FINDING OF SOCIAL ANXIETY FOR REUSE EMPTY CONTAINERS OF PESTICIDES IN COTTON GROWING COMMUNITIES OF THE REGION *OF BAGOUE IN CÔTE D'IVOIRE*

Sangaré Moussa
Sociologue
Université Péléforo Gon Coulibaly

ABSTRACT

The promotion of cotton growing in northern Côte d'Ivoire by the Ivory Company for Textile Development (ICTD) has increased significantly chemical pesticide consumption. Indeed, the subsidy policy supported by the government to farmers instilled the culture of the massive use of pesticides in both cash crops (cotton) than food crops. But visits to the study sites showed that Empty Packaging of Phytosanitary Products are reused for food preservation. It is on this basis that this text, based on a content analysis, is trying to understand and explain the behaviors and practices of people in the process of re-use of empty containers of pesticides. Five (5) cotton communities in the region of Bagoue (Côte d'Ivoire*)* were used to investigate matters. Methodologically, the text is based exclusively on a qualitative approach to understanding referred. It is clear from this analysis that the lack of legal texts, recycling mechanism of empty packaging, the population's awareness on health hazards and the « banalization » of toxicity by peasant populations justify reuse empty containers of pesticides for food.

Keywords: Cotton, Packaging, reuse.

INTRODUCTION

The Ivorian state made of cotton, a cash crop, its main northern development strategy ; this in an effort to fight against the rural exodus of the population to the coffee and cocoa production areas and maintain able- bodied in the "granary of Côte d'Ivoire[1]." Thus, modernization of cotton cultivation to improve the living standards of farmers by increasing farm productivity was considered. Through the improvement of cotton production and that of food crops, cropping systems of the communities have been profoundly modified. In this perspective, Ivory Company for Textile Development (ICTD), Crown corporation created in 1974, has widely popularized new farming techniques developed by research. To this end, it has set up outreach teams represented in the areas of cotton production. In addition to the dense network of technology diffusion, it has developed with the support of the state subsidy policy of selling external inputs such as chemical fertilizers and insecticides to farmers below their real price. Similarly, Ivory Company for Textile Development (ICTD) was providing free insecticide for cotton producers until 1994. This company delivered agricultural inputs in the villages and distributed them to farmers according to their areas of crops (cotton and food crops) identified by its "clerk[2]" that are

[1] Northern Côte d'Ivoire was considered a production area of food crops for nutrition of the population.
[2] This is the name that farmers used to designate the monitor of ICTD. After the liberalization of the cotton sector, the concept of monitor was replaced by his agricultural advisor

installed. As the state subsidy and chemical inputs credit policy within cotton communities has developed a massive use of chemical fertilizers. Indeed, the farmer firstly uses herbicides for weeding and secondly, he uses insecticides to fight against diseases and pests of crops because these crop pests often cause very considerable damage that can result in some cases in loss of production. This strategy of ICTD based on chemical control has led to the dependence of farmers regarding pesticides.

Therefore, one of the pesticides industry has developed in Côte d'Ivoire. The importation, formulation, repackaging and distribution of pesticides is provided by ten private industrial firms in Abidjan. The use of pesticides has reached "6000 tonnes in 1997 to a turnover of 24 billion FCFA. The pesticide market in Côte d'Ivoire is dominated by insecticides (47% of turnover in 1996). Most is used in cotton and cocoa. Then come the herbicides (25%), which are mostly used in cotton and rice "(Fleischer, Andoli et al 1998). Ivory Company for Textile Development (ICTD) represented "the biggest customer of phytosanitary industries" (Cheyda, 1991), since cotton was, "with an area of 242 000 ha, the most user crop pesticides, and account for 37% of market share of phytosanitary products in 1995 "(Fleischer et al Andoli, Opcit). However, after application of chemical pesticides in the cotton fields, empty packaging are thrown in the bush, near the cotton fields. There is no procedure for recycling or disposal of the empty packaging according to international standards. These materials considered hazardous or special waste are abandoned in extremely precarious conditions and reused for food. Why these empty containers of pesticides that are hazardous to the health, are been reused for food by cotton growing communities? Better, what are the causes of the increase of empty containers of pesticides in cotton growing communities and even outside the boundaries of such communities? What are the social logics that justify the reuse of toxic packaging by the population in general and farmers in particular?

The objective of this study is to understand the social logic that underlie the reuse of empty containers of pesticides in cotton growing communities of Bagoue region in Côte d'Ivoire.

