

I. Methodological considerations

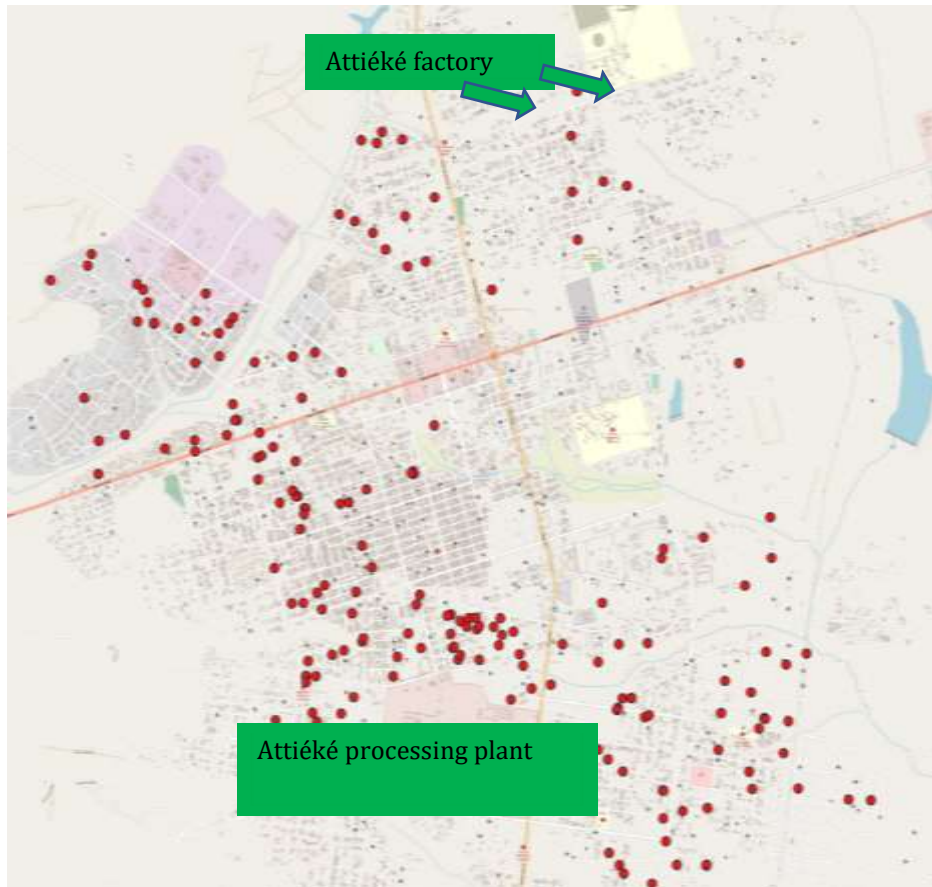
1.1.Target and study area

This study is in the field of local development sociology in line with gender issue. Indeed, it addresses the issue of the social repositioning of women producing attiéké in Daloa commune. It involves at the same time the theory of social change, developed by G. Rocher (1973) and the theory of gender promoted by V. Julliard (2017). Thus, this research work confronts the logic of action with knowledge transfer and the capacities of adoption and taking of ownership of women producing attiéké.

The empirical part of this study has been conducted from 06th to 08th September 2021. The survey environment is composed of all women producing attiéké in the municipality of Daloa. All the

neighborhoods of the Commune of Daloa where women process attiéké have been systematically surveyed. Indeed, the Commune of Daloa has thirty-three (33) officially recognised neighbourhoods. As the study was intended to be exhaustive, all of these neighbourhoods were covered by the surveyors.

Map 1: Chart showing the women producing attiéké surveyed in the Municipality of Daloa



Sources: Field survey data from the 06th to the 08th September 2021

I.2. Data collection tool

In the framework of this evaluative study, questionnaire was the main data collection tool. Indeed, the survey made it possible to meet all women producing attiéké who gave their prior agreement to participate on the one hand in the implementation of the project and on the other hand in the running of the diagnostic survey.

The questionnaire used to collect the information includes the following three sections:

1. Socio-economic characteristics of women producers of attiéké;
2. Change produced by VECDA project;
3. Initiatives and operational dynamics of the attiéké processing factory.

Quantitative data were collected by means of the KoboCollect app from 215 women producing “attiéké”. This digital application made it possible to reduce the time spent for data collection and processing. In addition to the questionnaire, an interview guide was developed to grasp the initiatives and dynamics of the members of the Yébo-Ekon cooperative. When it comes to the geographical distribution of the respondents, it should be noted that women producing attiéké in the municipality of Daloa cover all areas of the

Commune. However, it is worth specifying a high concentration of these women in the neighborhoods around the city center as shown in the figure above.

