Poultry value chain in central Africa: status, strategic vision, and guiding principles for the transformation within the LiDeSA framework

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Abstract

The poultry value chain in central Africa is characterized by small and medium scale production based on local and dual-purpose breeds, and large-scale poultry producers keeping specialized breeds of broiler or layers. This review examines the poultry value chain in the Economic Community of Central African States (ECCAS) with the aim of defining the stakeholders, assessing poultry product status and constraints, highlighting a strategic vision and proposing guiding principles toward its transformation within the scope of LiDeSA. The consumption habit of the population drives the observed import of products by central African countries who remain largely importers of these food commodities. Stakeholders are mostly input providers, farmers, processors, packagers, distributors, and retailers, but many other types of actors, enablers and factors should be considered when developing this livestock subsector. The demand of commercial chicken products is high and growing very fast despite numerous challenges. The ECCAS region as supported by AU-IBAR within the scope of LiDeSA envisions a poultry value chain that should be competitive and sustainable enough to contribute to an integrated prosperous sub-region. This regional vision encompasses Central Africa States should have an import-free poultry sector made of farmers preferred and locally adapted breeds satisfying the conditions of faster growth, better laying performances and greater survivability. The prioritized strategic actions included: 1- Public and private investments along the poultry value chain, 2- Health protection, production, productivity, and resilience of regional poultry production systems, 3-Innovation, generation and utilization of technologies, capacities, and entrepreneurship skills of poultry value chain actors, and 4- Access to markets, services, and value addition.

INTRODUCTION

The livestock sector in general plays a pivotal role in contributing towards food and nutritional security as well as being the economic backbone for African countries. The poultry value chain is a multi-billion-dollar business potential (Berkhout, 2020) which is yet to benefit the 70-80% of the people living in rural areas of the Economic Community of Central African States (ECCAS) region. This value chain is grossly underdeveloped in all ECCAS member states and its potential for contribution to the regional market remain largely untapped.

Despite the huge poultry genetic diversity resource base, the region globally exhibits high poverty levels. Yet, this diversity has incredible potential to contribute to income generation, job creation, food security and nutrition, social security and poverty reduction.

Poultry genetic resources in central Africa could play a pivotal role in adapting to changing socio-economic and environmental conditions and to get back on track to meet the sustainable development goals (SDGs) by 2030 after the COVID-19 pandemic (Attia et al. 2022). There are many visions on how to achieve a sustainable poultry that provides enough food and ecosystem services for present and future generations.

The poultry sector productivity challenges are jointly raised by all stakeholders of the value chain. These challenges concern the quantity product available, timing and quality of inputs and services supply, and poultry egg and meat products available in the national and regional markets. On the other hand, poultry producers illustrate the productivity issues in terms of poor legislative and technical incentives to invest in the improvement of productivity due to low returns, climatic and environmental problems, and unavailability and high costs of necessary inputs.

- ***Quality***: consumers identified poor organoleptic characteristics of chicken products as an issue of concern. Consumers in Africa in general prefer more firmness, tenderness and juiciness and flavour (Ndenga, 2019; Muhikambele, 2019; Asante-Addo and Weible, 2019; Asante-Addo and Weible, 2020a,b; Asante-Addo et al., 2020). However, there is no incentive to maintain quality due to lack of standards and grades, while farmers in Central Africa justify the lack of motivation to invest in quality improvement because of high input charges, low-farm gate prices and thus returns to investment.
- ***Inadequate supply of day-old chicks***: Small scale and medium commercial poultry farmers complain of inadequate supply of day-old chicks as a major challenge in the poultry business (CEVA, 2022). They attributed this to inadequate parent stock and inadequate or nonexistence of regulatory systems in distribution, where the largest proportion of farmers represented by small and medium size farms are not supplied until the orders from the few largest farms are met. Although this is potential business investment opportunity, stakeholders are held back by the lack of funds due to inadequate access to financial services and poorly harmonized veterinary and trade regulations in central Africa.
- ***Poor quality feeds***: studies have reveals that most of the poultry feed sold in the region are substandard, largely because on adulteration along the production to retailer chain, but also inadequate storing management. Poor quality feeds limit both production and quality of poultry products (Baéza, 2022). This concern is constantly expressed by both producers and traders of poultry products. Poor feed quality is also due to lack of knowledge in feed formulation among producers and feed processors, high costs of inputs for feed formulation, weak feeds producers' associations, inadequate raw materials and lack of laws and regulations to govern the feeds sub-sector.

  Due to low prices of poultry meat and egg products at the farm gate, there is practically no incentive for farmers to purchase high quality and expensive feeds. Many of them have opted to mixing feeds themselves with often less consideration to biosecurity measures. This is particularly evident with the production of indigenous chicken that are largely left to scavenge and for which there is low management. Viability of commercial feeds sector is also limited by competition for grains for human food supply. Furthermore, inadequate supply of mineral premixes, vitamins and synthetic amino acids exacerbate the problem of low supply and quality of feeds.
- ***High prevalence of diseases:*** Be it in family poultry or intensive commercial production, most poultry farmers in Central Africa admitted disease as a key factor limiting production and quality of meat and egg products (Issa et al. 2015. Keambou Tiambo et al., 2016). They attribute this to inadequate and expensive drugs/vaccines, inadequate extension services and poor enforcement of animal disease laws and regulations. Retailer, processors and consumers along the poultry meat and eggs value chains report the severe impacts of diseases on both the supply and quality of products. Severe disease outbreaks and incidences such as Newcastle disease in poultry reduce production and thus supply of inputs for processing.
- The quasi absence of proximity veterinary service providers is a serious problem, hence while some farmers rely on ethno-veterinary medicine, others excel in self-medication, with known consequences on antimicrobial resistance. Inadequate extension services leads to limited adoption of new technologies.

There have been few bilateral or multilateral initiatives from institution like AU-IBAR, FAO, IFAD, etc. to address the issues raised that constrain productivity in the poultry value chain in Central African countries. Unfortunately, the gaps persist, not always due to lack of knowledge from effective farmers, but sometimes because of lack or inadequate action by the relevant government institutions and the local private sector in terms of enforcement of regulations and financial support. The critical knowledge gaps identified are:

- Limited knowledge on feed formulation and conservation among farmers. Although a considerable amount of research has been conducted in national agricultural research systems (Teguia and Beynen, 2005), the transfer of know-how to poultry has not been effective enough to take the local poultry businesses to the expected level. From some government point of view, the underperformance is attributed to ineffective service provision systems, weak farmer's organizations, limited access to finance and inadequate entrepreneurial skills among poultry to transform knowledge into business enterprises.
- Limited knowledge on poultry breeding systems and management of parent & grandparent farms. Even if the initiative has been pushed to set exotic grandparents farms in central Africa, we should be truthful enough to stress that no expertise, appropriate infrastructure and breeding management system have been put in place to run grand-parent and deliver the expected impact.

