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## **Advisory and Extension Services Related to the Supply of Agricultural Inputs in Cameroon: The Case of the Mifi and Menoua Divisions**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author FGMK collected and analyzed the data and wrote the manuscript. Authors GHFF and RMB analyzed, guided, and supervised the entire project. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aims:** The liberalization of the agricultural sector has facilitated the advent of multitude stakeholders with varied profiles involved in the provision of numerous services to agriculture. This study analyzes the advisory and extension services that support the provision of agricultural inputs in two Divisions of the Western Region of Cameroon (Mifi and Menoua).

**Study Design and Methodology:** These areas are home to about 60% of the private agricultural input distributors involved in the provision of agricultural advisory and extension services within the region. Data collected by questionnaire and interview guide were carried out with 62 agricultural inputs sellers with input shops on the one hand, and 7 managers of a number of organizations involved in the provision of agricultural services on the other hand.

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**Results:** private agricultural input providers use several agricultural advisory and extension approaches: 42% among them use agricultural extension approach, while 32% use advice to the family farm approach, 21% use organizational capacity building advice and 5%, demand driven approaches. The terms for providing these agricultural extension and advisory services depend on the rationalities of each of these providers. Some agricultural extension and advisory services providers (NGOs, CIGs) promote agroecology through the diffusion of organic inputs, while others promote conventional agriculture through the popularization of synthetic chemical inputs. Access to services by beneficiaries are either paid-offerings or free-offerings. Findings also reveal that in some cases, the actions of some of these providers in the field are intertwined and lead to a collaborative relationship, while in other cases providers work completely compartmentalized leading to negative effects and low performance of the local agricultural extension and advisory system.

**Conclusion:** The advent of private providers has increased the number of actors with various profiles leading to potential advantages (e.g., includes access to agricultural information). Yet these potentials have not yet been fully valorized in the provision of agricultural advisory and extension services to farmers. And the needs of farmers have only been partially met. It would be equally crucial to factor climate risks as integral part of extension and advisory services

*Keywords: Agricultural extension; advisory services; agricultural inputs; private providers; west Cameroon.*

## 1. INTRODUCTION

The Western region is part of an agro-ecological zone with high agricultural potential: it is the Western Highland zone of Cameroon. Agriculture in this region has been built around the cultivation of coffee since the 1920s with the help of the colonial administration. Unlike many African farmers who only accepted export crops under coercion, Bamileke farmers quickly showed a keen interest in coffee, which they intelligently integrated into their traditional production systems and which proved to be admirably adapted to high altitude areas such as Western Cameroon [1]. Since independence, the State through the Central Union of Agricultural Cooperatives of West Cameroon (UCCAO), the main actor in the agricultural landscape of West Cameroon has, through the cultivation of coffee, largely contributed to the growth of the agricultural sector through input supply, marketing and financial services to farmers [2].

The economic crisis of the 1980s, which led to the withdrawal of the State from services formerly offered to farmers, seriously impacted the agricultural sector. It led to the coffee crisis which will eventually result in the fall of coffee prices on international markets. This situation will demotivate the producers who will either abandon or neglect their coffee plantations. During this crisis, the state is struggled to support farmers and to remedy this situation, under the instructions of the Bretton Woods institutions, the state will be forced to reduce its public spending

and revise its role with producers. It resulted in the establishment of the "Structural Adjustment Plans" (SAP).

The effects of the structural adjustments are suddenly felt as the state reduced itself to its sovereign roles. The state was no longer "project manager nor owner" as in the past. The withdrawal of the State from most support activities of the rural world will promote the creation of a strategic framework for private initiatives, geared towards taking privatization measures to reduce waste and promote efficient management of resources. This is the beginning of the liberalization of the agricultural sector. In order to provide a framework for this new intervention plan, the "New Agricultural Policy" will be drawn up in 1990 and a law on freedom of association will see the light of day in December of the same year. This is Law No. 90/053 of December 19, 1990, on the freedom of association. This law promotes the creation of development structures, associations, and Non-Governmental Organizations (NGOs).

Another law will be introduced a few years later, it is the law N ° 92/006 of August 14, 1992, (CIG), and decree N ° 92/455 / PM of November 23, 1992 relative to the association of cooperatives and common initiative groups. Their function will be to promote the development of a multitude of producer organizations and other civil society organizations which will increasingly play an important role in the provision of certain goods and services formerly provided by the State.

The withdrawal of the State from input supply, supervision and subsidy services formerly provided to farmers will contribute to lower their performance and causes many shortcomings because even the extension and advisory services formerly provided by the State found itself in certain difficulties. Moreover, the policies of budgetary austerity and structural adjustment got the better of most of the state mechanisms that organized the agricultural counsel at that time [3]. Producers have had a bad experience with State disengagement from agriculture, which will lead to a drop in their income, life is becoming awfully expensive for them and they are in urgent need of liquidity; several of them have decided to diversify their activities [2] or to convert to other speculations such as food crops or market gardening [4] because they are much more profitable. These observations make it possible to understand how the agricultural sector in the Bamiléké country underwent profound changes following the decline of coffee growing in the region in the mid-1980s and the socioeconomic changes that took place from the same period.

Its profound changes observed in the aftermath of liberalization can be seen more through the appearance of many actors in the provision of services to farmers. This is the case of agricultural advisory providers who according to [5], began to emerge after these changes and are still playing an important role. Also included are actors of the private sector (agro-industries, input distributors, consulting firms, telephone companies), non-governmental organizations, the agricultural profession (organizations of agricultural producers (OPA), chambers of agriculture etc.). These actors with diverse profiles, approaches and roles can be observed both nationally and regionally and have taken up the issue of advice and extension to farmers.