II. Presentation of the study results

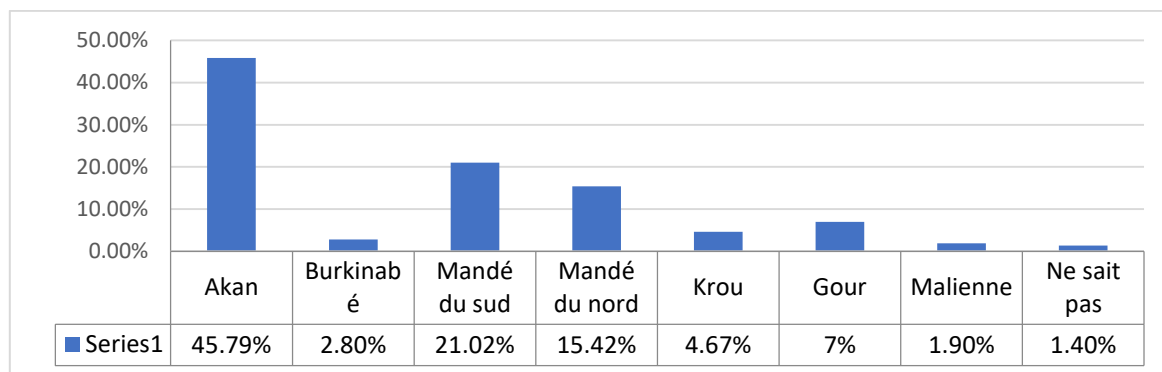
The results taken into account in this study pertain to: (i) the socio-economic characteristics of women producing attiéké, (ii) changes produced by the VECDA project.

II.1 Socio-economic characteristics of “attiéké” producers in Daloa

II.1.1 Identity of actors in the production and processing of attiéké in Daloa

Knowing the ratios of ethnic groups or the different nationalities of women involved in the production of attiéké makes it possible to grasp the economic weight of natives and non-nationals in this area of activity.

Figure 1: Distribution of ethnic groups and nationalities involved in attiéké production



Sources: Field survey from the 06th to the 08th of September 2021

The survey reveals that the Akan group made up of Baoulé, Agni, lagoon area peoples (Adjoukrou, Attié, Alladjan, Ebrié...) is the most significant community in the production of attiéké, with a rate of more than 45%. This predominance confirms the information according to which, this food is from Akan people, in particular, coming from people living around the lagoon. There is also a large community of Mande from the south (Dan, Wê, Gouro, etc.), representing 21%, and Mande from the north (Malinké, Mahouka, etc.), representing over 15%, in the production of attiéké in the town of Daloa. Besides these Ivorian ethnic groups, there is a significant presence of Burkinabe and Malian, who represent 2.8% and 1.9% respectively in this area of activity.

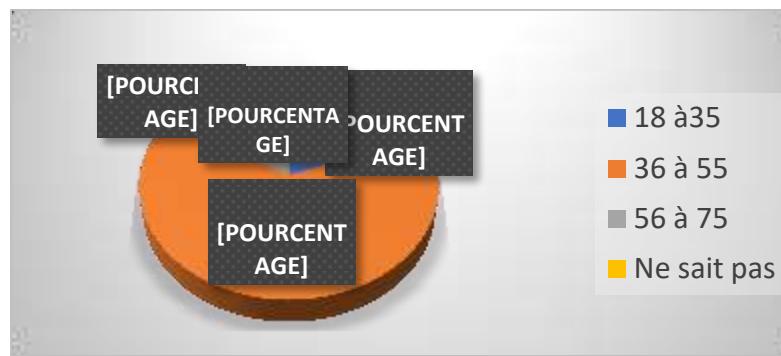
The figure 2 shows the strong presence of Akan women in the production of attiéké in the Commune of Daloa. This predominance, which is similar to a sort of monopoly of Akan women in this sector of activity stands on the transfer of competences linked to ethnic origins. This transfer of competence, which takes into account the notion of knowledge, is already carried out by these women within their families and perpetuated from mother to daughter. It is therefore a traditional know-how transmitted and perpetuated from generation to generation. On the other hand, the presence of women from other ethnic groups in the production of attiéké derives from apprenticeship and is subordinated by the relationships with learners, without really taking into account axiological, symbolic and ideological considerations developed around the business of production of attiéké.

The presence of all five (05) major ethnic groups in Côte d'Ivoire and the presence of the Burkinabe and Malian communities in the production of attiéké, shows that this economic activity is becoming more and more interesting and internationalized, with the labeling of the attiéké from Burkina Faso. It also highlights the impact of cultural mixing, which is demonstrated by the different peoples living on Côte d'Ivoire territory. This mixing reveals the adoption and / or sharing of values among people.