Under the auspices of the AU-IBAR's Livestock for livelihood in Africa (Live2Africa) project, The ECCAS region identified the development of the poultry value chain (dual purpose for meat and egg) as its priority regional livestock value chain and acknowledged three key strategic actions necessary for its development (AfricaVet, 2020). Poultry genetic diversity has been identified as an important factor influencing a population's long-term potential for survival in central Africa. Strategic actions proposed for its development included: Strengthening the Policy and Regulatory Framework, improvement of the poultry value chain, and improve the Information System

As for other livestock, the local poultry value chain is complex and comprises composite networks, relationships, and transactions through what the poultry products gain "value" either as their quality improve or as their delivery to the final consumer is made more efficient. Therefore, to ensure efficiency of the value chain, an insight into its technicalities, macroeconomics, governance, social capital issues and dynamics of interlinkages is necessary to penetrate global markets. Such system assessment provides an analytical tool to better understand the policy environment; identify the economic, environmental and social drivers; business linkages and global market environment and promotes the systemic competitiveness required for the sustainable transformation and integrated regional poultry sector for socio-economic development and equitable growth in central Africa.

Currently, the need to drive the adoption of a market-oriented poultry value chain approach has heightened. It is emphasized that interventions that are demand driven and meet market requirements should be promoted. This approach will encourage greater productivity, improve supply linkages, strengthen relationships among suppliers and attract investment across the whole the value chain, ultimately leading to increased incomes for all actors.

Live2Africa is implementing the continental aspects of the Livestock Development Strategy (LiDeSA) through seven key result areas using a value chain approach and could be supporting the transformation of the poultry sector in ECCAS vi one of the result areas on " enhancing the implementation of breeding and conservation programs for sustainable utilization and management of African livestock." This justifies the investment from Lives2Africa towards the establishment of a regional parent stock farm in the Economic Community for Central Africa States.

METHODOLOGICAL APPRAOCH

This is a scoping review of the literature offering an overview of poultry sector in ECCAS countries. Publications were identified through searches of all relevant databases, such as the web of science, Google and Google Scholar, and the Wiley Online Database. The search strategy involved a combination of the following keywords: central Africa, poultry, value chain, food and nutritional security, challenges, indigenous chicken, production system, prospects, LiDeSA. A comprehensive search was conducted to identify eligible peer-reviewed academic articles and grey literature, including publications from international institutions, such as the World Bank, the Food and Agriculture Organization of the United Nations, and AU-IBAR, which always play a significant role in formulating policies and interventions targeting agricultural sector in Africa. Recent government official reports, livestock sector

developmental plans and policies, and data from the National Bureau of Statistics have also been included in this review to address the most recent and accessible developments that have not been reflected in the academic press. The remaining relevant publications were extracted from the reference lists of the reviewed documents, Directory of Open Access Journals, as well as from the knowledge of co-authors. For each country, we examined existing and accessible literature on poultry production. This offer an overview of the poultry sector in the ECCAS regions and interpret its potential contribution to food security, nutrition and poverty alleviation in the context of LiDeSA. We discussed the present and future poultry production gaps, and provided some recommendations oriented toward the improvement poultry values chain in central Africa in the long term within the scope of LiDeSA.

RESULTS

Status of the poultry value chain in Central Africa

Poultry production ranking in Central Africa

African will hosts 25 % of the global population by 2025 (World Bank estimates) yet accounting for only 4% of global poultry meat and egg production respectively, and consumes only 3.3 kg of poultry meat, compared to 14 kilograms worldwide (World bank, 2017). That production also varies greatly strongly per country, where approximately 70% of both poultry meat and egg production is realized in four countries (South Africa, Egypt, Morocco and Algeria).

Poultry already contribute to 50% of the total meat production in Africa (Vernooij et al., 2018), and the demand is expected to rise strongly. Poultry farming in central Africa consists of three different production systems namely the traditional, which refers to back yard rearing of chicken for both eggs and meat; an intermediary system with dual purpose breed producing both eggs and meat and non-traditional system which refers to the commercial farming practice that is relatively modernized. Despite identifying the poultry meat and egg value chain as priority for food security and poverty alleviation, no ECCAS country is part of the top African poultry producers (Kamer, 2022), indigenous chicken still accounts for a larger proportion of the chicken kept in each of the ECCAS Member States. Table 1 summarizes the poultry population and poultry meat production and importation in Central Africa.

Despite the preference for indigenous chicken that induces a markedly higher price in the market across central Africa, the number of exotic chicken genetic resources reared has been growing steadily over the recent years (GIZ, 2018). In comparison to global average and the SSA average there is room for growth and optimistic future for the local poultry industry. Consumption in central Africa is driven by a number of factors including rapid urbanization; growing middle class; increase in disposable incomes; increased number of quick service restaurants; and improvements made in farming techniques i.e. modernization of farms which has led to improved yields. The consumption habit of the population drives the observed import of fresh/frozen chicken meat by central African countries (Mitchell, 2016). This table reveals that all countries in Central Africa are poultry products importers.

Angola, Congo, Democratic Republic of Congo, Gabon and Equatorial Guinea are countries leading the importations. In general, imports of fresh/frozen chicken into African countries increased almost five-fold between 2000 and 2011 when they totaled 1.25 million tons.

As economic conditions improve throughout the ECCAS region, so the demand for animal protein will rise. However, doubts are expressed about the region's ability to meet this growing demand, in which case increased imports are envisaged. The interpretation of import and consumption of poultry products reveals that the potential for intra-regional poultry business in central Africa, hence the need to booster the regional poultry value chain.

Table 1. Poultry population, meat production import and ranking in Central Africa.