In Western Cameroon, the landscape of actors offering services to agriculture is represented by the same category of actors. This study focuses in particular on the actors present in the Western Region and offering extension and advisory services related to the provision of agricultural inputs to farmers. Among these actors are the NGOs; private sellers of agricultural inputs; cooperatives and CIGs; associations and community projects. Notwithstanding the services rendered to agriculture since liberalization, this multiplicity of actors with varied profiles poses a serious problem as far as effectiveness and efficiency of the services

provided to farmers is concerned. Indeed, this plurality of actors shows that there is a diversity of procedures and advisory approaches related to the provision of inputs that deserve special attention. It is therefore imperative to identify these actors beforehand, to analyze the advisory services provided by them to farmers, to determine their activities and missions, the types of inputs and the modalities for service provision, as well as the criteria for designation of the beneficiaries of these services. Moreover, the possibility of also dwelling on a probable coordination between the devices promoted by these actors is conceivable.

To situate this study, the concept of agricultural innovation system was chosen to understand how the innovation process takes place among private actors. This approach, as discussed by GFRAS [6], allows us to understand the process of production and use of agricultural extension and advisory knowledge by private actors, locating them as part of a large network of actors involved in the agricultural innovation process.

## 2. MATERIALS AND METHODS

This study is carried out in the West Region of Cameroon, precisely in 2 administrative Divisions: Mifi and Menoua. These localities were chosen as the study area because they are home to most (60%) of the structures involved in the provision of services to farmers in the Western Region. Thanks to the snowball sampling technique, two categories of providers involved in the provision of consulting services related to inputs have been identified. There are group providers like NGOs, Cooperatives and CIGs, associations, community projects and individual providers such as agricultural inputs sellers.

Two main types of data were obtained: secondary data which were mainly obtained from documents consulted on the internet and in the library of the faculty of agronomy and agricultural sciences (FASA) from the University of Dschang. Primary data were obtained from technical reports from the surveyed structures and by using an observation grid. In addition, a questionnaire was administered to 62 agricultural inputs sellers, i.e., 37 in the Mifi and 25 agricultural inputs sellers in the Menoua. An interview guide was conducted with 6 managers of the structures consulted, in particular the coordinator of the NGO GADD, the person in charge of environmental preservation of the NGO CIPCRE, the development agency GIZ, the

director of agricultural activities of the cooperative UCCAO, the person in charge of the CIG "PANGWENG-BONG », the chairman of the board of directors of the AIA association. Observation grid, coupled with participant observation, was used to capture unsaid things from respondents which further proved to better apprehend the nature of relationships between players, and more importantly aspects revolving around the dimension of the tangible gains generated by their respective services. A total of 68 resource persons were surveyed thanks to the triangulation of the research tools used. The data resulting from these approaches made it possible to organise our content analysis around five main themes, in particular (i) the identification of the providers involved in the provision of extension and advisory services related to the provision of agricultural inputs; (ii) the activities and missions of these providers; (iii) types of inputs and modality of supply; (iv) extension and advisory services related to the supply of inputs offered by each of these providers to farmers; and (v) the criteria for designating the beneficiaries of these services.

### 3. RESULTS AND DISCUSSION

#### 3.1 Types of Private Agricultural Input Distributors Engaged in the Supply of Agricultural Inputs in West Cameroon

Advisory and extension services related to the provision of agricultural inputs are provided by private agricultural input distributors. They are individual or collective providers who provide free or remunerated agricultural input to producers. The private distributors of agricultural inputs identified in West Cameroon region have varied profiles. They fall into two main categories, on the one hand individual providers such as private traders of agricultural inputs and on the other hand, group providers such as NGOs, development agencies, associations, CIGs, community projects and cooperatives. Table 1 below shows the number of private agricultural input distributors by category in the Western region.

##### 3.1.1 Category 1: individual providers

This category of providers is essentially made up of traders in agricultural inputs. They are rural entrepreneurs engaged in supplying farmers with agricultural inputs, equipment, and tools from their agricultural input shops. They are

intermediaries between the agrochemical firms upstream of the distribution chain who do the formulation and packaging and the farmers who are the main beneficiaries. In addition to sales, they are remarkably close to farmers and offer the latter several other agricultural services (advice, monitoring, etc.). However, their levels of education, the trainings received, the professional experiences accumulated, and their skills greatly influence their capacities to provide quality services to producers. [7], go in the same direction by asserting that the quality of services provided to producers depends on the level of education of the sellers and their possibilities to access information and additional training through local universities or transnational corporations that sell these products. The input traders surveyed have a level of education ranging from secondary education to the university level i.e., 40.9% of input traders who have reached the university level compared to 59.1% who have reached secondary school. These proportions assume that agricultural input traders are not illiterate and can therefore read and write.

This ability to read and write is an asset for these traders of agricultural inputs as they are required to strengthen their capacities through technical or practical training organized by the various providers. The frequency of participation of these agricultural input traders in the various training courses depends on the training offer. Most, or 71% of agricultural input starters, are first and foremost farmers with proven experience and skills in the agricultural field, which allows them to provide services to farmers with full knowledge of the facts. Also, each of these traders have at least already participated in a training seminar organized by the suppliers, others are trained as technicians or agricultural engineers; some were fortunate enough to benefit from the training offered by the regional delegation of agriculture and rural development in the West via the Rural Training Center (RTC), which formerly offered much more comprehensive training to distributors of phytosanitary products. The most popular training for input traders so far remains basic knowledge and use of inputs, attended by virtually all agricultural input traders, and organized by their suppliers.

The number of traders in agricultural inputs has grown steadily in recent years. In the Western region, there are now nearly twenty firms importing agricultural inputs and nearly 500 agricultural input shops spread across all the

Divisions and Sub-divisions of the region. According to [8], these input traders constitute the interface between agro-supply firms and farmers because they are in permanent contact with each other.