II.1.2 Life progress and production of attiéké in Daloa

The activity of attiéké production requires a lot of physical effort and endurance. As such, it is important to know the average age of the producers in order to assess the vitality of those women.

Figure 2: Age range of attiéké producers surveyed



Sources: Field survey from the 06th to 08th September 2021

The graph related to life progress shows a variation of the age of attiéké producers in the Commune of Daloa. The vast majority of these women are between [36 and 55 years] that is (65%) of the women that have been interviewed.

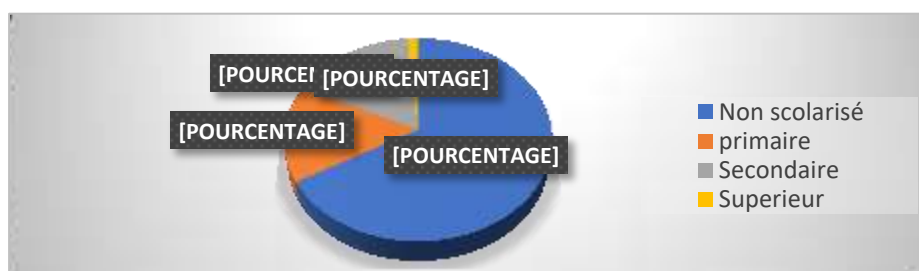
A fringe of women, on the other hand, are in the range [18 to 35 years] (19%). The rest of the women surveyed (14%) range from [56 to 75 years old].

Although a diversity of age groups is involved in the production of attiéké in Daloa, one should nevertheless recognize that the age group [36 to 55 years] is the dominant one in this area of activity. This age group is followed by the younger ones who are generally in a period of apprenticeship and receive instructions from their social elders. The large proportion of women in this age group can be explained by the family structure and their roles in this institution. Indeed, women in this age group [36 to 55 years] are mostly in households and therefore in couples. This context makes them more or less active or even responsible for meeting family needs. In addition, these women also get the financial support of their spouse, parents, and/or the women's associations they belong during the celebration of their marriages. In a general movement of women's empowerment, they join these small units of attiéké production to establish Income Generating Activities (IGAs). They therefore become, active and dynamic within their respective communities.

II.1.3 Level of education of attiéké producers in Daloa

The level of education of women producing attiéké in the commune of Daloa is divided between those who have not attended school and those who have attended primary, secondary and higher education. Graph 4 shows that education is not an absolute prerequisite for joining and working as an attiéké producer in the commune of Daloa.

Graph 3: Level of Educational of women producing attiéké



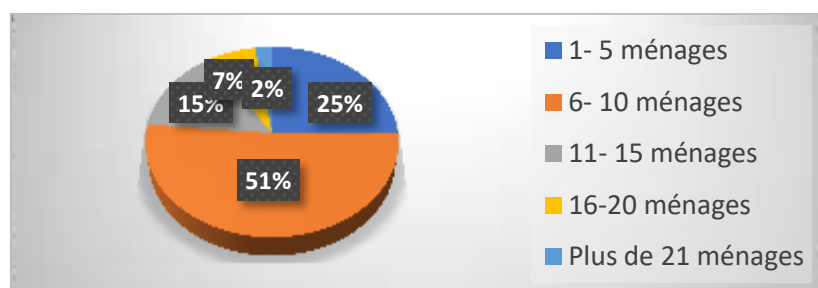
Sources: Field survey from the 06th to the 08th of September 2021

The figure shows that the majority of women producing attiéké are illiterate school. Indeed, 67% of women producing attiéké interviewed in Daloa have never attended school. Only 33% of these women did. Out of this total of 33%, only 1% attended higher education. As revealed by the data, the attiéké production sector is dominated by women with relatively low levels of education. The predominance of illiterate women is due to the fact that attiéké production is a traditional liberal economic activity that does not require any qualification or scientific expertise based on academic knowledge. On the other hand, the production of attiéké requires an apprenticeship based on the know-how and it requires willingness and availability for the passing across of the know-how from elder to younger women.

II.1.4 Organization of Households and production of attiéké in the Commune of Daloa

The organization or size of households influences both family income and economic investments. In order to understand these influences, a census targeting households was conducted among women producing attiekie in Daloa.