Country	Country Population (millions)		Broiler population (x1000)	Poultry meat Production (x1000 tons)	Imports of frozen chicken meat (tons)	Import ratio to the population in 2020	Poultry meat production Rank in		Eggs importer Rank in ECCAS	References
	2020	2030					Africa	ECCAS		
Cameroon	26.3	33.0	31 000	140 787	85	0.003	9	1	9	MINEPIA/DEPCS, Mitchell (2016)
Angola	29.3	39.4	6 650	29.7	301288	10.28	21	2	1	Mitchell (2016)
DRC	90.2	120.3	21 000	11.3	70173	0.78	30	3	3	Mitchell (2016)
Congo	5.3	6.8	1 900	6.7	93767	17.69	33	4	2	Mitchell (2016)
CAR	5.4	6.5	4 040	6.0	624	0.12	35	5	7	Mitchell (2016) ; Ministère de l'Elevage (Feuille de route de l'élevage 2017-2021)
Chad	16.4	22.0	29 000	5.4	257	0.02	36	6	8	Mitchell (2016)
Gabon	1.9	2.3	3 100	3.7	54617	28.75	39	7	4	Mitchell (2016); Douanes Gabonaises,2020;
Burundi	13.1	17.4	4 400	3.6	1	0.0	41	8	11	Mitchell (2016)
Rwanda	12.95	16,3	1 400	2.1	34	0.003	42	9	10	Mitchell (2016)
ST&P	0.2	0.3	-	0.7	1147	5.74	49	10	6	Mitchell (2016)
E. Guinea	1.0	1.2	-	0.2	19220	19.22	51	11	5	Mitchell (2016)

Table 2. Poultry egg production import and ranking in Central Africa.

Country	Layers population (x1000)	Number (Units)	Quantity (x tonnes)	Imports of egg (tonnes)	Import ratio to the population in 2020	Poultry egg production Rank in		Importer Rank in ECCAS	Reference
						Africa	ECCAS		
Cameroon	4,535	1,420,808,381	96737						MINEPIA/DEPCS, EPIA STAT and INS, 2016
Angola			45oo						World data atlas, 2020
DRC			9000						World data atlas, 2020
Congo			1600		22988,5 tonnes (1st term 2022)				World data atlas, 2020; Direction Générale de l'Elevage
CAR			2,395						World data atlas, 2020
Chad			4000						World data atlas, 2020

Gabon	720	165.000.000	2500						World data atlas, 2020; FAO/Direction de l'élevage, 2017;
Burundi	3 427 255	243 224 750	3100						World data atlas, 2020
Rwanda			3000						World data atlas, 2020
ST&P			400						World data atlas, 2020
E. Guinea			500						World data atlas, 2020

Stakeholders of the poultry value chain in Central Africa

Table 3 presents the primary actors and key enablers of the poultry value chain in central Africa.

Poultry value chains in central Africa region consist of many stakeholders and value-chain enablers operating at different levels (local, national and regional/international levels).

Table 3: Various stakeholders and their role in the poultry value chains (PVC) in central Africa

Stakeholders	**LEVEL**			**Role**
	Local	**National**	**Regional**	
Primary Actors				
Producers and farmers' organizations	√	√		Primary stages of production, often organized into cooperatives or local chapters of poultry interprofessions (e.g.: IPAVIC in Cameroon).
Local agro-dealers	√	√		Local business entities who supply inputs such as veterinary drugs, poultry feeds and production equipment.
Processors	√	√		Primary-level processing of poultry and poultry products.
Poultry traders	√	√		Buy poultry and poultry products from producers and sell them locally or to other markets.
Transporters	√	√	√	Channel products from one point to the other
Distributors	√	√	√	Bulking and distributing products such as meat and eggs
Wholesalers and retailers	√	√	√	Provide final the link to consumers in the value chains
Local and National poultry organizations	√	√		Provide an avenue for value-chain actors to come together to address issues affecting specific nodes of the PVC
Poultry value-chain enablers				
Country government and parastatals	√	√		Provide veterinary services and extension to local producers.
Community-based Animal health workers	√	√		Operate particularly in remote areas that are rarely reached by official veterinary officers. Provide 'veterinary' services based on local indigenous knowledge to poultry producers.
Government authorities	√	√		Enforce regulations in the sector, provide basic services, collect local taxes, etc.
Research institutions, policy think-tanks and learning institutions	√	√		Provide research-based solutions for problems in PVC. Policy think-tanks provide policy solutions to poultry sector challenges.
NGOs, CBO and Faith-based Organization (FBOs)	√	√	√	Provide funding to local-level actors.
Bilateral and multilateral, organizations	√	√	√	Support national government in meeting investment needs.
Continental and regional economic communities (the AUC, AU-IBAR, ECCAS, CEMAC) regional institutions (FARA, CORAF, CEBEVIRHA)	√	√	√	Setting the integrated regional development agenda including poultry value chains. Promote trade between Member States
Financial institutions, insurance companies	√	√	√	Financial support to accompany farmers in their investments
International research organizations (ILRI, CTLGH,)	√	√	√	International research institutes have a regional or global mandate to address issues that are relevant to the region.

This value chain is a sequence marked by value growth and coordination at each stage of poultry production, processing and distribution, driven by consumer demand. It encompasses a range of support functions, such as input

supply, financial services, transport, packaging, market research, value addition and promotion of farmed products (CTA, 2012).

Strengthening the capacities of primary actors is essential for ensuring that stronger value chains are developed. Furthermore, ensuring that they get a fair and equitable share of the value generated by the value chain is essential for creating incentives for increased and sustained production in the region. The enablers play a very important role in the development of the regional poultry value chain: National government create conducive policy and regulatory environments that provide incentive for all other value-chain actors.

Major considerations for the poultry sector in Central Africa

Stakeholders of the poultry value-chain in the ECCAS region face several constraints that affect effective implementation of their roles. Figure 1 recapitulates the priority considerations for the development of the regional poultry value chain in central Africa. These include inputs; Production capacities; hygiene and biosecurity, transportation, and cooling; Marketing and trade; Associations and farmers collective actions; Knowledge and training; and the governance within the sector.