### 3.1.2 Category 2: group providers

This category of private distributors of agricultural inputs consists mainly of providers whose statutes and identities form organizations such as NGOs, cooperatives, associations, CIGs, and community projects. This type of Providers also differs in their objectives, which are either lucrative or non-profit.

#### 3.1.2.1 NGOs and development agencies

Non-Governmental Organizations (NGOs) are civil society organizations, of public interest or of a humanitarian nature, which do not depend on either a State or an international institution. In the West Cameroon region, there are a multitude of NGOs with various roles and missions. However, those NGOs working in the private distribution of agricultural inputs to producers are identified as belonging to category 2 providers. These are the International Center for the Promotion of Creation (CIPCRE) and the Association for Sustainable Development (GADD).

These NGOs generally have interwoven objectives. Nevertheless, the scope and the means are sometimes quite distinct. The International Center for the Promotion of Creation (CIPCRE) is a Christian NGO with international coverage while GADD is secular with national coverage.

The objectives of these organizations can sometimes converge towards the same goals or stand out from each other. CIPCRE joins the promotion of popular initiatives in a perspective marked by evangelical and democratic values but carrying a very ecological orientation. This ecological orientation is one of the goals of GADD through the support of 'Organic Agriculture' for contribution to the improvement of the socio-economic conditions of the population and the enhancement and strengthening of their know-how. Also, alongside other organizations and platforms like CIPCRE and AIA whose ambition is to promote changes in the current political and economic system towards more just, equitable and democratic models, GADD participates in the promotion of denunciation actions and makes proposals for the

transformation of formal and informal institutions that create and reproduce gender inequalities. It has a shop selling agricultural inputs and operates as a private structure for the distribution of agricultural inputs. However, with its support for sustainable agriculture, the German agency for international cooperation (GIZ) seems to have an objective annexed to that of GADD and CIPCRE. The only difference being that, as a development agency, GIZ works under the provisions of the German Ministry of Cooperation and Economic Development (BMZ) through its special initiative "One world without hunger", also in partnership with the Ministry of Agriculture and the Ministry of Livestock through 2 flagship programs (ProCISA and ProFINA). The program we are going to focus on is the center of green innovations for the agro-food sector (ProCISA) whose mission is to disseminate agricultural innovations to increase both production, producer incomes and the number of jobs in rural areas.

#### 3.1.2.2 Agricultural organizations

Farmers' organizations are associations of farmers, with the status of CIG, PO or cooperative, created to satisfy its members. In a context marked by the resurgence of small family farms and the limitation of funds allocated to the agricultural sector, the best way available to farmers is to organize themselves as a group to channel funding and produce in large quantities. This is the main reason for the growth of producer organizations in agricultural areas in Cameroon. In the Western region, some of these producer organizations are involved in agricultural extension and advice through the private distribution of agricultural inputs. This is the Central Union of Agricultural Cooperatives of West Cameroon (UCCAO), which supervises nearly 110,000 farmers, grouped within 06 (six) Divisional cooperatives; the Common Initiative Group "Pangweng-Bong" which is an economic and social organization of voluntary natural person having common interests and carrying out common activities. And finally, the association for the promotion of Endogenous Economic Development Initiatives in Africa (Association Idée-Afrique) / AIA which is an association which intends to promote and locally implement community economic and social development initiatives/projects. Initiated and carried by the population and decentralized local authorities, in a participatory approach, favoring a "bottom up" approach to endogenously establish the emergence of Cameroon and

Africa. Unlike the UCCAO cooperative, which is more focused on increasing production output using chemical inputs, the CIG "Pangweng-Bong" and the Idée Afrique association are more oriented towards agroecology.

### 3.1.2.3 Community projects

The community project is an action carried out with a socio-economic objective oriented towards the satisfaction of a basic collective need. Generally financed by donors, the community project aims to improve the socio-economic level of a country, as well as improve the living conditions of the local population. Identified in the Menoua Division as a private actor in the private distribution of agricultural inputs, the Municipal Waste Management Agency of Dschang (AMGED) is a for-profit community project. AMGED is engaged in the treatment and valuation of solid household waste (organic) to produce organic inputs (compost and organic phytosanitary products), the supply of the inputs produced to the farmers and structures with whom it collaborates, the promotion of the use of natural agricultural techniques through test plots.

## 3.2 Activities and Missions of Identified Input Suppliers

The providers identified above as private distributors of agricultural inputs have in addition to their very distinct statutes which differ from one category to another, actions to be taken to achieve their objectives. These actions can be at the same time divergent or complementary according to the category to which they belong and the intended purpose.

### 3.2.1 Category 1: Activities and missions of agricultural input traders

The goal of agricultural input traders is to make a profit through the sale of agricultural inputs. Consequently, to support the sale of their inputs, these traders have developed support activities through technical and practical assistance on the use of these products. Although the input trade is their main function, the important competition in the market has prompted these traders to adopt various strategies to retain and expand their customer base. One of the strategies used is the free provision of agricultural advice on how and when to use the purchased products, the technical itinerary of the crops, and local monitoring and support (in the fields or remotely).

There are several reasons why some sellers of agricultural inputs do not go to their customers fields, unavailability is the most mentioned reason. In addition, others work with an advisor or technician who is responsible for visiting the fields of the best or most loyal customers or simply, customers with a large farm. They have also developed knowledge transfer activities on innovations; agricultural extension and repair of agricultural tools (water pumps, sprayers, etc.), which are an integral part of the services provided by the latter to their customers. However, advice remains the most effective way for these input traders to ensure the sale of their products. The advice offered is almost always linked to the sale of inputs and allows the farmer to stick with it. According to [9], the seller must ensure a service whose quality will be assessed by the good resolution of the problem posed by the producer and by the quality of their relationship. In view of all these services rendered, agricultural input traders play not only the role of extension workers but also that of agricultural advisor. They contribute in their own way to the development of the agricultural sector. For [10], it is one of the critical change agents required for the transformation from subsistence to modern and commercial agriculture.