Figure 4: Sizes of Households of women producing attiéké



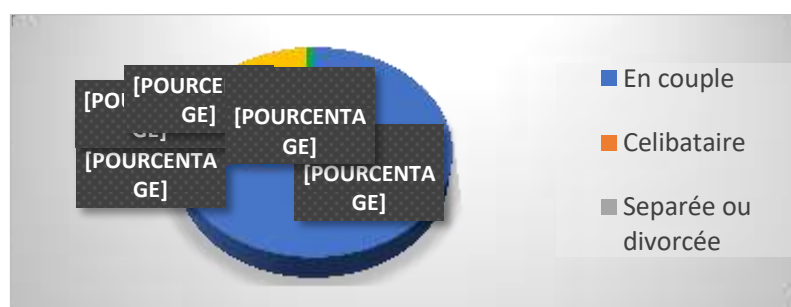
Sources: Field survey, from the 06th to the 08th of September 2021

The results of the survey revealed that more than half of the households of women producing attiéké (51%) come from households having between 06 to 10 members. Furthermore, 25% of women producing of attiéké come from small sized families: less than 06 people. These figures are in line with the data of the last General Census of the Population and Housing (RGPH) of 2014. In this (RGPH), the average size of national households has been set to 06 persons.

II.1.5 Marital status of women producers of attiéké

A person's marital status can have a variety of effects on his/her production activity. It is in this respect that the marital status of women producing attiéké in the commune of Daloa was questioned in the framework of this study.

Figure 5: Marital status of women producers of attiéké



Sources: Field survey from the 06th to 08th of September 2021

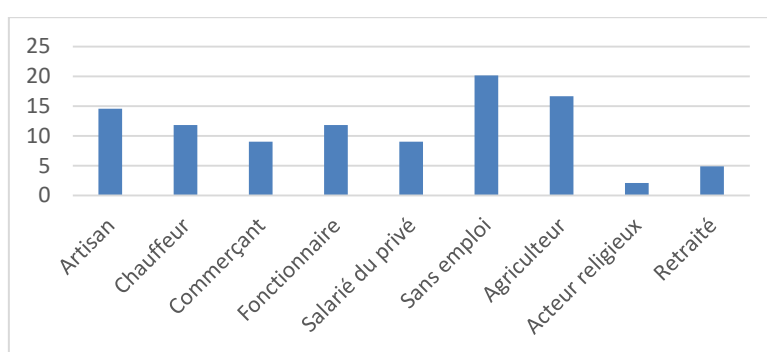
The survey reveals that the majority of women producing attiéké live in couples (70%). However, it is noted that nearly 30% are raising their children alone. More than 20% of them used to live in couple. Only 06% of

women producing attiéké live without a spouse. Considering the data of Graph 6, it must be said that women producing attiéké are resilient. Despite the fact that they are in a relationship, it does not prevent them from carrying out such a demanding economic activity. On the contrary, these women participate through the production and sale of attiéké to family expenditures. They also participate in paying for school fees for their children. They also bring, financial and/or material assistance to family members and face expenditures outside their families, etc.

II.1.6 Activity of the spouses of women producing attiéké

Knowing the activities of the spouses of women producing attiéké makes it possible to better apprehend the socio-economic environment in which they live. Thus, the respondents were asked to communicate about the economic activity of their spouse.

Figure 6: Activity of the spouses of women producing attiéké



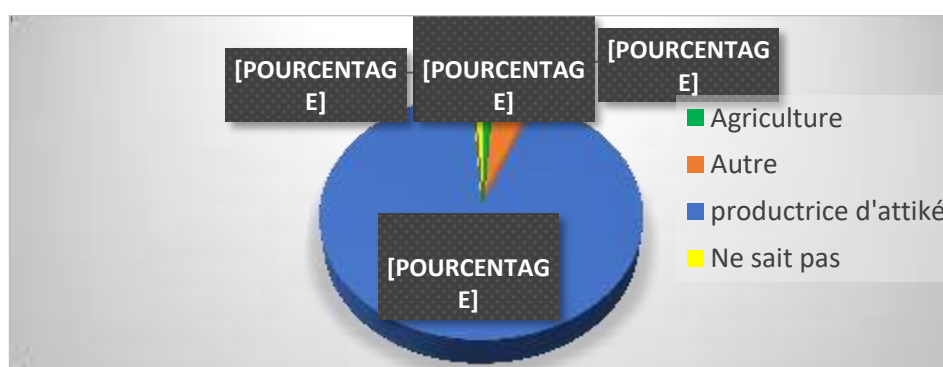
Sources: Field survey from the 06th to 08th of September 2021

The survey data show that the spouses of women producing attiéké in the Commune of Daloa work in different areas of activity. However, it should be noted that 20% of their spouses are unemployed. The number of spouses who are civil servants i.e., working in the public sector, barely exceeds 10 per cent. Apart from this population, the other spouses of women producing “attiéké” (65%) are in free-market activities. One can notice that the majority of the spouses of these women are much more involved in the private sector, same like their attiéké producing partners.