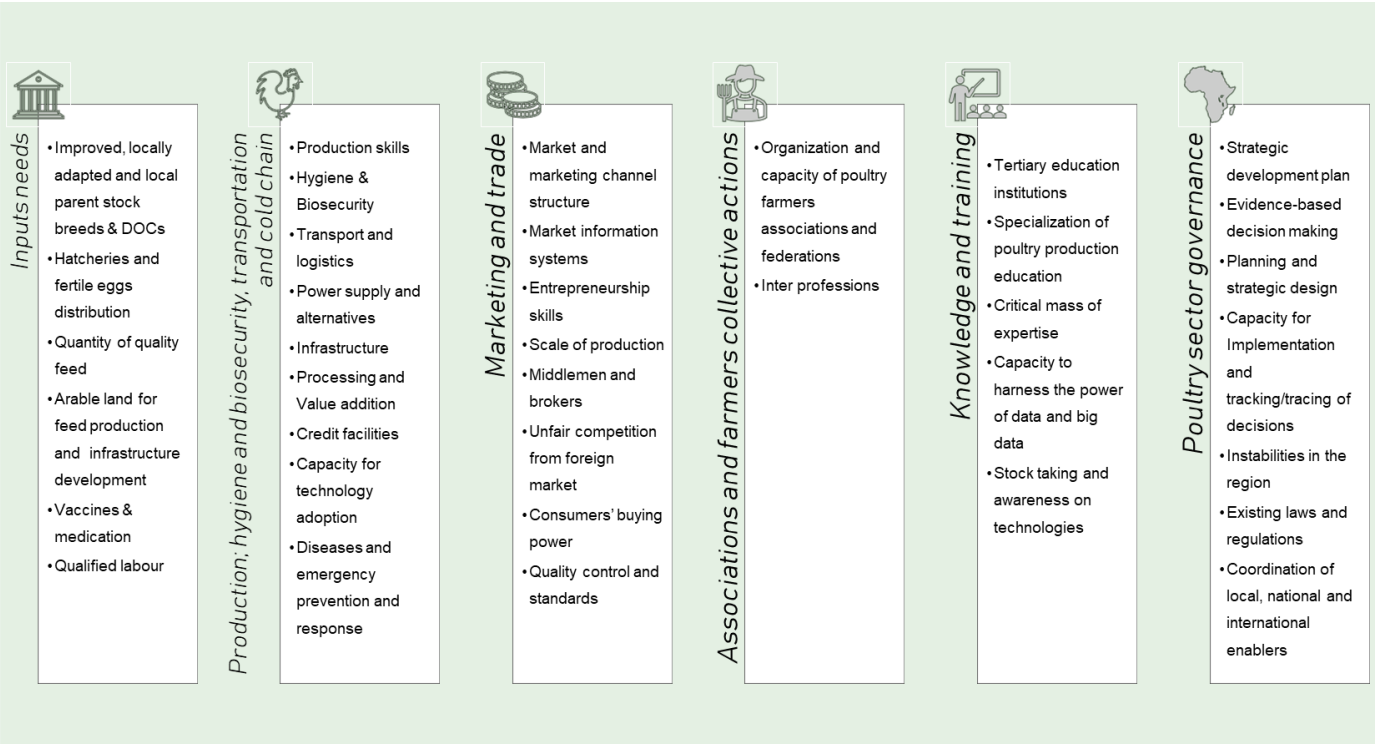

Figure 1: Major considerations for the development of the regional poultry value chain in central Africa

Local and locally adapted dual purpose chicken breeds are most popular in both urban and peri-urban areas, are largely preferred and having a growing market thanks to the growing acceptance by consumers and their resilience to the production system (Manyelo, 2020). However, the supply of parent stock and subsequent day-old chicks to out grower farms remain a bigger challenge, and ECCAS countries are largely dependent on imports of exotic poultry genetic resources. In the hatchery capacities, Cameroon is the only country of the region with a fairly acceptable local commercial poultry sector, yet the national demand is never met for the supply fertile of eggs and day-old chicks. Due to attractive prices, there can be a temptation for regional export business of fertile eggs, DOCs, feed and technologies from Cameroun to other ECCAS Member States, but these exports still hamper the local

markets as local demand is not fully met. Despite the quantity of academic research on alternative feed stuff, feeding poultry remain one of the most important challenges (Hafez and Attia, 2020), and the absence of quality control at the port of entry, as well as the poor stocking condition of local supply are motives for very poor quality of feed served to animals. The same applies to the importation of veterinary medicine, while the potential of ethno pharmacopeia hasn't yet been tapped at its optimal level. the cold chain in most of the countries are totally inefficient and affect the conservation of vaccines, hence most vaccine reach farmers when their quality become questionable. The local supply is also seriously affected by local policies limiting access to arable lands.

Financial institutions in central African remains reluctant to invest in poultry production business, the main argument been the absence of predictability of the markets (Farmers left on their own use available resources with little support from the extension services, and that has consequences on the level or new production technology adoption. In the domain of production, hygiene and biosecurity also affect the profitability of the business because of often high mortalities and microbiological quality of the products limiting their standard for export market. Transport infrastructure can be a hassle to reach production site in most countries in ECCAS (Ranganathan and Foster, 2013), where the instable supply of power also constitutes a handicap for poultry products processing and value addition. This justifies the high levels of post-harvest losses.

Being another major area of consideration for the development of the poultry value chain in central Africa, marketing and trade channels are poorly structures (Signé, 2018; UNCTAD, 2021; AfDB, 2018). Access of small-scale producers to the market is too weak. Middlemen take the advantage of poor marketing channels to lower the price of the chicken and eggs at the farm gate and get high prices at retail, and the lack of entrepreneurship skills denotes the inadequate capacity of local producers to participate in regional and international trade in poultry and poultry products.

There are several poultry associations with varied status and ambitions in all countries, but they are not well organized. Federation, education and networking into a regional interprofessions of local poultry producers is needed to booster the development in a regional poultry sector in Central Africa.

Predominantly at producer level and for small holder and medium scale farmers, lack of knowledge and poor training negatively affects their production capabilities. There is minimal to no practical poultry specific training institutions in Central Africa. Tertiary education institutions do not specifically offer training in poultry but general training in livestock veterinary and breeding. In general, research agenda on poultry development in central Africa lack prospective vision and limit itself on fixing temporal of short-term low-level issues. This approach of personal research agenda doesn't favour production and recording of inconsistent and reliable data to build the national or regional poultry development indicators.

As long as governance is considered in the poultry Sector in central Africa, there is no long-term vision for poultry development, there is no planning and strategy design of the national poultry sector to feed the growing population. This constitutes a vicious circle supporting inadequate funding, hence limited capacity and commitment for evidence-based planning, and monitoring and evaluation, low prioritization of poultry in development programmes and strategies, and unreliable data on poultry. When support arises from various bilateral or multilateral donors like the Live2Africa project from AU-IBAR, implementation capacity of policies, greediness of leadership and absence of strategic vision re-surface, with inadequate institutional coordination mechanisms among actors, wrong casting of projects stakeholders, Lack of an enabling environment for private-sector investments in livestock interventions, tec.

