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Role of communication in the promotion of good agricultural practices in relation with productive sanitation in Burkina Faso: Case of Ecossan latrines in the village of Gourcy, rural commune of Nandiala, Province of Boulkiemdé, Region of West center.

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Abstract

The productive sanitation is an approach that represents a change of paradigms. Indeed, this approach aims at protecting health and environment by a hygienisation of human faeces in order to use it as fertilizers in agriculture. Trough diverse projects, rural populations in Burkina Faso familiarized themselves to the use of fertilizers from Ecossan latrines that they call in mooré « Birg koenga » meaning hygienized faeces, and « birg koom » meaning hygienized urine.

The general objective of the current study is to evaluate the importance of communication in the appropriation of these fertilizers derivate from Ecossan latrines by the populations in the village of Gourcy in the rural commune of Nandiala. Specifically, it was about evaluating the products or manure used by the populations of Gourcy for their farming and the keen interest around Ecossan latrines.

This study enabled to get three (3) great results. Firstly, fertilizers derivate from Ecossan latrines are fertilizers of quality; secondly, these fertilizers come as an alternative solution to chemical fertilizers and finally, Ecossan latrines fertilizers come as a solution to problems of food security.

Key words: Productive sanitation, agricultural practices, ECOSAN, rural area.

Introduction

Productive sanitation called again ecologic sanitation is an integrated sanitation, that is trying to take into account the cycle of sanitation in its integrality, including enhance in value of faeces in agriculture. This approach considers urine, faeces, used waters, rainy waters and organic waste from houses as « endogenous resources » to process in order to value it for agricultural production (UNESCO et al, 2006)

Ecossan latrines are dry latrines that works without water, based on the principle of receive and stock the faeces and the urines separately in order to allow a good hygienisation and minimize the nuisance of flies and smells. This happens before their re-use in agriculture or gardening.

In Burkina Faso, we have two types of dry latrines implemented by the Projects (CREPA, 2006) namely the dry latrine of type « Vietnamese » with a double hole; and the dry latrine of type « TECPAN » with one or double hole. These latrines have to be a solution to the problem of food security.

Food situation of households in rural area in Burkina Faso depends on the agricultural production of those ones. This agricultural production is highly dependent of the pluviometer and of the nature of lands in which farming is done. Pluviometer being something that cannot be mastered by the population, households don't have other choice than improving the fertility of their lands. The most expanded solution to fertilize better the lands are the use of chemical fertilizer. This solution is not easily affordable by all farmers in Burkina Faso. Indeed, for cotton campaign 2016-2017, with the subsidy of Burkina government, the cost of the 50kg bag of NPK chemical fertilizer is 15000f, the urea is 18000f. We know that the gross income per month/inhabitant is 56 $ equivalent to 35000f cfa. It is not always evident that a farmer, living exclusively from agriculture can be able to acquire enough chemical fertilizer to meet his needs of productions.