II.1.7 Main activities of the respondents of the Commune of Daloa

The respondents targeted by this study are primarily women producing attiéké in the commune of Daloa. As a result, all women producing attiéké in the neighborhoods were the main target of this study. However, the question was raised to determine whether attiéké production remains their main activity. The data below in Graph 8 gives an overview of attiéké production in the socio-economic structure of women.

Figure 7: Main activity of respondents



Sources: Field survey, form the 06th to the 08th of September 2021

The graph above shows that the production of attiéké is the main and dominant activity of the women. Indeed, the field results show that 93% of the women surveyed said that the production of attiéké is their main activity against 7%, who have a secondary activity.

All in all, it appears from the socio-demographic presentation of the respondents that women producing attiéké in the Commune of Daloa have a relatively low level of education. The study reveals that 67% of these women cannot read or write. The majority of these women (93%) have the production of attiéké as their main activity. The age groups listed indicate that the production activity still has a bright future ahead of it. Because there are more than 85% of the producers who have an age between [18 and 55 years], with a high rate ranging between [36-55 years], representing 65% of the population of women surveyed. This shows that the activity is driven by the dynamic force of female population. Women producing of Attiéké come from medium-sized households. The vast majority of these women live as a couple (70%). Their spouses work in all areas s of activity. However, it is worth noting that the majority works in free-market businesses. The production of Attiéké involves all ethnic groups and is becoming international.

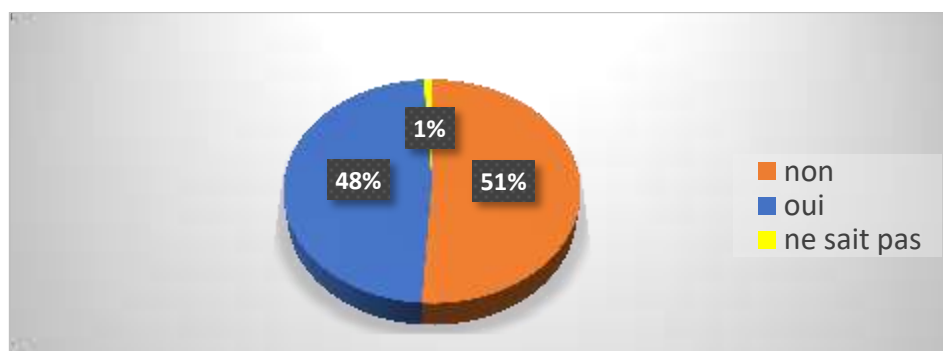
This picture of the socio-economic characteristics of women producing attiéké shows that attiéké production is a dynamic and income-generating activity. It therefore, helps producers improve the daily living conditions of their families and provide additional resources within and outside the family structure.

II.2 Changes triggered by VECDA project among women producing attiéké

II.2.1 Internalization of VECDA project during the initial survey of May 2019

To assess a change, it is important to have basic information. In the case of VECDA project, it is necessary to know whether the attiéké producers internalized the information relating to the implementation of the project during the visit of the first surveyors of VECDA project, during the initial survey in May 2019. During this initial survey, the surveyor’s mission, in addition to completing a questionnaire, was to communicate on the upcoming construction of an attiéké factory in the industrial park of the Commune of Daloa. When asked if they remembered the visit of VECDA surveyors, the opinions of the women producers were proved mixed.

Figure 8: Recalling of the visit of VECDA surveyors’ by the attiéké producers



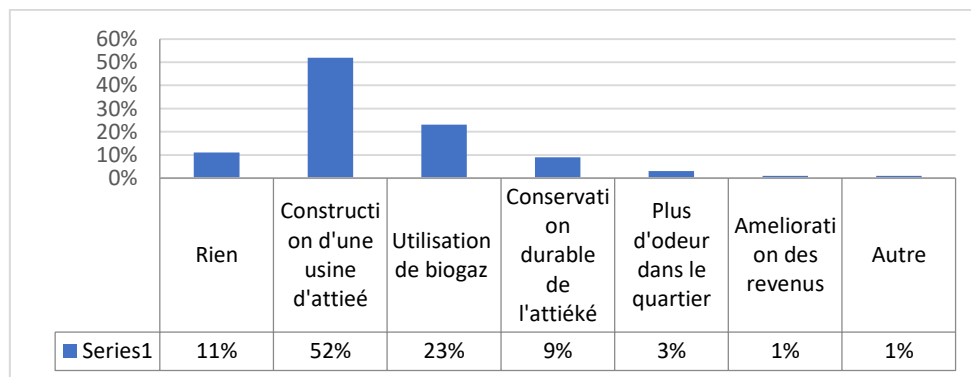
Sources: Field survey from the 06th to the 08th of September 2021

The graph above reveals that nearly 48% of women remember the visit of VECDA project agents in 2019 against 52% who do not. After more than two years of implementation of the project, without real contact with the majority of attiéké producers in the Commune, some women still remember it. This means that they have a positive image of the project and, in turn, would develop considerable expectations from the VECDA project.