These considerations bear various forms of constraints that are generally more exacerbated at the local than at the national level, most likely because local authorities face more technical, organisational, and financial challenges

than national-level actors. Similarly, in comparison, small-scale farmers face more constraints than large-scale farmers. There is also variation in occurrence of constraints across poultry production systems. Effectively addressing these constraints requires paying attention to spatial variation in the nature and severity of the constraints. It is critical to have targeted and tailor-made solutions for different geographical areas and poultry farming systems.

The highlights for the commercial poultry market in central Africa are a growing urban population and growing retail sector (fast food branches, supermarket branches and restaurants). The demand of commercial chicken and eggs is high and growing fast.

Delineates the key challenges and considerations in the poultry sector in central Africa

As from the of the major areas for consideration, four main delineations could be outlined as targeted priority areas for the development of the regional poultry value chain in central Africa: inputs & production re-enforcement, processing for value addition and post-harvest loss control, marketing and trade development, and institutions and policy (figure 2).

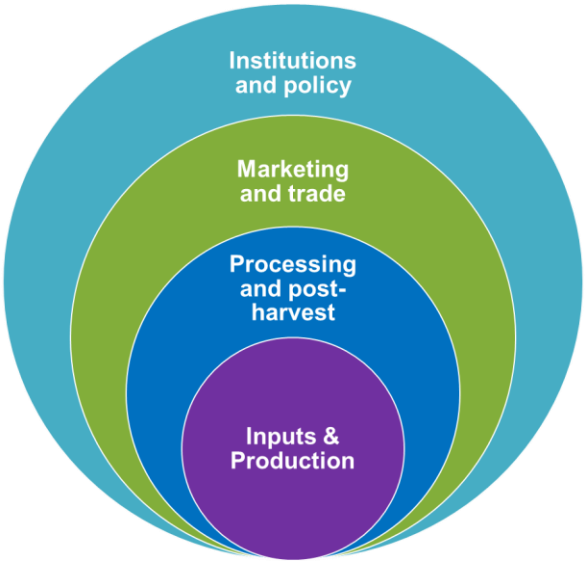

Figure 2: Target action priority areas for the development of the regional poultry value chain in central Africa

Inputs and production

Production can be sustained only if adequate inputs and skills are applied at different levels. Inadequate utilization of locally improved and dual-purpose breeds is attributed to slow multiplication and supply of improved breeds due to low adoption of improved breeding technologies. In Central Africa, there is contradicting opinions between the producers and other actors of the value chains regarding poultry meat and egg products handling and processing. In ECCAS like many other African countries, local chicken is becoming an important source of meat among all categories of consumers. However, production is far below the demand. The low supply is attributed to poor husbandry practices, poor genetics, diseases and the subsistence mode of local chicken production system. Most stakeholders of poultry value chain identify lack of access to credit as a limitation to investment (Omondi, 2022). Financial services attribute it to low returns to investment and no provision of such credit windows in their investment plans. Most of the stakeholders in Cameroon for example are of the opinion that the problem can be solved by forming and strengthening local poultry farmer co-operatives and formation of savings and credit societies dedicated to this sector. Also, with the costly nature of putting up meat plants and absence of incentives to attract

investors, the local government should take the responsibility of building and leasing out to the private sector or running the facility as a joint venture Public Private Partnership. Low quantities and irregular supplies of poultry meat and eggs are due to poorly organized and non-functional collection systems resulting from weak farmer organizations, poor roads in rural areas and expensive transport system. Stakeholders in the poultry value chain also attribute inadequate supply of poultry products to poor nutrition resulting from suboptimal quality and quantity of feed inputs, particularly maize and soya bean (Dei, 2017).

Processing and post-harvest loss control

There is limited or no adequate facilities for handling and processing of poultry meat and egg products. This is identified by producers as a limitation to large scale production, as specialized slaughterhouses and cold stores would have reduced the time chicken spend at the farm beyond slaughter age. On the processors side, it is considered that the main problem is the inadequate and low-quality supply of raw material from the farms to fully utilize installed capacity and to provide them with the opportunity to expand the existing plants. Consumers complain about the way local poultry meat processor and vendors conduct businesses in poorly hygienic facilities, or open-air exposed meat, which lack cold storage facilities contributing to untrusted hygienic quality of poultry products.

The per capita consumption rates for poultry products in central Africa is very low despite the absence of taboo on chicken products as observe in the case of pig or some non-conventional livestock (FAO, 2013). This may be due to lack of awareness resulting from inadequate knowledge on their health and nutritional benefits and inadequate financial capacity of the population. The constraint can be solved through capacity building and promoting consumption, mainly in schools and hospitals where poultry products are most likely to have a positive impact on health and cognitive aptitudes of populations. This is however, hindered by lack of local of external funds for promotional campaigns, seminars, workshops, and short courses.

Further, concerns of poultry retailers and wholesale traders include poor or no efficient cold chain systems for marketing facilities, and poor road networks in rural areas, what create lot of post-harvest loss. The use of refrigerated trucks would have been part of the solution but even that is missing in the region. There are almost no poultry abattoirs and slaughter slabs, lack of appropriate technology in meat cutting and packaging and unhygienic environment. These constitute a vicious cycle where few investors are hesitant to invest in handling and processing facilities for fear of low-capacity utilization, while producers are reluctant to increase production because of perceived low offtake.

Marketing and trade

Poor productivity, handling and processing of poultry products are hindrances to marketing and trade of poultry products (Hafez and Attia. 2020). Other issues raised included the general informality of livestock trade, high transaction costs, inadequate regional supportive infrastructure, heavy taxation within and across countries, lack of standards and grading systems, poor hygiene of most outlets, unfair competition from imported products sometimes supported by corrupted civil servants from local ministries, inappropriate vision from ECCAS and CEBEVIRHA as regional institutions and limited business management capacity of stakeholders along the value chain. The capacity to consume exotic product been a snob attitude in central Africa, while nearly all the stakeholders along the value chain highlight restricted national and regional demand for local products as a major issue.

Poultry products, especially live animals attract many taxation charges, including intra country and local authorities' dues (UNCTAD, 2021). One of the major concerns in many countries of central Africa is that local authorities charge some of these taxes without willingness to provide the service that taxation is normally supposed to cover. This then simply reflect corruption and oppression of producers, since at the end of the day, the high tax burden is

transferred to the poor and smallholder poultry farmers, and to the consumers through retailers, contributing to the cycle of impoverishment and social inequality.