METHODOLOGICAL APPROACH

At the methodological level, the study is based on a primarily qualitative approach to understanding the behavior of individuals with respect to empty containers of pesticides and understand their social representations of the empty package. Multiple data sources (i) formal and informal individual interviews, (ii) in situ observation during which we collected, stored and noted the analytical behavior elements and practices of individuals compared to empty containers of pesticides and the process of reuse and recycling of empty containers during our time on the field (iii) the documentation. In addition, interviews were conducted with administrative and political authorities in the region of Bagoue. In this work, the documentation had as disciplinary vectors, scientific articles, reports of seminars, symposia and activities of the cotton companies. Formal and informal individual interviews were conducted in the area of Bagoue with target populations. They are farmers, leaders of peasant organizations, women, sellers, customers, agents of management structures, nurses / medical doctors, administrative and political authorities, village authorities. A total of 51 interviews were carried out across the region. These interviews took place from 7 to 24 April 2016. Also, the collected data is qualitative, content analysis was selected as the data processing technique. Five (5) focus group were also carried in

five (5) villages (Niempurgué, Ganaoni, Tiasso, Tounvré and Bolona). These mixed focus group assembled at maximum nine to eleven people. We limited the number of participants in the focus group with nine or eleven people for more productive expression of empirical data. hus, reuse of empty containers of pesticides has been understood through the words and behaviors of social actors. From this point of view, we fit in the context of methodological individualism that strives to go up to the actions of the actors, while seeking to understand their reasons in the context that was theirs (Boudon, 2002). The comprehensive approach takes into account the way in which communities combine and articulate various logic to build their social representation of the toxicity of empty packaging. That is why, the use of this theory to better understand and explain the process of reappropriation of empty containers of pesticides by the population of the region of Bagoue.

FRAMING AND MANAGEMENT OF EMPTY PACKAGING OF PHYTOSANITARY PRODUCTS (EPPP) IN COTTON COMMUNITIES

Framing and supply of cotton communities

Cotton production is based largely on family farms of small and medium size (3 hectares). These farms have been framed by the Ivory Company for Textile Development (ICTD), created in 1974 by the state for the extension of cotton in the North of Côte d'Ivoire. Therefore, it provided the chemical inputs to farmers and assured marketing of production. To this end, it had to empower Groupements for Cooperative Vocation (GCV) set up under its initiative that farmers were required to adhere to obtain products factors (fertilizers, pesticides). This input supply is now provided by private cotton companies, having acquired the shares of ICTD at its privatization in 1998. Also, ICTD had adopted a strategy based mainly on chemical control. It subsidizing chemical inputs with support from the state. The farmers, who generally did not have a very good knowledge of the problems and phytosanitary practices were trained and supervised by monitors to six insecticide applications per season. "Most modern methods of crop protection were based on the use of chemical pesticides. The high use of pesticides was considered a prerequisite for the success of rapid agricultural development strategy" (Fleischer, Andoli et *al*, 1998:2). This conception of intensive agriculture has favored the extensive use of pesticides to increase seed cotton production. Cotton cultivation is highly exposed to mites, unwanted plants and parasitic diseases. Indeed, these pests cause considerable damage, can cause production losses in the Amount of over 30%. Pest control is used to control these enemies of cotton. In addition to the cotton companies and farmer organizations (union of cooperatives, cooperative), farmers also supplies from authorized distributors, resellers installed in local markets and villages. These pesticides are smuggled and their labels are generally in English and / or Chinese. According to the Directorate of Plant Protection, Control and Quality (DPPCQ), 40% of the pesticides sold in the local market in 2013 are fraudulent. Thus, since the 1970s, chemical pesticides have been integrated into the entire agricultural system. Demand is constantly increasing and the supply sources are varied as reported Kanda (2010).

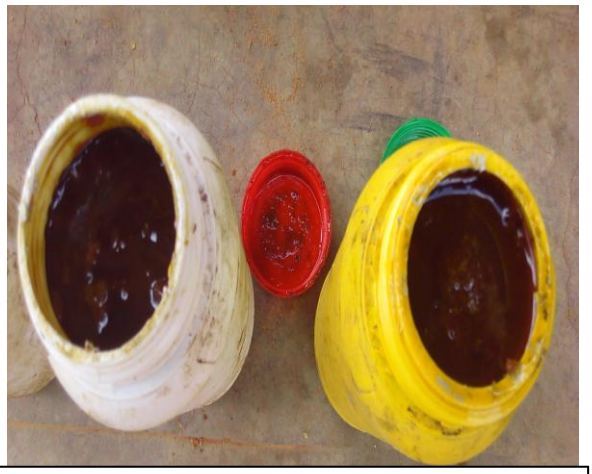
Becoming of empty containers of pesticide

The introduction of the cotton crop in the cropping system of rural communities in northern Côte d'Ivoire has resulted in "an overload of the agricultural calendar" (Le Roy, 1983) during the rainy