II.2.2 Information kept by the producers of attiéké after surveyors’ visit in May 2019

Women producing attiéké who remember the information relating to VEDCA project recall mainly the construction of an attiéké processing plant, as specified in the data recorded in Graph 10.

Figure 9: The elements kept by the respondents following the visit of VEDCA surveyors



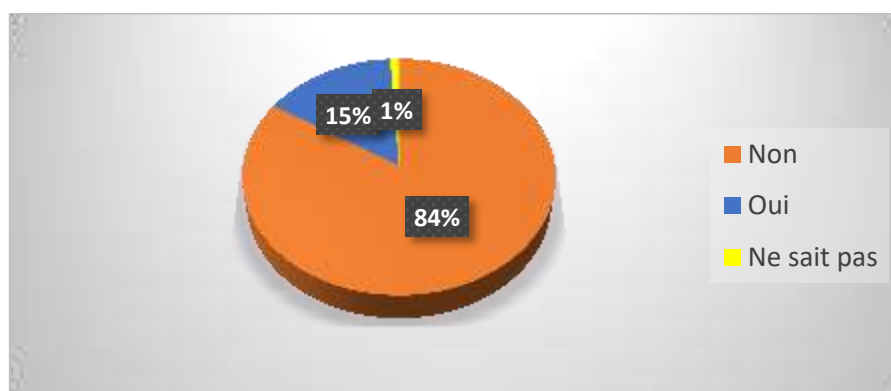
Sources: Field survey from the 06th to 08th of September 2021

The survey shows that the project of construction of an attiéké production site attracted more the attention of attiéké producers by a rate of 52%. Then comes the idea of using biogas for cooking attiéké (23%). In addition to these two major ideas, 09% of attiéké producers have also kept on mind idea of sustainable preserving of attiéké. However, the sanitation related issue received less attention from the women, with a score of 03%. All in all, it is important to remember that the idea of building an attiéké production site and developing technological innovations was welcomed by women. Indeed, the production of biogas from the recycling of effluents from attiéké production plants and its preserving over a long period of time have changed the relationship between the women going to the factory and men and things in the process of production and marketing.

II.2.3 Knowing the attiéké production site

Although the factory has changed the production relationship around attiéké, the majority of women producing attiéké don’t know where the site of production is located. Let’s remind that the site has been functional since April 2021.

Figure 10: Knowledge of “Attiéké” producers about the factory.



Sources: Field survey the 06th to the 08th of September 2021

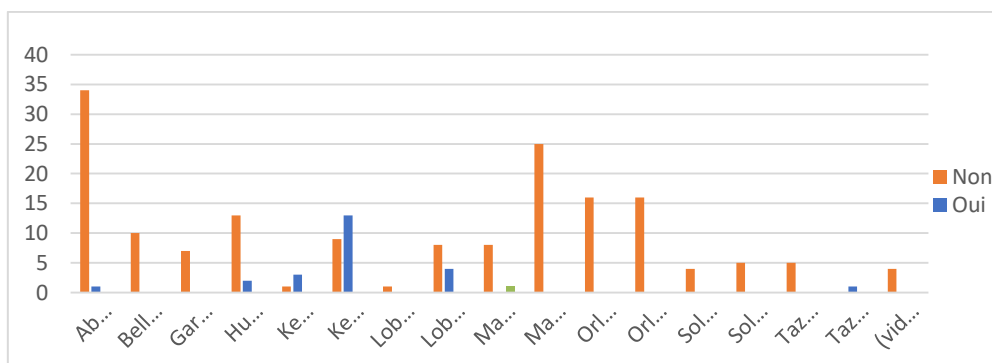
The Graph 11 shows that 84% of women producers of attiéké in Daloa commune do not know the location of the attiéké plant. This high proportion of women producers of attiéké who do not know the factory site

after more than 06 months of production reflects the lack of communication around this site dedicated to the manufacturing of cassava into attiéké, in the Commune of Daloa.