Market information is critical for decision making at producers, retailer, and consumers levels. Currently, information on demand and supply of poultry products and information in terms of process in various markets within each country and the region is very limited. However, there are appreciable efforts of few startup initiatives trying to cover this gap, despite their efforts are still to be supported locally and streamlined. It is highly suggested the establishment of mechanisms through the ECCAS and the respective countries by which poultry producers, retailers and consumers can access relevant information on markets, products, and prices.

Unsatisfactory entrepreneurship and business management skills among stakeholders of the regional poultry value chain is of great concern to the development of the regional poultry industry. As opposed to sister value chain in east Africa, the lack of skills could be attributed to the lack of efficient poultry industry training curricula in ECCAS learning institutions, where lecturers themselves are disconnected from the poultry industry, and the general perceptions that family poultry enterprises are only for subsistence and non-lucrative.

Unfair competition with imported products adversely affects the local poultry industry (Johnson, 2011). Only Cameroon at time was able to band all import of poultry products and relied on the local supply, but even there the situation has been degraded by lack of enforcement of existing trade policies. The low demand for local poultry product, especially for poultry meat is attributed to low purchasing power of local consumers who then turn to the cheap imported cuts of unknown qualities. The gaps left by the long awaited regional zoosanitary protocols was also in favour of permissive market. CEBEVIRHA has just committed a regional zoosanitary protocol, which is yet to be adopted within countries and enforced both at the national and regional levels. Such regulation would assist to harmonize inter-regional trade in live, fresh and processed poultry products in the region.

Institutions and policies

It is of the general opinion of stakeholders that most constraints facing the sector are due to weak institutional framework, not only within the countries, but also at the ECCAS and CEBEVIRHA levels where lack of staff and limited operationalization of policies is observed. The lack of clear policy directives on several issues and even the enforcement of existing one influences the development of the poultry value chain in central Africa. critical areas include taxation and tariffs, transboundary movement of live animals and other poultry products. Establishment of a comprehensive regional policy to address all livestock trade and information issues is highly solicited and to be aligned with the requirements of the African Continental Free Trade agreement (AfCFTA). Cases have been observed where chickens are hosted in the market pens for many days, often slaughtering and processing is done *in situ* (GIZ, 2018), and contribute to environmental pollution and are subject to less or no attention by regulatory authorities. This also come as the results of low effectiveness of support from poultry extension services and inadequate support from the government in terms of inputs and facilities.

Poor execution of disease control regulations in all countries of the region has resulted in endemic nature of some poultry diseases. The poor performance of the veterinary services is further attributed to low numbers of veterinary health workers, especially at rural levels, adding to the high costs of vaccines, drugs and feeds. The penetration of substandard and adulterated inputs on markets in central Africa is a regional threat that needs to be address quickly and at the One Health level.

Challenges in complying with the abundant and varied and often duplicated laws and regulations pertaining to issues related to livestock in general, because they are too many not harmonized across the different regulatory bodies. This could also be due to high fragmentation of agriculture-related ministries and authorities and lack of clear

definitions of portfolios create conflict and confusions at the level of law implementation. Similarly, disconnected laws, regulations and regulatory bodies dealing with livestock in ECCAS countries is a constraint to the development of the regional poultry value chain.

The analysis of the poultry value chain in central Africa reveals that most initiatives and policies do not have a value-chain approach, instead are incoherently focused on specific nodes of the value chain. Furthermore, majority of interventions are meant to address livelihood challenges rather than value-chain challenges per se. Within the scope of LiDeSA, and to contribute to the UN SDGs, supporting the ECCAS poultry value-chain development while helping small-scale farmers to integrate the regional market system will help meeting the livelihood targets in the region. There is a serious gap that need to be cover in the coordination between different regional initiatives and policies, to avoid duplication of efforts and loss of opportunity, and to create synergistic regional poultry platform.

Vision, strategic approach, and guiding principles for the transformation strategy of the poultry value chain in central Africa within the scope of LiDeSA

The ECCAS region envisions a poultry value chain that should be competitive and sustainable enough to contribute to an integrated prosperous sub-region. That vision within the scope of LiDeSA is to have an import-free poultry sector made of farmers preferred and locally adapted breeds satisfying the conditions illustrated in the figure 3. The goal been to transform the regional poultry industry as a driver of socio-economic development and equitable growth, food and nutrition security and human well-being.

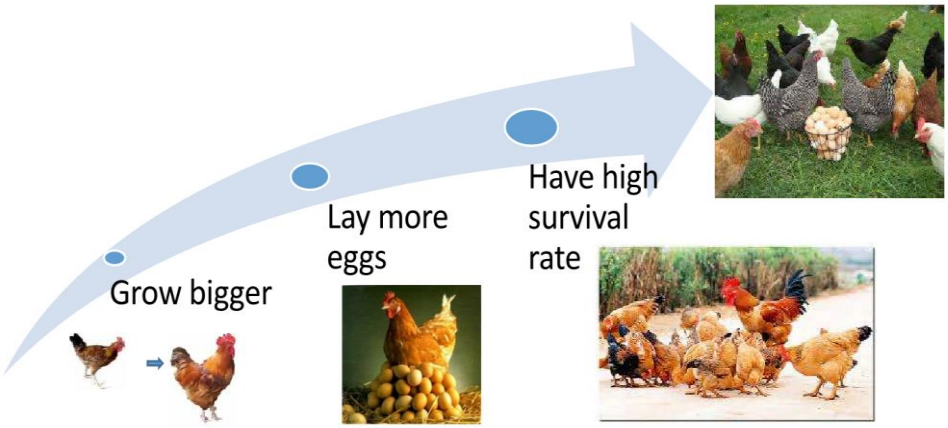

Figure 3. Required characteristics of poultry breeds for the central Africa poultry value chain development.

With facilitations from the various enablers, is it estimated that a 24-month period could be enough for an effective poultry sector transformation following the dissemination model as proposed by Tadelle (2013) (figure 4). This model can be implemented simultaneously in multiple geographies and countries.