### 3.2.2 Category 2: Activities and missions of NGOs, development agency and producer organizations

CIPCRE: The decline in soil fertility, the excessive and uncontrolled use of pesticides and synthetic fertilizers on crops and a decrease in rainfall has further strengthened the position of the International Center for the Promotion of Creation (CIPCRE), with respect to agroecology and environmental preservation. This position justifies the implementation of the PAEPEN program (Agro-Ecology and Environmental Preservation Program) which consists of promoting sustainable agriculture, respectful of the environment through various services such as: theoretical and practical training in manufacturing and the use of biological inputs (bio-pesticides, wheat bran biochar), establishment of traditional seed banks, popularization of traditional crops such as chillies, sharing of experience through educational talks, strengthening of capacities and sensitization, setting up demonstration plots among farmers. These plots which make it possible to apply the acquired knowledge of training.

**Table 1. Number of private distributors of agricultural inputs by category in the West region of Cameroon**

Status of private input distributors	Name of private input distributors	Number
Traders	Private input traders	62
NGO	CIPCRE	02
	GADD	
Development agency	GIZ	01
Cooperative	UCCAO	01
CIG	« PANGWENG-BONG »	01
Community project	AMGED	01
Association	AIA	01

These activities constitute various monitoring activities, technical and financial support, supply of inputs and animal droppings are implemented in relation to the needs of the population. CIPCRE works in value chain processes (example: cassava value chain), demonstration tests are also done in pilot schools. CIPCRE is above all a facilitator-trainer, it educates farmers on the practice of organic farming, trains them in the manufacture of organic inputs and sets up test plots on the use of these inputs, it also offers support services through advice and follow-up support.

In 2018, CIPCRE supported 81 people including 42 women and 14 young people who saw their production increased thanks to the practice of agroecology. In addition, during the same year, nearly 224 newly trained producers set up production units according to agroecological principles (training on the manufacture of organic fertilizers). At the end of the training and support sessions for the manufacture of biochar, the beneficiaries of 5 pilot villages organized themselves into small rotating groups to manufacture organic fertilizers through the organization of decentralized training workshops, integrating all the other interested people in these villages. A total of 88 workshops were organized for the benefit of 557 people, including 337 women and 87 young people.

The development agency GIZ works in the reduction of poverty and hunger through the promotion of agricultural financing and the improvement of value chains through the introduction of various innovations in favor of farms and agro-industrial enterprises in the rural area. The activities involve the introduction of various innovations in the field of agriculture, to increase both the output, the income of the producers and the number of jobs in the rural world. Through ProCISA, GIZ intends to improve the value chains of the cocoa, potato and village

poultry sectors, by providing cooperatives with green innovation centers for seeds, agricultural machinery for sowing and harvesting likely to improve their agropastoral production, strengthen the capacities of small farmers and businesses on innovations, improve the structures and services of interest, advocacy for organizations, support supranational exchange and learning networks between key players in the German and Cameroonian private sector. The themes discussed here relate to entrepreneurship, organizational development, production techniques and post-production management. To facilitate the transfer of knowledge between the innovator and the users, emphasis is placed on improving teaching materials, setting up demonstration and extension plots, developing public-private partnerships as a guarantee for the sustainability of project actions, introduction of innovations in plant material, cultivation techniques, post-harvest management and processing, good agricultural practices, updating of potato production systems.

As for GADD, it offers various organic farming support services to farmers linked through awareness-raising, training of farmers on organic production techniques and standards, training on the manufacture of organic inputs (microorganism-based compost, pesticides made from natural plants such as chilli, onion, soap, tithonia diversifolia etc.), support for suppliers of organic inputs, monitoring of farms, marketing of organic products, the promotion of green innovations through the teaching of new production techniques in the potato sector, traditional poultry farming, the promotion of ancestral seeds, and facilitate access to inputs by producers. The trainings provided by GADD to farmers on the manufacture of organic inputs respond to the concerns of farmers who think the price of inputs are extremely high and beyond their financial means. To overcome this, GADD offers them training on recovery of their kitchen



waste and animal waste (pig and chicken). Indeed, GADD promotes good agricultural practices that help protect the environment as well as producers output and income.

The activities of the UCCAO cooperative are the production and packaging of coffee through the provision of coffee plants to its planters, the establishment of a coffee nursery for regeneration, supply of farmers with agricultural inputs, packaging for local consumption, collection and processing, marketing, and export of both arabica and robusta coffee. UCCAO is a purchasing center for member cooperatives, it provides planters with fertilizers, phytosanitary products, peeling machine, sprayers at subsidized prices, provides education and training for members and staff through its training and recycling center.

The CIG "Pangweng-Bong" works in the promotion of organic agriculture through the production of organic fertilizers, organic farming, animal husbandry and agroforestry. According to the delegate of the CIG, it occupies a central place in the provision of services to its members because their objective, being the improvement of the socio-economic conditions of the members by valuing (human health through the production of quality food, the protection of the environment) and strengthening their know-how. With the slogan "united to be stronger", the CIG "Pangweng-Bong" realises grouped seed purchases, grouped sales of their crops, training of its members on the production of organic inputs (compost or brown gold, digestate or liquid fertilizer,) and the recovery and management of household waste to make compost, carbon production, advice on the technical aspects of production, popularization (transmitting skills and theorizing knowledge), demonstrations on test plots, information exchange and fundraising.