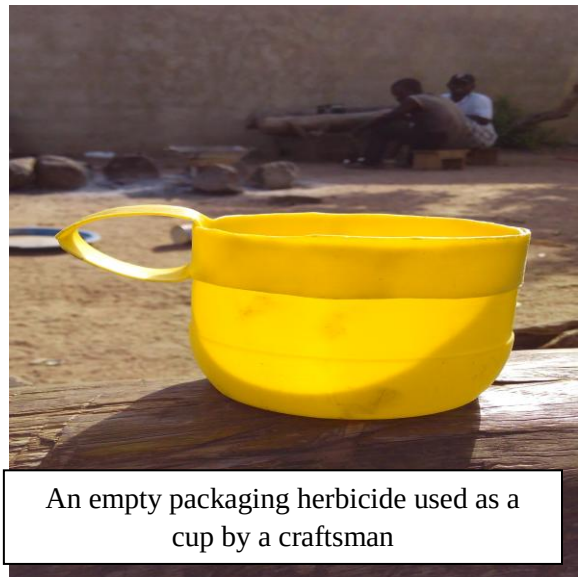
season. Encourage additional production of seed cotton, the crop requires rural communities the extension of arable land. Thus, farmers are forced to chemical weeding. This weeding is advantageous for farmers because it leads to save time of worksreducing difficult working conditions and the cost of labor, So economic interest. It must be emphasized before, first, farmers sowed peanuts, then cotton and rice, and finally corn, sorghum, millet. But with the weather, the cotton planting periods coincide with those of food crops, so more work between June and July. In addition to these total herbicides, farmers use selective herbicide. Moreover, the technical staff recommended to the peasants six (6) treatments with insecticides by cotton season. Which is to spread 4 liters per hectare. Also, the cotton he plays an important role in the use of chemical pesticides, because it is an economically important plant sown on 400,873 hectares during the campaign 2015/2016 (Inter Coton, 2015). Chemical pesticides are also used by the producers of mango and cashew. In addition, gardeners also use herbicides, insecticides, fungicides. Vegetable crops in northern Côte d'Ivoire are mainly produced by women individually or grouped together.

Chemical pesticides are used both on export crops (cotton, cashew, mango) as the food and vegetable crops in the cotton production area. After the use of pesticides, agricultural board recommends that farmers digging holes out of their land to bury the empty containers. This is emphasized most agricultural advisors from different cotton companies met : "We advise our growers to dig holes to bury the empty cans. *If there are any termite mounds, they are told to put them in the middle to hunt termites hat destroy cotton".* Landfill is the elimination strategy of empty pesticide containers recommended by the cotton companies. According to them, this mode avoids the one hand their children to be in contact with these empty packaging and secondly they are found in marigots or rivers. In fact, pesticides are toxic, thus dangerous for rural communities. Despite this advice of technical supervision, empty packaging are found in plantations, near crop fields, in nature, in the villages, etc. Respondents agricultural advisers castigate farmers which they say "do not listen when they tell them to bury the containers because their toxicity."

Thus, some of the packaging of non-buried pesticides are left empty here and there; which increases the risk of contamination of water sources (rivers, backwater, etc.) where the animals come to drink. These packages are firstly used by cotton communities for other purposes after use of products (drinking water storage or food preservation) and secondly, they are picked up by children and young people who simply wash and sell them to merchants settled in local markets. This finding is observed Sougnabé and alii (2010) who say : "Plastic cans that have contained pesticides are rarely destroyed. They are mostly used to supply drinking water and food or to keep oil. " This reuse practices increases the health risks because it is difficult to completely eliminate pesticide residues by simply washing.



Two herbicides cans containing honey



An empty packaging herbicide used as a cup by a craftsman

The lack of regulatory framework in the management of empty containers of pesticides

The development of cash crops (coffee, cocoa, cotton, etc.) promoted modernization of intensive production system. The active policies of the State (input subsidies, guaranteed purchase price of export crops, supervising farmers) have encouraged the adoption of modern production technologies (fertilizers, chemical pesticides, etc.). Indeed, «the 1986 Finance Act»[3] exempted pesticides and materials for their manufacture. This provision was adopted and supplemented by Act 1991 and 1994 Finances Law[4] which provides an exemption on non-exempt goods by the provisions when used for cotton, pineapple and banana. These subsidy policies have made the Côte d'Ivoire one of the major consumers of pesticides. "In 1997, there were 6,000 tonnes of food products Phytosanitary Côte d'Ivoire against 1,900 tonnes in Burkina Faso" (Fleischer, Andoli et al, 1998). The cotton sector remains the largest consumer with "37% of the market against 22, 3% for banana and 11.7% for cocoa" (Fleischer, Andoli et al, *opcit*). The production of seed cotton, estimated 450 000 tonnes in 2015 (Inter Cotton, 2015), was achieved largely thanks to the excessive use of fertilizers and pesticides. But after the use of phytosanitary products, packaging do not return to the various cotton companies who distributed these products to farmers. They are not recovered to be returned to suppliers for recycling. This is due to the lack of regulations at national level occasions of empty containers of pesticides. Indeed, the Côte d'Ivoire took "Decree No. 8902 of 04 January 1989 on the approval, manufacture, sale and use of pesticides" (MINAGRI[5], 1989). this decree signed in 2004 « decree n°159/MINAGRI of 21 June 2004 on prohibition of employment in agriculture of active substances used in the manufacture of plant protection products" (MINAGRI, 2004). In addition, Côte d'Ivoire adopted « Law n ° 96-766 from 03 October 1996 on the Environmental Code, which consolidates inter alia the management of chemicals »[6]. It covers all chemical use areas (waste management, air,