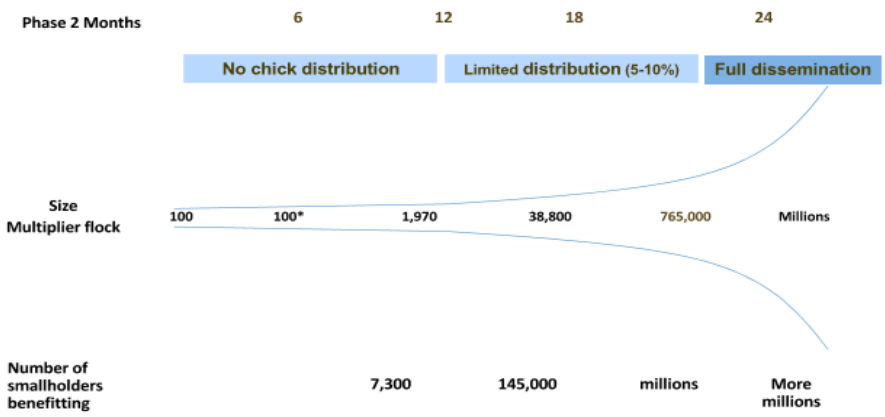

Figure 4. Scenario of scaling up for impact in the transformation of the poultry value chain in central Africa.

The strategic approach for transformation

The desired transformation of the poultry value chain in Central Africa could be supported through national or regional, bilateral and multilateral development initiative (eg: AU-IBAR Live2Africa project, AUC Africa seed and biotechnology programme, etc.) and backed up by effective evidence-based solutions to the key issues that underpin the takeoff of the sector. The envisioned transformation of the ECCAS poultry value chain will only be achieved if the prevailing production systems are transformed into vibrant comprehensive or integrated business-oriented systems by addressing the policies, structural and functional challenges affecting the sector. This transformation plan will be realized through increased public-private partnerships that could catalyze a minimal annual sectoral growth of around 5-6% to reduce dependency on imports and maintain the trade deficits at the lowest possible levels. The strategic transformation of the poultry sector value chain in ECCAS should address the following:

- Locally adapted and productive genetic resources and their demand-led improvement,
- Capacity development for local human resources and infrastructures to cope with the desired production and productivity level, and application of innovative technologies as proposed by the Centre for Tropical Livestock Genetics and Health (CTLGH) on conservation and large-scale dissemination of elite locally adapted breed using the surrogate sire-dam host.
- National and intra-regional availability of inputs, supply chain and service delivery
- Efficient poultry health and disease prevention and control systems, and enforced compliance with sanitary and phytosanitary standards,
- Value addition, biosafety, market information and infrastructure for international competitiveness.
- Improvement in national and regional policies, legislations and institutional frameworks for free movement of poultry value chain expertise, inputs and services.

The Comprehensive African Agricultural Development Programme (CAADP) Framework and Agenda call for a radical shift in the political economy of agricultural investment to make it more evidence-based, inclusive, participatory, and results-oriented, rather than the “business as usual” practice of making technical investment decisions without necessarily linking the investments to the desired performances of economic and development outcomes (AU-IBAR, 2015). That approach is to ensure that investments are matched with the real needs of the regional poultry sector and therefore, are designed to harness the sectoral potential for equitable economic growth and sustained socio-economic development.

For the expected breakthrough to take place, there is need to provide sufficient incentives to private investor (enterprises, small scale producers, and the largely informal small and medium enterprises (SMEs)) to substantially increase funding in the regional poultry industry. The role of the governmental bodies should basically be focused at ensuring that public goods, services and social responsibilities are guaranteed, while creating the conditions for stimulating private sector investments in a sustainable way.

Guiding Principles for the implementation of the strategy

The implementation of the strategy for the transformation of the poultry value chain in Central Africa should be based on the principles of subsidiarity, complementarity and comparative advantage taking into account the regional integration, the mandates and relationships of the different regional and national institutions involved.

In the scenarios of effort mutualization, transparency and mutual accountability will be crucial, and mechanisms should be put in place to ensure compliance to these principles. Emphasis should be placed on establishing solid mutually beneficial partnerships among the various stakeholders at national, regional and international levels based on the experiences and lessons learned from previous programmes.

Strategic action packages for the transformation of the regional poultry value chain (RPVC) in central Africa withing the LiDeSA framework

Within the scope of the Livestock Development Strategy for Africa (LiDeSA), the strategic objectives of the poultry sector are to ensure coordinated actions at ECCAS regional and national levels to promote synergy in addressing critical issues facing poultry value chain development, and to bring about tangible actions that will lead to the realization of the full potential of the poultry sector as vector to food and nutrition security and sustainable economic growth and development. This is to provide a coherent regional long-term approach that will unlock the value of the local poultry asset; untapped multiplier potential; and distributive capacity of the sector.

Public-private investments along the poultry value chain in Central Africa

Priority component of the RPVC with comparative advantage levels identified, mapped and promoted

In order to maximize the use of resources available and engender best returns on investment, component of the poultry value chain to invest on should be selected on the basis of their best comparative advantage. This means not necessarily trying to produce all the poultry products required and/or consumed in each country, but to give priority to those products it is best poised to produce at best competitive cost. The main effects being not only to substantially improve the productivity through economy of scale, specialization, optimization of utilization of production factors and natural resources, but also to boost intra-regional trade, generate employment and revenues downstream.

The main weakness with this approach could be the increased risk due to intensification and specialization (sanitary risk, climatic risk, economic risk, etc), this risk could be mitigated via application of a well weighed risk exit strategies:

- The key components and actors in the RPVC should be identified, mapped, analyzed and compared for their efficiency, productivity, contribution to the economy and socio-economic factors such as purchasing power, job, risks and negative externalities (environment, public health, social biases, etc.).
- The priority RPVC components and actors to be supported should be selected in a consultative and inclusive method guided by the analysis sus mentioned. This should best be at country level, with regional/ECCAS engagement for inter- regionally traded commodities, while ensuring that the interests of all social categories of local stakeholders are protected in the process.

The asset values, socio economic benefits and potential of the component of the RPVC recognized

It is always critical to convince both private and public investors that the poultry sector is worth investing in and that returns on investments will be attractive and competitive in comparison to other financing opportunities. Returns on investment could be of monetary nature to be attractive to private investors, or in-kind in terms of environmental, social, sanitary, or nutritional benefits etc., to attract interest from charitable donors and public sector:

- Assessment of socio-economic benefits should be performed to produce an evidence-based report of the poultry contribution to national GDP. This could assist the countries in prioritizing their component of the RPVC for investment.
- The results and reports from evidence-based studies on the contribution of poultry to member states GDPs and regional economies should be packaged for decision makers and investors, by utilizing market smart advocacy methods.