The association for the promotion of Endogenous Economic Development Initiatives in Africa (Idée-Afrique Association) / AIA is deployed around six areas of activity, the principal which is the subject of our analysis is agro-pastoral entrepreneurship. Within this, it promotes organic farming through projects to support the management and recovery of waste for agricultural promotion (PAGEVADA), which aims to promote organic farming at the level of Menoua sub-division and its surroundings via the 'Municipal Management Agency' which delivers the compost to the AIA and its network of farmers for a deferred payment after harvests. It creates test plots of the use of compost, pools its know-how with that of its employees and external experts to supervise farmers, organize periodic markets for the sale of organic products, mobilize resources for the collection, management, treatment and recovery of wastes for compost manufacture, optimization of compost production and extension capacities, development of community compost beds to democratize the production of compost and its access to all farmers in Menoua sub-division. In short, AIA is involved in the purchase and distribution of compost.

### 3.3 The Terms of Supply of Inputs and Type of Inputs Provided

Agricultural inputs are all the elements used in agricultural and pastoral production (seeds, mineral and organic fertilizers, chemical and biological pesticides and agricultural equipment and tools). In the West Region of Cameroon, the input supply mechanism varies according to their type and purpose of use, especially for biological and chemical inputs. Some providers market its inputs, others manufacture and distribute it for free. Table 2 below shows the distribution of providers according to the types of inputs and the terms of supply.

**Table 2. Distribution of actors according to the types of inputs and the terms of supply**

Types of agricultural inputs	Providers	Supply modalities
Biological inputs (Organic inputs)	ONG: CIPCRE	Free supply of inputs, the objective being the training of farmers
	ONG: GADD	Sale of agricultural inputs
	Community project: AMGED	Sale of inputs and supply to member farmers
	AIA Association	Supply to member farmers
Chemical inputs	CIG: « Pangweng-Bong »	Supply to member farmers
	Input sellers	Sale of agricultural inputs
	UCCAO Cooperative	supply to members producers
	NGO: GIZ	Free supply to others

Biological input is a living organism or an element of biological origin, brought to an agricultural plot to participate in the optimization of production. It should be noted from Table 2 that most of the group providers including GADD, CIPCRE, AIA, AMGED and GIC "Pangweng-Bong" are involved in the promotion of organic inputs. They popularize the method of agricultural production which excludes the use of synthetic chemicals, it is the use of organic inputs such as fertilizers produced by living organisms (compost and manure) which promote the development of crops and soil fertility and traditional seeds. The modalities of input supply by these actors are almost the same. Indeed, all these suppliers provide free organic inputs to their members with a view to promoting organic farming. In addition to free promotion, providers such as GADD and AMGED also sell organic inputs to non-members of their groups.

The mechanism for providing synthetic or mineral chemical inputs is based solely on sale. The main products marketed here are mineral fertilizers, chemical pesticides, and synthetic seeds. Although both categories of providers are involved, the sale of chemical inputs remains the prerogative of individual providers such as private sellers of agricultural inputs who get their supplies from importers and resell them in their input shops. However, there are also group providers such as UCCAO which buys large quantities of agricultural inputs to distribute them to its members who in return use them on their farms.

The choice of inputs by farmers is conditioned by several factors such as: the type of agriculture practiced, the production objective and the relationship with the environment. Agricultural inputs belong to different categories and have different status and importance depending on the providers. The promoters of organic inputs insist that they are more important than synthetic chemical inputs because organic inputs respect the natural cycles of life and focus on quality production. While synthetic chemical inputs are more emphasized on quantitative production, thereby destroying the natural cycle of life. To this end, chemical inputs are valued by providers wishing to produce in quantity without taking quality into account. Organic inputs are appreciated by enthusiasts of agroecology who for the most part make their own organic inputs. For some providers, organic inputs are not always available in the market nor at the disposition of all producers. They find these

inputs awfully expensive compared to certain synthetic chemical inputs. This is the reason why at a time when everyone is talking about agroecology, developing countries like Cameroon still find themselves with so many chemical inputs in the markets. It is to compensate for this that most of the providers involved in the promotion of agroecology in these countries, where most of the farmers have an exceptionally low purchasing power, organize with other farmers, household waste recovery trainings and the use of local seeds. The important presence of synthetic chemical inputs in the markets bring into question the dangers of these products on the soil, food, and human health and even the need to train farmers in the use of these products.

### **3.4 Types of Agricultural Advice Provided by the Suppliers**

Advice is a concept that takes on different meanings depending on the postures of the interveners [11]. Various types of advice are provided by these private agricultural input distributors. These advisory services are provided through different approaches, used jointly or in isolation depending on the providers. The different advisory approaches developed by private distributors of agricultural inputs correspond to their different profiles and to the forms of agriculture promoted (organic and conventional agriculture) by these providers. These approaches include agricultural extension approach, advice to the family farm approach, organizational capacity building advice, sector-specific advice, farmer-to-farmer advice, and demand-oriented approach, among others. For [5], the diversity of advice offers the possibility of improving the geographic and thematic coverage of agricultural advice. Input sellers tend to focus on specific demand-oriented and farmer organizations and cooperatives first or even exclusively target their members by providing them with technical and economic advice and sometimes advice on their family exploitations. However, the analysis of agricultural advisory services does not depend only on the approach chosen by the providers, but on the parameters relating to the advisory systems; it concerns the capacities of advisers (training, acquired experience, skills and availability); the governance mechanisms of the advisory systems, values and objectives of the organizations that provide advice, the possibility of effective involvement of farmers and POs to really participate in governance, but also, more