[3] Official Journal of the Republic of Ivory Coast, Editions laws and regulatory acts, Special Issue No. 6 of 3 February 1986
[4] Official Journal of the Republic of Côte d'Ivoire, 19, of May 5, 1994
[5] The Minister of Agriculture
[6] Ministry of Environment, Urban Safety and Sustainable Development

pollution of water, pesticides, fertilizers, etc.). In addition to these laws, it ratified conventions such as the Stockholm Convention in May 2001, which states reduce or eliminate the production, flow, use and storage of Persistent Organic Pollutants (POPs). But he read to spring these national laws that Côte d'Ivoire has not yet adopt a legally binding instrument for the management of empty plant protection products.

Thus, cotton companies, large suppliers chemical pesticides have not developed a packaging management policy over the long term. The only real action they bring on the field is the agricultural advice to farmers. This council has held that the burying as a disposal method of empty plant protection products. An investigated environmentalist stressed that : "*At the moment, this mode is good for the disposal of packaging, but the best way is to retrieve the packages to deliver them to specialized firms for their treatment*." This finding is also noted by the Director of Plant Protection, Control and Quality (DPPCQ) in these terms : "*We must destroy empty packaging to avoid that people use for drinking or put food in it. But it's expensive because one (1) liter of destruction amounts to 43 000 FCFA. Therefore, cotton companies advocate the burying*." However, the burying of empty long-term low pesticide hide in groundwater. It is in this sense the work of US Environmental Protection Agency (1977) abounds in this explanation ; Cohen et al. (1984) ; Leistra et Boesten (1989), Schiavon et al. (1995) who have found pesticides in groundwater the two decades after the 1960s.

Ultimately, the lack of regulatory framework at national level is responsible for the abandonment of empty containers of pesticides in the fields, outdoor, villages and reuse for other purposes. So there is no environmentally sound management of these obsolete chemicals in Côte d'Ivoire in general and in particular in cotton communities.

SOCIAL REPRESENTATION OF EMPTY CONTAINERS OF PESTICIDES IN COTTON COMMUNITIES

Perception of cotton communities of empty containers of pesticides

The development of cotton growing in northern Côte d'Ivoire has conditioned the farmers to the massive use of chemical inputs. Each year, the cotton companies and cooperatives order the inputs from phytosanitary private companies installed in Abidjan and distribute to their farmers. In addition, farmers buy pesticides in local markets, from dealers or from street vendors in villages. After the pest spreading, quantities of empty containers of pesticides accumulate in the cotton growing communities due to lack of mechanism for recycling and / or disposal in accordance with internationally recognized standards. These materials considered hazardous waste are left in precarious conditions, reused for food in the cotton growing communities. This recycling process is made possible by the social representations that are developed by communities in respect of plant protection products "now." Indeed, social representation sends, according Jodelet (1984 :361), to a way of construction of knowledge, shared by groups and individuals and their contents themselves, organized open mind systems. Jodelet still defines as : "This is a form of socially developed and shared knowledge, having a practical aim and contributing to the construction of a common reality for a social group. Also known as "knowledge naive", "natural", this form is distinguished among others, of scientific knowledge. " In this context, the social representations of empty containers of pesticides means the modes of knowledge and perception of the object as waste and guiding lines and practices of individuals as

users. Also, the awareness of the increasing risks that pesticides can generate for the environment or for human health have led chemical and crop protection companies to bring to market products that take into account the environment. Therefore, they must now conform to the objectives of "good ecological status" (INRA and CEMAGREF, 2005). This is what highlights a respondent Agricultural Council : "*Products that we give our farmers do not kill all animals, they act on harmful caterpillars cotton at a specific larval stage.*" This policy shift of pesticides has led the Ivorian government to decide to withdraw the authorization of the formulations of pesticides with high toxicity to humans, animals and their persistence in the environment. With the implementation of this measure, farmers found that the new plant protection products granted by the cotton companies are not "Effective". In the perception of the peasant, the effectiveness of a chemical pesticide is measured in part by its strong smell, and secondly the presence of dead animals (snakes, mice, frogs, locusts, insects, etc.) visible after the phytosanitary treatment.