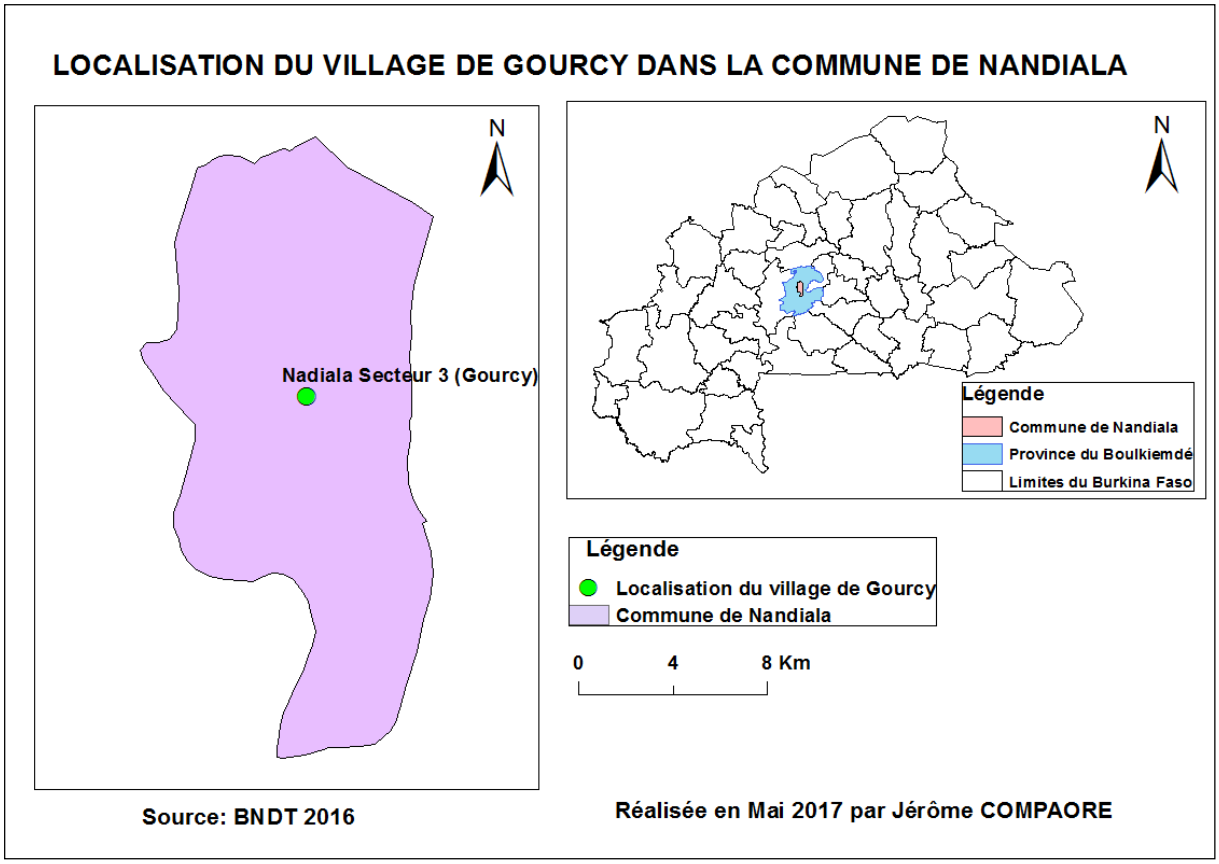
Moreover, Ecossan latrines fertilizers meet the same problems than those of chemical fertilizers. Every farmer that has an Ecossan latrine, gets for free liquid fertilizer that is hygienised urine and solid fertilizer that is hygienised faeces. Those fertilizers allow meeting the problems of food security.

On the other hand, even if they are aware of the advantage of the fertilizers from the Ecossan latrines, there is a complex for rural populations who have never used their own faeces in agriculture to feed themselves with the products of those hygienised faeces. To enable those populations to take profit of those organic enrichments for free, a work of sensitization has been led to change mentalities. Hence the question « How did communication contribute to the use of organic enrichments from urine and faeces of Ecossan latrines in the village of Gourcy? »

Methodology

The surveys have been done in the village of Gourcy at 80 km of Ouagadougou in the West center. The village is located in the province of Boulkiemde precisely in the rural commune of Nandiala. According to the general counting of the population in 2006, it was estimated to 2937 inhabitants. The main activity of that area is agriculture and breeding. About sanitation, the commune of Nandiala, trough out its Communal Plan of Development (CPD) didn't plan for latrines in Gourcy in spite the fact that the village didn't have any latrines. When the communal authorities understood the importance of latrines precisely Ecossan latrines that they made a request for their village. In this framework, the commune got the funding of the UE-3 project « project of reduce of food unsafety through the use of human hygienised faeces as fertilizers, in the regions of Est Center and West center of Burkina Faso ». Those projects realized sixty seven (67) latrines that have been the first latrines (see in the figure 1 of the geographical localization of the village of Gourcy, commune of Nandiala, province of Boulkiemde, region of West center of the study area.

Figure 1. Localization of the commune, the village of Gourcy



Realized by the author, May 2017.

To meet the objectives of the research, a mixt methodology has been mobilized to collect the different information. It's an approach combining qualitative method (interviews and direct observation), and a quantitative method. The objective is to come up with a deep interpretation of the strategy of the communication put in place by the different concerned actors namely the partners, the participants and the beneficiaries who are the inhabitants, in the technics of use of fertilizers from productive sanitation in the village of Gourcy. The qualitative section targeted a technical partner working for the "association Agriculture in action against hunger" in order to evaluate the efficiency of all the strategy of communication implemented and developed during the project; and evaluate the capacities in terms of communication for behavior change as regards agro ecologic in this part of Burkina Faso.

The qualitative section is associated to the quantitative one throughout a survey by questionnaire to every household. It was to make a connection between the socio demographical characteristics of households, and the adoption of fertilizers from productive sanitation for farming. The mixt methodology adopted allowed to catch all the aspects and the different sections that contribute to the appropriation of organic amendments from Ecossan latrines in rural area.

The questionnaire has been given to 30 households' chiefs with a duly dividing up. The interview has been realized to the technical partner for the association Agriculture in Action against hunger. So, 31 people in total have been surveyed.