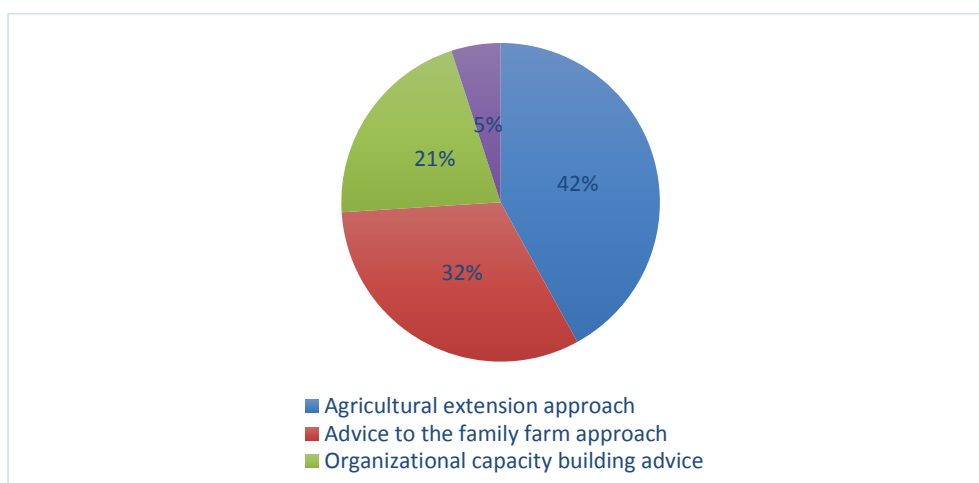
or less the participatory guidance and evaluation of advice systems; the objectives of the funders (State, donors, private firms, POs, etc.), the financing mechanisms of the framework (call for tenders, delegation, sale of services, etc.) and the cost of the services to farmers [8]. Fig. 1 below presents the number of private agricultural input distributors according to the approaches used to advise farmers.

### 3.4.1 Agricultural extension approach

Agricultural extension seems to be the approach most requested by private distributors of agricultural inputs, 42% of these providers, both group and individual suppliers use this approach. This is the best approach when it comes to knowledge dissemination, as it is the sharing of research results and know-how with farmers to help them exploit a larger part of the value chain. [12], believes that the extension function plays an essential role for the well-being of farmers, without prejudging who implements it, but if it is done satisfactorily. Beyond the public extension structures, other actors of the extension domain such as private extension and advisory support companies, private advisers, NGOs, universities, farmers, organizations, research institutes or other suppliers use extension to introduce various innovations into the fields of agriculture, to increase production, income of the producers and the number of jobs in the rural world.

Indeed, all the identified private distributors of agricultural inputs (input sellers, GIZ, GADD, CIPCRE, UCCAO, AMGED, AIA, DIA, GIG "Pangweng-Bong") use agricultural extension approach to transmit technical, financial, and economic information to farmers. They use the

inputs as a goal to train farmers in their use, to explain to them how they should use compost to preserve the soil. This approach makes it possible to present in a form more suitable for farmers the possible solutions developed by agricultural research to the problems they face. The extension practiced in this way focuses on new cultivation techniques and good agricultural practices in order to get farmers to take environmental aspects into account, and also on the training and organization of farmers. The case of input sellers, who also use agricultural extension approach to share research results with farmers; CIPCRE, GADD, AMGED and AIA, use agricultural extension approach to get farmers to change their behavior towards conventional production methods and adopt new production methods that respect the environment; to empower farmers by helping them organize themselves and capitalize on their knowledge and experience so that they can improve their situation and take charge of themselves; to listen to farmers in order to adapt innovations to their socio-economic conditions. In short, extension allows these providers to make the link between farmers and research in order to facilitate communication between the rural world and research, to present the solutions developed by research in a form more suited to farmers, to bring some farmers to change their behavior towards certain production methods and adopt new attitudes, empower farmers by helping them to organize themselves and capitalize on their knowledge and experiences so that they can improve their situations and take care of themselves, transmit skills and theorize knowledge, promote the use of natural agricultural techniques through test plots.



**Fig. 1. Number of actors according to the approaches used**

### 3.4.2 Advice to the family farm approach

Family farm advice is used by 32% of private agricultural input distributors, namely CIPCRE, GADD, GIZ, AIA, UCCAO and GIC "Pangweng-Bong". This type of advice goes beyond traditional popularization to allow producers to define their needs and specify their objectives even if this is more refined by the providers offering the service according to his aspirations. The example of the promotion of organic agriculture by CIPCRE, GADD, AIA and GIC "Pangweng-Bong" makes this very clear. It is in the same line of thought that [13], talk about advice to the family farm as a global approach allowing to strengthen the capacities of the peasants and their families so that they are able to follow their activities, analyze their situation, plan, make choices and evaluate their results. According to these authors, family farm advice also takes into account the technical, economic, social and also the environmental aspects of their activities. This type of advice is promoted by private distributors of agricultural inputs through training, supervision and development, the establishment of financial services adapted to the needs of farms and agro-industrial enterprises in rural areas. According to the categories of providers, group actors such as NGOs (GADD, CIPCRE, GIZ); cooperatives (UCCAO); CIG ("Pangweng-Bong"); associations (AIA) and community projects (AMGED) according to their different logics use various approaches, which are beyond commercial (search for profit on the sale of services) but towards more social recognition through the promotion of agroecology. Social recognition makes it easier for some of these providers to seek funding.

In the advice to family farms, we can sometimes find counselling by sector, which is defined as an opinion or the indication given to farmers by the suppliers of the provision of services to direct the conduct of the latter on what they must do for the production of a specific speculation or product. This approach is more appropriate for farmers producing a specific speculation, such as advice to coffee producers promoted by UCCAO cooperative. As part of the revival of coffee growing, it receives coffee plants from the government which it distributes to these member cooperatives while providing them with advice. The advice promoted by GIZ in the potato and cocoa sector. There is also the peasant-to-peasant council thanks to the peasants / farmers relay formed by the providers of the council. To promote these different counseling approaches,

these providers use various participatory approaches where the farmer is perceived as a partner and the counselor adopts a posture of counselor and not of master. The farmer field school approach, which consists of teaching farmers complex practices through learning, experience, and discovery, is part of these participatory approaches. This approach is all the more useful and effective in rural areas because not all farmers are always educated.