Today, farmers no longer see my social markers when they return to their cotton fields after the pesticide application. Therefore, they "trivialize" the dangers of chemical pesticides. Most interviewees agricultural advisers explained that farmers do not protect themselves during phytosanitary treatment because they believe that pesticides are not dangerous nowadays. This perception of pesticides is visible in their daily behavior. These products are kept inside residential houses. The empty containers of pesticides are even used in households. As shown on these two respondents. The first is an agricultural advisor : "*When I told the farmers that the product is dangerous. They noticed that they never saw corpses of those who died after the phytosanitary treatment. They think that the product must be drink before kill people.* " And the second story is narrated by an accountant of cooperative: "When we told the farmers that using empty containers of pesticides is dangerous to their health, he posed the following question: how many farmers have died after using these cans? ". It is clear from these comments that the peasant logic is based on the immediate. The peasant reasons in the short term, because it is therefore in the "right now". For the peasant, only a large amount of liquid ingested in the body can hurt in a few minutes. The farmer needs evidence of poisoning of plant protection products and the empty packaging. This is confirmed by most peasant leaders interviewed: "The peasants are afraid of what is immediate. But talk about long-term effects to the peasants did not tell them big thing. " Technical training, being able to present facts to farmers, is less listened to by them. Indeed, for farmers, agricultural advisors "exaggerate" the dangers of chemical pesticides without supplying a sick or dead applicators statistics because of pesticides.

Moreover, the study found that farmers based on their sense of smell to measure the degree of toxicity of pesticides. In the perception of farmers, more a product has a strong odor, is more toxic. Or, insecticides off more odor than herbicides. Thus, according to the farmers insecticides are more toxic than herbicides. Most herbicides have virtually no smell. In addition, according to the farmers, herbicides not only kill the weeds, so they do not act on insects, caterpillars, animals. To prove it, they realize, as the majority of agricultural advisers met, the demonstration test. This test consists of dipping a caterpillar in the liquid and wait for his reaction. When the caterpillar comes out of the liquid, they conclude that the products (herbicides) have no effects on human health. That is why, rural communities using empty containers of herbicides because they feel they are not toxic. Respondents agricultural advisors support this assertion of peasants. They recognize one hand, that the smell of insecticides is stronger than that of herbicides. On the other hand, they indicate that insecticides are more toxic than herbicides. Thus, the majority of

respondents indicate that farmers have more "fear" insecticides. Two speeches used to illustrate it. The first of an agricultural advisor interviewed: "*Herbicides cans are less toxic. Farmers fear more insecticides as herbicides* ". The second story is from a peasant leader : *"The fact that the smell of insecticide is strong frightened peasants. They use herbicides cans because they usually do not smell. "* According to surveys conducted during this study, it becomes clear that farmers are aware of the toxicity of insecticides. Indeed, There are some years, insecticides containing substances of "high toxicity (parathion, Mevinphos)" (GTZ, 1993) that were dangerous to humans. These products "strong odor" according to the farmers cause headaches and sore eyes, dizziness, nausea, itchy skin applicators. This is shown by a study conducted by FAO (2010): "Producers have recognized at least felt discomfort during or just after the pesticide treatment in their field. What could be justified by the use of insecticides most of which target the nervous system. " In addition, according to the farmers, this "foul smell" could remain on the applicator for several days. For this reason, the Company for Textile Development (ICTD) simultaneously distributes crop protection products and soaps to farmers. It also filed antidotes and necessities of drugs in health centers and hospitals. These social markers remained in the collective consciousness of cotton communities. It is in this context that has been built throughout the social representation around pesticides and its empty packages in cotton growing communities. These representations are nothing more than the perception that these communities have about empty containers of pesticides. If elsewhere, particularly in industrialized countries, the empty packaging waste, here they have another meaning which brings the cotton community to reclaim them to give them a "second use". Finally, empty packaging herbicides are represented and managed as a social norm and that people see them as helpful.

Reuse Strategies developed around the empty containers of pesticides in the cotton growing communities

The empty containers of pesticides are undeniably a problem for the environment. The interviews revealed that the cotton communities opting for the packaging of herbicides they call "very" or "moderately" dangerous compared to those insecticides. Besides the question of dangerousness, they focused their choice on empty packaging herbicides because they are usually canisters one (1) liter volume. Unlike herbicides, insecticides products in cans or boxes of 0,250 liters. Thus, empty insecticides packaging do not meet the social needs of cotton communities. Therefore, they put them in nature or bury them. By against the packaging of herbicides are stored in a field location. This observation has allowed an agricultural advisor to state that *"Farmers group the herbicides cans in the corner of the plantation. When we tell them to bury them, they tell us they will. But we see that whenever they need can, they will not buy. They use these cans. "* This speech shows that the concept of waste is linked to ideologies of communities and differs from one society to another. Indeed, in France, the empty containers of pesticides are considered hazardous waste (Special Industrial Waste) by Decree No. 2002-540 of 18 April 2002 on classification of waste[7]. It is the producer of the waste (professional, public service ...) in France who must collect packaging because it is strictly forbidden to burn in the open, bury them or to abandon them in the wild. In Côte d'Ivoire, empty packaging, considered by the agents of agricultural supervision and environmentalists, as harmful object, is taken as an object of value in cotton growing communities. In perception and social representations of these communities, the empty packaging to meet a social need. The reuse is part of the management