Data collected have been analyzed statistically and in the content. Qualitative information have been processed on the base of the software Excel.

Results

The « Birg koenga » and the « birg-koom »: qualified organic fertilizers

The « Birg koenga » in Mooré langage means literally in French "dry manure". This expression is commonly used in agriculture area in Burkina Faso and refers to hygienised faeces from Ecossan latrines. The « birg-koom » means literally in French "liquid manure". The expression is very used in agriculture area and refers to hygienised urines from Ecossan latrines. Those two fertilizers are organic fertilizers because they are from a biological transformation with any add of chemical elements of the faeces of human being (see figure N° 2 below, some types of tins serving at storing urine).

Figure 2: Tins used to contain the hygienised urine in the barrow given by the UE project in October 2011.

Picture realized by the author in May 2017.

From then, through the Ecossan latrines built in the village of Gourcy, populations of that area experienced those organic amendments. It stands that 90% of the population that benefited from the Ecossan latrines agrees on the fact that those fertilizers according to the productivity are good.

According to Mr Zongo Mathias "*once you use the hygienised urines and faeces from Ecossan latrines in one part of your farmland, you notice that there is a better productivity on that part than on the other parts which have not get fertilizers.*" This has been confirmed because the data collected on the field shown that 53% of the population finds the use of organic fertilizers easy. 93, 3% of the population assures that they got well the message of sensitization. This indicates the efficiency of the strategies of communication used during the project.

Further, some inhabitants make a comparison between the two fertilizers. Indeed, according to Mr Zongo Koudraogo, "*I have noticed that the hygienised urine gives high productivity than the hygienised faeces because I tried the experience by using both elements in different places.*" This is comforted by Jönsson affirmations in 2003 who says that urine has a fertilizing power that is higher than hygienised faeces; because hygienised urine contains more essential nutriments to plants namely the azote (N), the phosphor (P) and the potassium (K).

In addition, we noticed that 3 years later after the project, populations who did not benefit from the project express the desire to get new Ecossan latrines, while those who already have desire a supply source in urine and are ready to spend money to get it. Some inhabitants also, when they have seen the benefit of the Ecossan latrine on the sanitary and the agro ecologic plan, have built by their own their latrines with the help of builders who have been trained during the project.

Such keen interest for the Ecossan latrine according to Mr. Martin Sanon (technical partner for the Association Agriculture in Action against hunger) results from the implication of political actors in the communication for development and behavior change strategy in the good implementation of projects. He supports that " *the governor of West center region, the high commissioner of the province of Boulkiemdé and the town hall leader of the commune of Nandiala have been deeply implicated in the process and the communication strategies of the project from upstream to downhill. The all commanding line including all the actors were at the same level of information on the progressing of the project.*"

Figure 3: Ecosan latrine built by a private after the project

Picture realized by the author May 2017

Ecossan fertilizers: an alternative solution to the use of chemical fertilizers

In Burkina Faso, the use of chemical fertilizers such as NPK and the urea can be considered as luxury for some farmers. This follows from the financial means that should be allocated to those fertilizers to have a good productivity. In the village of Gourcy where the Ecossan latrines give organic fertilizers with a quality well known by the populations, it stands out that last year the average use of bags of urea is only 0.27 and the bags of NPK is only 0.73. This results in taking account of sensitization and communication messages about the drawbacks of the use of chemical fertilizers nowadays. The sensitizations engaged by the actors explains the weak rate of use of chemical fertilizers nowadays, and this is a very good thing for the preservation of the environment and the ecosystems. The reason of a weak use of chemical fertilizers in the village of Gourcy is uncontestably due to their use of organic fertilizers from Ecossan latrines. This aspect shows that the sensitization process for behavior change on the agro ecologic plan worked well. The sensitization was assured by agents of the project team and agents of the ministry of Agriculture.

Ecossan fertilizers appear like an alternative against the use of chemical fertilizers on 3 dimensions:

-Agro economic dimension: It follows that the fertilizing value of organic amendments of Ecossan latrines is superior to the value of chemical fertilizers. According to Zongo Tantiga, "*I was using the chemical fertilizers and the Ecossan fertilizers, but I noticed that in the areas where I use Ecossan fertilizers especially the urine, the production is better that in the areas where I use chemical fertilizers. This encourages me and comforts me to continue with a lot the use of technology of Ecossan fertilizers in my agricultural activities*".