The family farm advice used by these providers promotes a more participatory approach, where the farmer is involved in the activities to better analyze his own situation in order to define these needs himself. Once they are able to foresee, make choices and evaluate their results, the suppliers using this approach strengthen their capacities and that of their families on the technical, economic, social and environmental aspects through demonstrations on test plots, sharing of experience through educational talks, listening to farmers in order to adapt innovations to their socio-economic conditions for the promotion of good agricultural practices, respectful of the environment, soil biodiversity and taking into account the health of the consumer.

### 3.4.3 Organizational capacity building advice

Organizational capacity building advice, as its name suggests, is aimed particularly at collective organizations and, according to [14], can be assimilated to rural animation, support for associative life and support for collective innovation. 21% of private distributors of agricultural inputs belonging to the category of grouped providers, namely CIPCRE, GADD, CIG "Pangweng-Bong" and the AIA association use this approach in the provision of services to farmers because it is the most suitable for working with grouped farmers. The purpose of the organizational counsel being the capacity building of the members, allows to empower the members in order to reach peasants to peasants counselling, which is an interview / dialogue established between two or more farmers in order to help in the resolution of a problem in order to develop the autonomy of the learner. As promoted by CIPCRE, this approach allows them to involve local providers through the training of relay farmers who are responsible for advising other farmers; however, the peasant-to-peasant counsel is mainly promoted by POAs such as the CIG "Pangweng-Bong", which develops the autonomy of their members so that they are able

to advise new members. The latter's desire to improve their performance has led them to set up what [5] calls an internal advisory system to guarantee their members access to a local agricultural council and ensure the efficient use of inputs. In organizational advice, we can also find advice by sector.

Organizational capacity building advice allows private distributors of identified agricultural inputs to share experience through educational talks, rural animation, support for community life, support for collective innovation, strengthening of know-how of members with a view to improving their socio-economic conditions, pooling know-how between farmers or groups of farmers and promoting local advice between members of the organization.

### 3.4.4 Demand-oriented approach

Advice oriented to farmers demand is a private and fully commercial advice approach that easily adapts to the situation of sellers of agricultural inputs who in addition to marketing their inputs, offers advice to farmers in order to better sell their products. Only 5% of private agricultural input distributors, especially agricultural input sellers, use this approach. The peculiarity of this approach is that the advice is provided at the request of the farmer who after purchasing the desired product, poses his problem according to his needs. It is noted that this problem is generally related to inputs and does so for the seller to give the right advice which might enable him to retain his customers. The logic of the seller being the profit generated by these extra services from the sale of inputs, he does not stop at technical advice but is more inspired by various approaches like the training and visit process which does not only popularize the inputs sold in their shops to farmers but also for monitoring farmers in the fields on their requests. The approach in its original form has been strongly criticized by funders, researchers, and farmers organizations (POs). According to [15], it still continues to inspire those responsible for numerous advisory systems, in particular those carried by upstream and downstream firms. Developed in the early 1970s by Daniel Benor under the sponsorship of the World Bank, this approach in its original form is characterized by the rigor of the visit schedules, the regularity of training, a strong link between research and popularization, the obligation of demonstrations and the obligation to quantify the results. But contrary to these characteristics, the approach

used by the sellers of agricultural inputs is more liberal because the visits made to the farmers fields are not regular since the needs of the farmers are known to them, they know what they have, what they need and what they expect from the input sellers. They are the ones who guide the advice and decide when they need the sellers on their farms, the input seller advises the farmer according to his needs and demand. This approach as designed by the input sellers is more participatory because it promotes dialogue between producers or groups of producers and advisers / sellers in order to help solve a given problem, to develop the autonomy of producers through the promotion of popular initiatives. The services developed by input sellers to support the sale of their inputs help facilitate interactions between the input seller and the farmer /customer to produce new knowledge mobilized in action.

The approaches developed by each of these providers respond to a specific purpose, namely the idea of informing the rural world, strengthening the capacities of farmers, or even boosting the output of the agricultural sector. As [14] underline, all the counseling approaches promoted by different providers are based on methodological principles that may vary from one situation to another and from one provider to another. According to these authors, to take up the approach of the farmer field school for example, some consulting organizations may favor a "knowledge transfer" type approach; and others a "capacity building" approach aimed at empowering farmers in their decision-making. Each of these approaches involves more or less frequent and in-depth interaction between advisers and farmers and the mobilization of different tools. Each approach also has consequences for the cost of counseling and the number of beneficiaries. Choosing an approach depends on the complexity of the problem to be solved and the type of desired or possible solution. The chosen approach largely depends on the values and objectives of the organization that implements the advice but also on the type of agriculture that is promoted, whether intensive, agro-ecological, peasant, or any other type.

The approaches promoted by these different providers are adapted to the diversity of farmers and their needs, whether it is to encourage, train and support farmers in the practice of agro-ecology as the NGOs CIPCRE and GADD does; the AIA association; the AMGED project and the CIG "Pangweng-Bong" or rather to extension and

advise on the use of chemical inputs in order to encourage intensive agriculture among farmers as does the sellers of inputs. All these meets the needs of farmers depending on whether they want to produce in quantity or quality, for sale or for consumption.

### **3.5 Access of Beneficiaries to the Services Offered**

The beneficiaries of the services offered by private agricultural input suppliers are producers organized in groups or individuals. The conditions of access to these services depend on the category to which the actors providing the service belong.