[7] Ministry of Spatial Planning and Environment, April 20, 2002

strategy in the cotton growing communities. Indeed, the strategy appears here as responses to the challenges that communities are facing, and always with reference to their purpose. before use, field interviews revealed that farmers wash their empty herbicide containers with the following products: cow dung, ash, lemon, sand, soap powder called « OMO[8] ». In the perception of the cotton community, simply mix two or even three products mentioned above to proceed to wash the can and make it clean. As shown on these two producers: "First we put cow dung in cans and many are closed. Then allowed to ferment for several days. We empty the can and is finally washed with the soap OMO "; "Mixing sand with OMO we put in the can. It is left for a while. After stirring the can several times on the empty soap and sand and rinsed with water with lemon. " In the collective consciousness of communities, the use of these products can neutralize the effect of the "poison" and eliminate the toxicity of empty containers of pesticides. Their use is thus part of a process of social change (Rocher, 1968) because communities use the empty containers of pesticides for several reasons. These relate firstly to the social representations that people have of empty packaging, and also to the use for which they are intended.

Once washed, the containers used for packaging food. People are putting rice, sauce, honey, milk, water, sauce condiments (hot pepper powder, gombo powder, salt, seasoning cubes soumbara[9], etc.), tchapalo (local drink), traditional medicines. Cotton communities have integrated into their usual consumption. Evidenced by a peasant : "When our women prepare food, they put the sauce and even rice in cans herbicides. They can use four cans sometimes. " Thus, the empty containers of pesticides are gradually replacing the bowls in which women used to put meals and transported them to the farm. This is confirmed by some users surveyed in these terms: "Any food that you put in, at least if you closed it cannot pour even if it falls or you yourself graves". The empty containers of pesticides are perceived in the cotton growing communities as convenient objects. Indeed, their convenience is related to their size. So farming families generally use to transport food because they find that they are more resistant to shock than bowls. The majority of respondents even claim that once the food (sauce, rice) served in these cans, children carry them easily. Practicability encourages their use. All these factors lead communities to abandon the old practices such as the use of cuvettes for the benefit of empty containers of pesticides. This is what underlines the Regional Director of Agriculture: «Empty packaging are used as pots for transporting food to the farm." In addition, farmers, children, Fulani herdsmen have transformed the empty packaging in gourdes. In this context, field observation noted that the Fulani herdsmen use animal skin to cover empty packaging of pesticides to turn them into gourd slung. In their perception, they thus become more practical and possible to preserve the freshness of water and milk. Leading a nomadic life, these gourds thus allow these Fulani herdsmen to be autonomous in water during their many trips in search of pasture for their cattle. The drovers respondents recognize that their gourds "leaving no more," since filling the morning has become an automatic reflex.

Also, empty plant protection products are they perceived in the cotton community as an object "cheaper" or "almost free." They are sold on major local markets (Boundiali, Tengrela, Kouto) at a price of 200 CFA francs a can of one (1) liter. The mode of acquisition of merchants is the gift or purchase. Indeed, children of peasants congregate containers of pesticides while their parents make phytosanitary treatments. Then they wash them. They sell them to young people,

[8] OMO is a trademark of Unilever laundry property in Côte d'Ivoire
[9] It is a spice traditionally made with the seeds of the locust bean tree and used to season food

commonly called « samarakolo-sala[10] ». The latter resell these empty packaging to merchants of cans settled in local markets. Similarly, artisans recycle empty containers of pesticides. This recycling is to collect and process these materials which are normally considered waste into new products, in case the cups. These artisans selling at 150 CFA cup on local markets.

The interviews reveal that the reuse and recycling of empty plant protection products are due to its abundance in communities, low cost access compared to other cans whose price varies between 600 and 1000 FCFA FCFA. These cans of 2 to 4 liters, blue, white, red, are often not available in the villages. The peasants must travel to urban markets to procure. The valuation of the empty containers of pesticides has become an activity of young circulating in the villages and sort by hand to recover these packages that are sold on the market. They are the hidden part of this informal sector of activity involved in the reduction of urban poverty. Indeed, the empty containers of pesticides have become source of income for these actors through reuse and recycling. It constitutes an economic activity and creates jobs which support families, including artisans and retailers. Therefore, the recovery and recycling of empty packaging by young people are less and less perceived by the population as a devalued work.