Figure 4: Some cases of fields in the village of Gourcy

Realized by the author, May 2017

Moreover, the organic amendments from Ecossan latrines enrich the soil. This is what Mr. Zongo Moussa affirms: "*when I use the hygienised faeces in my bush field, the following year, without putting organic fertilizers when I sow, it grows very well as there was fertilizer. Hence, the advantage for me to continue this agricultural practice*."

- **The sanitary dimension**: Fertilizers from the Ecossan latrines don't contain any pathogen agents and are not harmful to the health of men. Moreover, their use is submitted to the WHO since 2006.
- **The financial dimension**: The use of chemical fertilizers requires seasonal purchasing fees while with Ecossan latrines, the only fees are the construction fees of the latrine. The production of organic fertilizer from the latrine is done naturally by the members of the household. The Ecossan allows then the households to do high savings.

Ecossan fertilizers as a solution to problem of food security.

At Gourcy, the average area of farming land per house is about 4hectares with an average population per house of 19people. To satisfy their food need, populations use land and the productivity depends on the fertility of lands or the fertilizing capacity of used fertilizers. It follows from this study that in Gourcy the use of organic fertilizers from Ecossan latrines is a reality. The figure n° 5 shows it in terms of percentage and of type of culture done in the village of Gourcy. In this case, the percentages represent the population that used the Ecossan fertilizers for the concerned farmings.