II.2.4 Distribution of attiéké producers according to their neighborhoods and knowledge about the site of attiéké production plant

The distance between the place of residence of the women producing attiéké and the factory is one of the causes of their lack interest regarding the place where the plant is installed.

Figure 11: Distribution of attiéké producers by neighborhood and knowledge about the factory



Sources: Field survey from the 06th to the 08th of September 2021

A cross-analysis of the place of residence of the women producing attiéké and the location of the factory led to the conclusion that there is close link between the knowing of the site and the proximity with their places of residence in Daloa. Taking into account the significant impact between the place of residence and the site of the factory makes it possible to group the women by neighborhood with regard to their knowledge about the site of the factory. Thus, according to that grouping the women of the neighborhood “Kenedy” come first, then those of the neighborhoods “Lobia 2” and “Hubertson” and finally those of Tazibouo 2 regarding the knowing of the attiéké production plant site. The closeness of the place of residence is therefore the main factor influencing the knowledge of the attiéké plant by the women in this area of activity in the commune of Daloa.

In view of the above, it should be noted that nearly half of the attiéké producers remember the visit of the surveyors of VECDA project, in May 2019. On the other hand, 52% of women producers were hoping to have an attiéké production site, 23% of them were secretly hoping to have biogas for the cooking of attiéké and 09% were expecting to receive a training on how to sustainably preserve “attiéké”. Addressing the issue of knowing the production site, the survey showed that 85% of Daloa attiéké producers do not know the site of the attiéké plant. The lack of knowledge about that site does not help women producers of the city to have an objective idea of the plant. The direct consequence of this lack of knowledge is reflected in the difficulty to set a direct link of the project's impact on the environment.

Also, the low-rate visit of the plant by attiéké producers does not make it possible to establish a relevant correlation between the repositioning of women and the advent of VECDA project. Therefore, this evaluative study does not have enough data that can be used to address the issue of initiatives and business dynamics of women producers around the attiéké factory in the Commune of Daloa.

III. Discussion on the study results

III.1. Threats from the VECDA project

Originally, the implementation of the VECDA project was targeting the visiting and almost the permanent installation of attiéké producers in the city of Daloa. To this end, they were asked to go to the new site of attiéké plant in order to improve their working conditions and by extension, their living conditions. However, this intention of the project initiators does not match that of the beneficiary women. This contrast of views has inevitably led to the reluctance of women producers of attiéké to utilize the plant. This reluctance of women to adopt and use the new improved attiéké production site can be explained by their geographical distance from the production unit and also by the lack of transportation means. Under such circumstances, it can be assumed that a participatory diagnosis was not strictly carried out before the implementation of the project. This undoubtedly leads to an inconclusive repositioning process. This point of view is shared by L. Raymond et al (2009), who advocates for a participatory diagnosis as he states in the following remarks:

One must first conduct a diagnosis to understand and assess the current situation. In the case of knowledge transfer, it is necessary to make a diagnosis [...] to know what the system has, be it in individuals, in departments or in the whole organization (L Raymond et al, Op. Cit. p.9).

Most attiéké producers live relatively far from the new site of attiéké plant (See map of the distribution of attiéké producers in Daloa). The remoteness of the plant site is indeed an obstacle to the effective implementation of the project. However, this obstacle is not unmanageable, with the support and financial assistance from the project initiators. The issue of financial support has been raised by several attiéké producers as a bottleneck in improving their productivity. According to them, their incomes are so low that they use a large part of their profit to provide for their daily food, pay for the rental of motorized machinery for grinding and transporting cassava, pay for the education of children, health costs, social financial support, etc. Unfortunately, they face a lot of difficulties in getting support funds. However, when the possibility is offered to them, the reimbursement rates are unbearable as mentioned by the beneficiaries. Also, the fear of being stressed by bank collectors does not make it easy to get loan. From this perspective, the National Center for the Territorial Public Service (CNFPT) recommends to formalize knowledge transfer process by taking into account the "political, human, financial, organizational and, of course, legal impacts s" (CNFPT, 26 February 2019).

The capitalization of local achievements and transferred knowledge will enable women producers of attiéké within the Yebo-Ekon cooperative to adopt the technological innovations initiated by the VECDA project. Under these conditions, "knowledge transfer is a way for organizations to progress, to be more competitive and embrace the change which is essential to their existence " (A. C. Kahia, 2013, p.9). In fact, in the context of the VECDA project, the composition of the synergy resulting from local assets and the technology transferred did not take account some achievements, such as the keeping and care for the clientele. Because of that thought, a large number of attiéké producers expressed the fear of being affected by the use of the plant (factory) and losing regular customers. In this regard, it is worth mentioning that each producer has a customer portfolio depending on the production area and the place of residence of customers.