The use of empty containers of pesticides entered the customs of cotton communities and occupies an important place in everyday life. In particular, the cup made with herbicides tins gradually replacing gourds in which tchapalo vendors once served their clients in tchapalodromes[11]. They are also used in the farm. This is attested an NGO agent met: "*When I got to the field for the visit. The wife of the farmer greeted me with water served in a cup with a herbicide crafted canisters.* " In addition, salespeople now deliver orders honey, cow's milk, etc. their customers in the empty containers of pesticides. The farmers-beekeepers extract the honey from the trees and sell it in the empty packaging. Besides they serve as a measuring instrument (honey, milk, etc.) and a funnel. Quant aux clients, ce sont généralement des chauffeurs, des voyageurs, des fonctionnaires et agents de structures de développement en mission dans la région. Attracted by the local products, these social actors buy a share for their own consumption and also to offer them to their families, friends and colleagues on their return to work or travel. Thus, on reuse of empty containers of pesticides, social status does not necessarily justify the "good" or "bad" behavior. Reuse empty containers of pesticides has become a habit of the people. Therefore, the vendors are often present at intersections or along village roads to wait for their clients. In the view of a driver investigated: "*I ordered two liters of milk a woman Fulani, she came indulge in two pesticide cans. Well, like their husbands, Fulani herdsmen roam the bush, maybe they collect these cans into the farms.* " *This opinion is also shared by a Regional Advisor of Bagoue which states: "From my village, my brother sent me honey in a pesticide canister."* The use of empty containers of pesticides by both sellers and by customers is linked both to its strength, its impact resistance. In addition to its durability, because they allow to keep the content, such as honey for an extended period. Besides this, they can be kept for future reuse. According to a tchapalo's saleswoman interviewed: "*Every time, I renewed calabashes which broken by customers or my children who were washing them. Now with these cups, I no longer need to buy gourds. This allows me to save a little. These cups are stronger and last longer than the cups from Abidjan."* The empty containers of pesticides fulfill social functions and symbols

[10] These are young people who wander from one concession to buy rubber footwear
[11] Point of sale and consumption of the local drink in Senufo country

in cotton growing communities because the consumption of a good always responds to the satisfaction of a need.

KNOWLEDGE OF POPULATION ON RISK RELATIVE OF MANAGEMENT OF EMPTY CONTAINERS OF PESTICIDES

Low level of knowledge of the people relative of the risks

The study found that the cotton communities opted for the reuse of empty cans of herbicides. This is justified by the fact that they have their social representations of toxicity or danger of pesticides, that's why they call herbicides "less" toxic than insecticides which smelling more. This perception has been socially constructed around pesticides and their packaging. It comes from the popular knowledge based on the knowledge of people in the community, that is to say on "*the knowledge acquired either by personal experience or indirectly by transmission from one generation to another*." (Phongphit, 1995 :36) It is in this context that the peasants "construct their own knowledge, often in light of personal or external inputs experiences" (Urbino, 1991 :119). Yet if herbicides are less toxic than insecticides, this does not mean they do not show effects on humans. Also, re-use canisters as packaging materials in contact with food is not allowed. Indeed, empty packaging has been made for a specific product, including agricultural chemical pesticides. The molecules of chemical pesticides have sufficiently incorporated the plastic cans. Therefore, the aftertaste problems resulting products even after washing by users persist and remain difficult to resolve. This fact is reinforced by the speech of the surveyed as follows: "*Even if you wash the can of Gramoxone repeatedly. And after you put water in it. It has a bitter taste when you drink.* " This remark shows that the water no longer has the same flavor in contact with the container. However, this does not seem concerned users. In this context, field interviews have shown that a low dose in the body does not represent an immediate threat. For most respondents, if the danger is in the medium to long term this is "passenger". It was unusual to hear about gender: "It does not kill, otherwise everyone would be dead in the village";"There there's a long time we drink in those cans there. If it killed, you will not find us here. You see my white hair, I'm always *kainè-kainè*[12] ». These speeches highlight the ignorance of farmers and users in the long-term effects, they therefore little knowledge and understanding of the reuse of empty containers of pesticides. This reasoning also obscuring the health risks that pesticides pose to health, because they do not know that consumption of foods packaged in the empty containers of pesticides acts gradually on the man. It is precisely against these kinds of speech that WILMA and al (1989) stated: "*Without exception all pesticides are dangerous. Never forget this rule when working with these products! Pesticides are made to destroy pests, insects and fungi-like little man, but that does not mean that a product is only to destroy these insects, is not harmful to other living organisms, and for the man in particular.* "

Moreover, the majority of users are unaware of the risks and effects due to lack of information. Indeed, with the exception of the agricultural technical guidance of cotton companies, no information or awareness campaign is aired or organized towards the population. Thus, people use the empty containers of pesticides because they do not know that they contained chemicals. This lack of information explains the fact that the empty containers of pesticides are much loved by the urban women who find that they are suitable for the conservation of condiments (dry chilli, okra powder, etc.). Users do not have enough information on the one hand the prescription

[12] physical condition of someone, be in good shape or form in language Mandinka

of empty containers of pesticides in food contact and other long-term health effects. The discourse of this investigated illustrates this observation: "*I did not know they took the products of these cans to treat farms. And I have never heard what that hand that we should not use these containers because it makes sick. I even saw a nurse buy 5 liters of honey in these cans to go to his parents in Abidjan. That day, he did not tell us of disease that can have if they ate the honey.*" It is clear from this speech that users are not only the rural population, or illiterate but also scholars. The results of the study highlight a typology of users. These farmers, women, city dwellers, traders, civil servants motorists, local politicians, etc. These actors do not have access to information about the negative impacts of empty containers of pesticides because reuse is a danger to humans. But "the macroeconomic level, the consumer must be informed of the environment (soil pollution levels, pesticide toxicity, etc.) At the microeconomic level, the information must relate to the product itself " (Garabedian, 2007). Access to information is an essential element in the exercise and protection of the population. Indeed, the packaging of food products in the empty containers of pesticides recovered in nature can be dangerous to the health of consumers, because they can remain contaminated even if they are washed. Especially if it is old cans, which were the subject of long storage.