Various categories of farmers benefit from the services offered by the individual providers who are the agricultural inputs sellers. These agricultural input suppliers offer their services to all customers who visit their shops without distinction. Their purposes being the profit from the sale of inputs and other services rendered. They offer their services to individual farmers, group of farmers and even other traders; the customer just needs to have the money to pay for the service. Access by producers to the services offered by agricultural input sellers is conditioned by money. A few sellers offer some of their customers the option of making credit, but only loyal customers of the stores receive this favor. Difficulties associated with producer's access to the services offered by agricultural input sellers remain money as producers increasingly complain about the high cost of inputs in the market.

Group actors are a category of private agricultural inputs suppliers, made up mainly of providers whose statutes and identities form NGOs, Cooperatives, associations, CIGs, and community projects. Most of them work with farmers grouped together or belonging to an organization. The terms of access to the services offered by these providers are very often membership of a group. This allows access to a large number of people at the same time, thus reducing the costs associated with providing the service. Providing services to individual producers is very costly for non-profit suppliers. Also, working with a group of people allows certain actors like CIPCRE to reach a specific audience such as young people and women to further arouse the interest of those trained. The CIPCRE sets a very low percentage contribution as a modality (for example 160 people out of the

224 trained, i.e., 71% mobilized their contribution of 30% in cash for the establishment of Biochar manufacturing units and local chili plots, moringa and passiflore). However, group providers with lucrative goals like GADD and the AMGED community project do not distinguish between the beneficiaries of their services, they work with all categories of providers who can pay for their services. These suppliers can be the beneficiaries of their services like farmer organizations, other NGOs, individual producers, traders, or anyone else who may pay for their services.

### **3.6 Nature of the Relationship between the Providers**

A set of relationships and links exist between these suppliers involved in the provision of extension and advisory services related to agricultural inputs. They sometimes meet in the field, collaborating with each other according to their logic which greatly influences the type of relationship they have. The relationship can be competitive or of any other type.

Competition is more accentuated among providers with a market logic which in the context of this work is mainly limited to agricultural input seller which uses more or less orthodox strategies and whose purpose is to make profit. They are most of the times, in disagreement with certain group providers mentioned above. Their relationship is conflictual because their ideologies differ from each other. Some defend organic farming and others defend conventional farming. The nature of the relationships of providers in the field can therefore clash with the purpose of the advisory and extension service provided, thus producing situations of competition or even conflict, as is the case with CIPCRE, GADD, AIA, GIC "Pangweng-Bong" and GIZ who support or work for the promotion of organic farming and whose actions are opposed to that of agricultural inputs sellers and the UCCAO cooperative working more in the promotion of conventional agriculture.

The fact that these providers popularize the same type of agricultural inputs allows them to create links, formal or informal partnerships. GADD and CIPCRE, coordinate their actions in order to share their experiences. They signed a collaboration protocol which allows them to take advantage of their respective expertise in the valuation of biological inputs. GADD has also signed a partnership agreement with the AMGED

project which provides GADD with the compost that its network of farmers needs. Similarly, the community project AMGED has signed a partnership agreement with the AIA association. They are engaged in the production and popularization of compost through the supervision of farmers, the development of community compost beds. AMGED is also working with the CIG "Pangweng-Bong", they exchange ideas in the production of organic inputs. All these providers popularize the same type of agricultural inputs and each maintains a collaborative relationship with the aim of promoting what [16] calls "natural" organic farming, which is characterized by the non-use of synthetic chemicals and according to [16], based on certification via the guaranteed participatory system. GIZ supports this type of agriculture and therefore collaborates with CIPCRE. The inputs popularized by these providers and the actions to achieve them converge towards a production system that maintains and improves the health of soils, ecosystems, and people.

Even if it happens that these providers use different advisory and extension approaches to provide various services to farmers, we cannot speak of compartmentalizing action because the purpose being organic farming, all their actions therefore converge towards this purpose, they are therefore complementary. As agricultural extension and advisory services in the dissemination of organic practices are evolving in a difficult environment (poverty of farmers, lack of real support from politicians...), the few experiments that are taking place can serve as a real opportunity for scaling up so that the political agenda takes these aspects into account for real impact. The issue here would be to investigate how we go about engaging the public sector in promoting, design, and implementing sustainable, ecosystem-based solutions in ways that enhance productivity and reduce the risks faced by smallholders

#### 4. CONCLUSION

The analysis of agricultural extension and advisory services linked to the provision of agricultural inputs offered by private providers to farmers in West Cameroon shows that there is a diversity of suppliers in that agricultural landscape: NGOs (GADD, CIPCRE, GIZ), cooperative (UCCAO), CIG ("Pangweng-Bong"), association (AIA) and the community project (AMGED). These providers use multiple agricultural extension and advisory approaches

in providing services to farmers. These approaches are chosen according to the objectives and the strategies of the provider and can be linked to beneficiaries such as agricultural advice to family farms approach and organizational capacity building approach. Some of these approaches can either be individual such as demand-oriented approach used by agricultural input sellers or common such as agricultural extension used by some providers. In accordance with their objectives which can be profit or social, and their strategies which can be the promotion of organic or conventional agriculture, some of these providers maintain a collaborative relationship and others work in isolation. However, when the actions of the providers are coordinated, this makes it possible to respond to the diversity of farmers agricultural and extension needs. Despite the diversity of providers, the supply of advice remains insufficient to meet the ever-increasing demands of farmers. It is therefore imperative that these providers coordinate their actions on the ground to allow as many farmers as possible to benefit from their services. The advantages of the emergence of this multitude of suppliers are not yet fully realized because producer's access to quality agricultural advisory and extension services remains problematic. Agricultural advisory and extension services must be further decentralized and improved to better take into consideration farmers needs and to adapt innovations to their socio-economic conditions, enable farmers to be more responsible and to be able to harness on farmer's knowledge and experiences. It would be equally crucial to factor climate risks as integral part of extension and advisory services

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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