Thus, changing the production site would represent a potential risk of loss of customers not benefiting a producer based in a usual production area. In addition to the issue related to the keeping and management of customers, comes the one relating to the availability of manpower in the municipality of Daloa. In fact, the production of attiéké requires a significant workforce. Indeed, peeling, grinding, squeezing, screening, the removal from the mould, cooking and baking are relatively demanding steps, which require a reliable

workforce. Thus, women producers of attiéké are facing an equation with two unknowns. For these women, it is therefore a matter of answering the following question: will it be possible to have a workforce on the attiéké production site and will it be possible to keep the clientele on a permanent basis? This is the concern of women producers of attiéké in the Commune of Daloa, which is similar to that already addressed by Kahia.

Thus, A.C. Kahia (Op. Cit, p.9), gives a tentative response by proposing the following: " [...] revealing the nature and levels of organizational change caused by the transfer [...] and understanding the transfer-learning dynamic by opening the black box of knowledge transfer... ». On the other hand, a possible non-respect of the commitments by the Yebo-Ekon cooperative society provokes the reluctance of some women to join the VECDA project. "The stake of knowledge transfer is more in terms of *taking of ownership* " as stated by (S. Beaudoin, C. Laquerre, 2001, p.7). Thus, the women producers of attiéké in Daloa do not envisage getting new habits at the new production site and few time thereafter seeing their hopes ruined and returning to the practices they abandoned with the advent of the VECDA project. This caution towards the project initiators is supported by A.C. Kahia (idem., p.9), when suggesting to: "re-conceptualize knowledge transfer in a holistic way". He therefore proposes an institutional framework, which makes it possible to integrate "the role of the emitter and the bidirectional flows between actors [...] to highlight the experience of inter-organizational knowledge transfer " (A.C. Kahia, *ibid.*, p. 9).

III.1.1 A shift from skepticism to hope experienced by the women producers of attiéké in Daloa

The Attiéké producers in the municipality of Daloa expect a lot from the VECDA project and by extension from the Yebo-Ekon cooperative society. They want a support from the cooperative organization for the transportation of cassava, from the production farm to the plant site. In this respect, by focusing on the achievements of the Yebo-Ekon cooperative, the tricycles of the said cooperative were freely used by the women for their various production activities. This request could bring about a reduction in the cost of the material (cassava) transportation throughout its process of preparation, cooking and distribution. With the reduction of the transportation costs, attiéké producers will have a much greater opportunity to increase their profit margins. In making this proposal, the women are engaging in a form of resilience aiming at taking ownership of the project.

This mechanism of local development is in line with the theory of social capital developed by J. Pesqueux (Op. Cit.). In his analysis, J. Pesqueux (idem, p.2), states that social capital: "[...] involves the idea of understanding and measuring the influence of non-economic factors on economic performance" (J. Pesqueux, *ibid.*, p.2). From the perspective of social capital theory, it seems essential to give a "human dimension" to the preparation and implementation of development projects, if partners want them to be sustainable.

By taking into account the social dimension in the implementation of the VECDA project, this initiative could enable women in the short and medium term to invest in increasing their activity and facilitate their desire to sustainably go to the new attiéké production site. In the long term, the project would lead to the empowerment and social repositioning of beneficiary women, both within and outside their communities. This repositioning is also conditioned by the support of the cooperative organization for the increase, keeping and care for customers and the efficient sale of their output. What is more, these women are opting for a win-win partnership, through the vision of the operating costs of the factory's machines in order to increase their profit margin. Fulfilling the commitments is a real guarantee for these women to adhere to the VECDA project. In addition to the geographical (outlying) positioning of the site, which arouses concern and reluctance from the women producers of attiéké in the municipality, they also run the risk of facing a

shortage of sedentary manpower in the city center who would follow producers that are not members of the cooperative.

Conclusion

The project of Enhancement of the energy value of cassava effluents and support for the sustainable preserving of "Attiéké" is a promising project. In fact, its development and participatory implementation can significantly improve the well-being of women producers of attiéké and significantly impact the environment of the municipality of Daloa. The promotion of the collection of cassava effluents and human urine as a co-substrate to the production of biogas is a great initiative to be encouraged. However, there are still a lot of things to be done in terms of communication and operation of the site, given the still low level of use of the factory. Indeed, the survey revealed that less than 15% of women producers of attiéké in the city of Daloa know the site of the factory. Out of the 15% of respondents who actually know the factory, only two (02) women surveyed were visiting the site. This underperformance must be solved by referring to the theory of social capital, so as to guarantee the continuation of this local development project by giving it a "human dimension".

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