Figure 5: Percentages of types of cultures produced in the village of Gourcy

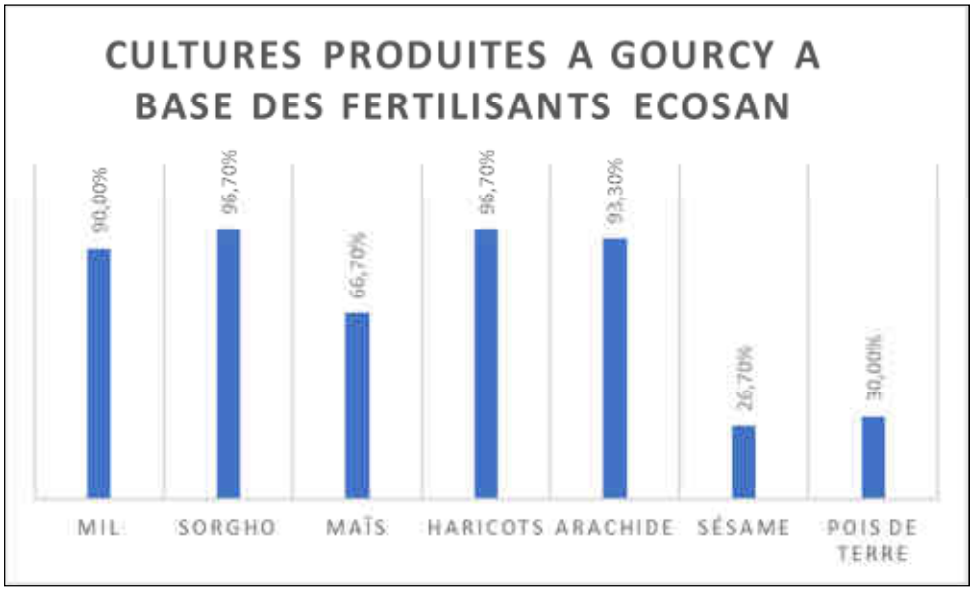


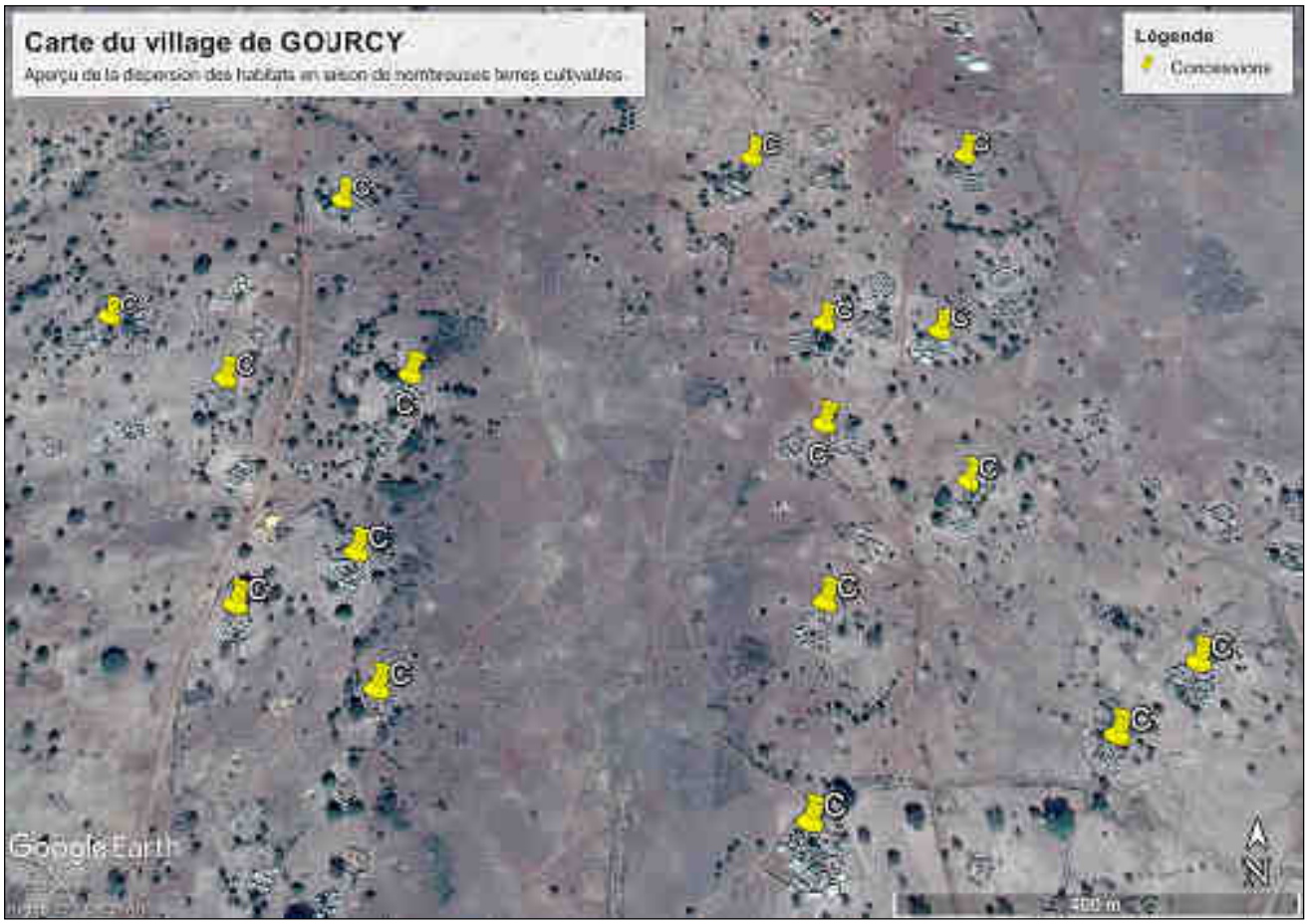
Figure realized by the author, May 2017.

Apart from this, we notice that populations use the Ecossan fertilizers to high the productivity of fruitful trees in their houses such as mango trees, papaya and goyava trees.

It stands that the households where the latrine is not used because of diverse reasons (doors or drawned out roofs), those households implement a system of urine collection in tins, in order to use it for a good farming productivity. All those practices contribute to favor food security of households in the village of Gourcy.

Moreover, it stands that in the village of Gourcy, farmers represent 86,70% of the population and this results from a spreading out of houses, as it is shown in the satellite figure N° 6 below. The empty strip in the middle constitutes an area of high agricultural production in which Ecossan fertilizers are used. It contributes to favor sustainably food security at Gourcy. Accordingg to Mr. Martin SANON, (technical partner for the Association Agriculture against hunger for the project) *"the aspect of food security given by the Ecossan latrines has motivated the populations of Gourcy to join massively to the project and it gave good farming productivity"*.

Figure 6: spreading out of inhabitants in the village of Gourcy (picture of the 29th-05-2017)



Picture realized by the author through the satellite system, May 2017.

Conclusion

From this study, we have demonstrated that the approach on the communicational plan used in the frame of the execution of the UE-3 project in the village of Gourcy in the rural commune of Nandiala, province of Boulkiemdé in the west center region, allowed to the populations of that locality to get appropriate to the use of organic fertilizers from the Ecossan latrines that are of quality. This results in an active use of “birg koenga” and of “birg koom” that allowed populations to exploit a diversity of cultures in their locality thanks to the quality of the « birg koenga » et du « birg koom ».

Moreover, this study brought out the highly ecologic character of the “birg koenga” and the “birg koom” comparatively to the classic chemical fertilizers. This evidence has been demonstrated through the weak use (average less than 1 bag per house) of chemical fertilizers in the village of Gourcy.

The results obtained on the agro ecologic plan in this village can be an example for the implementation of future project in the domain of sustainable sanitation and the achievement of food security in the village of Gourcy and overall Burkina.

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