In addition, 40% of herbicides according the Management of Plant Protection, Control and Quality (MPPCQ) marketed in Ivory Coast are products of smuggling and their labels are in English. Populations, with an illiteracy rate of 51% (MENET, 2013), already have difficulty reading and understanding the French language label of pesticides registered in Côte d'Ivoire. The task becomes more difficult for them to read labeled in English. In addition to these failures of reading the label, these herbicides such smuggling "Adwumawura" are harmful to the environment and especially human health. Yet most of the empty packaging used in communities are product dubbed "red beret"ou « koun-blê'n[13] » by people because of red cap. Ultimately, consumers are not aware of the risks of food poisoning, danger, rudimentary techniques of washing of empty containers of pesticides.

Health effects related to the reuse of empty plant protection products

Analysis of the results of the survey highlights among rural populations and those in urban areas in a precarious situation, the construction of ideological legitimation referents on the reuse of industrial waste as products that can be taken to make profit.

This economic approach is explored by Bertolini (1999) dwells on the economic issues of informal activities related to the reuse and recovery of waste. In this perspective, the empty containers of pesticides are part of the problem of managing waste from household waste, biomedical waste and industrial waste because of their harmful impact on health and the environment (Zmirou et al, 2003). The results of studies on the health issues of industrial wastes show that many of the packages consists of highly toxic substances; it is chlorinated organic compounds that are dangerous to health and exposed to diseases (Jouanna J., 1996), especially when they enter the food chain. In our study, the packaging of the products are herbicides, fungicides and insecticides used preferentially in agriculture. The usual routes of exposure to these products are varied agricultural, weeding of road verges, railways, industrial areas, maintenance of green areas and sports fields, gardens, treatments in homes, veterinary care

[13] « Koun-blê'n » in Malinke means "red head"

livestock or pets. Furthermore, the study reveals that besides these, include the reuse of packaging for domestic purposes notwithstanding any safety instructions provided by the manufacturer on the label. The results of health effects produced by different institutes and in a report of the Committee on Economic Affairs, Environment and Territory of the French National Assembly show acute and long-term effects (Gatignol C. et Jean-Claude E. 2007).

In the first case, the same report states that acute effects occur due to the immediate reuse of empty containers despite rinsing. Individuals may have in this case allergies, skin irritations, burns, etc. In the second case, studies show that long-term effects can result in some individuals disturbances in endocrine level and a toxic effect on reproductive functions type irreversible disorder of male fertility. In others, it may be noted neurological disorders for example Parkinson's disease and Alzheimer's disease. In the most severe cases, surveys have identified cancers that are frequent in particular cancers of the skin, stomach, prostate, lips, blood or lymph nodes, etc. This is what explains a medical doctor investigated : "Consumption of foods contained in this low-dose containers over a long period can result in oephagite can progress to caustic stenosis. Poorly managed, it progresses to cancer." The occurrence of these diseases is linked to the low level of awareness of the population on health risks associated with the reuse of packaging with which they do not make the connection. This is what we develop in this study.

CONCLUSION

The objective of this study is to provide answers to the re-use of empty containers of pesticides by the population. Cotton communities served illustration. The study allowed to know the causes of the proliferation of PPA in communities. These are due to the lack of political recovery and recycling manufacture and sale of plant protection products companies, cotton companies of Agricultural Organisations, and legal texts governing the management of empty containers of pesticides at national level. So, responsibility for managing empty containers of pesticides is shared among all actors. It also helped to understand and explain the behaviors and practices of people face to pesticides and their empty containers, from social representations relating thereto. Thus, in the collective consciousness, pesticides are now seen as a substance "less" dangerous. Therefore, reuse of empty containers of pesticides for food hardly a concern of the people. These perceive objects as convenient and practical as the empty containers of pesticides meet their social needs: the packaging and transportation of food. However, reuse of empty containers of pesticides by the population constitutes a public health problem because they ignore the long-term effects. To find a solution to the reuse of empty containers of pesticides, crop protection companies, agricultural support structures focus on short-term actions: education of farmers.
Awareness campaigns about the dangers of improper use of packages until the long-term actions in case the proper management of this waste should be conducted. Côte d'Ivoire must establish a hazardous waste management process, including the empty containers of pesticides and unusable pesticides (UP).

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