Public and private sector investment policies, incentives and regulatory frameworks to enhance performance of priority RPVCs developed and implemented

Once the priority component of the poultry value chains would been selected, investment policies should be developed to attract investment:

- Local policies should be reassuring for investments, by making attractive and conducive conditions for regional private investors (eg: simplified and rationalized one stop shop procedure for business creators). In addition, economic incentives (tax exemptions or other favorable tax regimes, subsidies and co-funding, re-designation of public land etc.) should in place for easy investments.
- Encourage and establish groundbreaking funding mechanisms to improve access to capital. These could include trust funds, guarantee funds, subsidized credit, smart subsidies and grants, poultry farming insurance, payment of ecosystem services and micro and rural financing for small-scale producers.
- Improve inter-sectoral connections and collaboration to enhance public funding (resolutions of the Malabo declaration) and ensure infrastructural development to support the RPVC.

Safeguard mechanisms to minimize the impact of negative externalities on public goods

Efforts should be geared towards sustainable intensification of elite locally adapted and dual-purpose breeds, while ensuring that intensification does not generate unnecessary negative effects that could in turn affect both human and environmental health. This would need a strategy to ensure that a monitoring tool exists for such adverse effects, and that investment policies include response provisions to safeguard assets that could be affected.

Health protection, production, productivity, and resilience of RPVC

Improved poultry health systems and impact of diseases on production, productivity and public health minimized

Systematic efforts are needed to bring Central Africa's veterinary services to the acceptable core competences standards as described by the global PVS assessment tool. The effective control of poultry diseases in central Africa will require consistent action and input of all stakeholders:

- Strengthen poultry health systems and service delivery to address regional review and modernization of policies and legislation and enable multi-sectoral collaboration in line with the one health approach.

- Enforce cross-border collaboration and free movement of expertise, strengthening and harmonization of disease surveillance/detection systems, laboratory systems, technology transfer, twinning and public private partnerships (PPP), enforce compliance with zoosanitary standards.
- Strengthen and harmonize poultry veterinary curricula and training with the necessary knowledge to perform efficiently and deliver quality services in line with OIE guidelines, and facilitate exchange programmes across the region.
- Standardize and apply poultry veterinary practicum and drug legislations to improve compliance and standardization of veterinary and welfare policies, strategies, standards, methods, and regulations in poultry industry. This could be key to mitigate the issue of anti-microbial resistance induced by inappropriate application and the use of un-regulated veterinary products.
- An accurate and dynamic map of poultry production and health database could guide in regional planning, policy formulation and legislation, promotion of regional trade and for advocacy to attract and promote investment and resource allocation to the RPVC. In that regard, the Animal Resources Information System 2 (ARIS 2) supported by AU-IBAR should continue building capacities of member states on information and knowledge management. This could also serve in rapid respond to disease outbreaks and to properly plan national and regional interventions in poultry production, marketing, and trade.

Genetic potential and performance of indigenous and locally adapted improved dual-purpose breeds

The potential genetic of indigenous and locally adapted dual purpose breeds is huge and untapped. There is a need to identify and exploit their unique adaptive traits (heat and disease tolerance, aptitude for suboptimal feed, etc.). Strategies to contribute to this achievement could be:

- Develop a regional and national genetic improvement plan and access to appropriate, productive and resilient breeds that best match the production systems/environments mediated by innovative research and development, business, PPP and ICT. Take stock and evaluate local and locally adapted poultry breeds.
- Formulate and promote institutional and policy frameworks for the sustainable management of poultry genetic resources.
- Design and implement innovative and sustainable poultry breeding and conservation programmes.
- Develop a suitable and effective poultry seed delivery system for superior genetic material. Lessons learnt and good practice examples from East African countries (Kenya, Tanzania, or Ethiopia) on dissemination of quality chicks and fertile eggs of the locally evaluated and certified should be drawn to customize improved approaches in central Africa.
- Develop and support inclusive community-public-private partnerships and business models for generation, implementation, and delivery of appropriate genetic resources.

Availability and access to quality feed and water enhanced

Considering the challenges for running water supplies in all member states of ECCAS and the excellent rainfalls, water-harvesting, storage and conservation techniques should be promoted in farmers milieu. Since many decades the University of Dschang in Cameroon has devoted a research line on non-conventional and locally available feed resources, however, those results are largely not exploited. Some of the following strategies could be considered.

- Harness the comparative advantages of the different agro-ecological zones to best match production systems and environments at national and regional levels. Intra-regional trade would then drive optimal use

of areas of high production potential to supply those which are not suited but with high demand for poultry products.

- The development of a feed resource base catalogue will provide support to the design of poultry production programmes that maximize but do not overexploit available feed resources, and not compete with humans for essential food source in the country or regions. Partnerships between feed technology researchers and the private sector are essential to generate, promote and make these technologies accessible to farmers. Success stories on vertically integrated food retailing models like Zambeef in Zambia, should be identified and studied for guidance on the enabling ecosystem and incentives to enhance standardized feed production.

Promotion of intensification of local poultry production systems in central Africa

If the current and predicted increasing shortfall in the supply of poultry source foods by central African poultry farmers is to be met, production systems must be intensified. This requires a "revolution" where farmers gradually shift from subsistence systems to more market orientated systems. This could require:

- Mapping of high potential nodes for intensification and development of appropriate models at national and regional level for the poultry production systems to be sustained, and guide on the prioritization of development efforts.
- Support, incentives, and capacity building for poultry producers if they are to increase their productivity.
- Innovative research and development in intensification systems, upscaling and improving dissemination of existing technologies: National and international research organizations such as CTLGH and ILRI are generally most prompt to collaborate in innovative research to develop appropriate technologies for the intensification of poultry production.

Climate change and variability risks managed

The anticipated response from the poultry industry to climate change will require appropriate early-warning systems, adaption to manage variability risks and mitigation to reduce the level of negative impact of sustainable intensification. This will imply:

- Mainstreaming climate change and variability planning and the development and adoption of appropriate technologies.
- Promote early warning climatic emergencies preparedness and response mechanisms for drought, floods, etc. A comprehensive Poultry Emergency Guidelines and Standards (PEGS) contingency plans should be in place and ready to be deployed.

Establish social measures for poultry farmers livelihoods protection and diversification

While emphasis is being laid on increasing poultry production and productivity, it is important to ensure that this is not achieved at an unacceptable cost in terms of lost livelihoods and social deprivation in farmers communities. Measures should be in place to protect farmers communities and vulnerable groups to the impact of transition with support for alternative livelihoods and traditional social safety nets:

- Create enabling conditions for strengthening and harnessing social protection mechanisms and traditional social safety nets as a community-led mechanism to assist distressed farmers.

- Create enabling conditions and incentives for diversification of poultry livelihoods and sustainable exit/entry into alternative livelihoods. Similar initiative has been seen with community-based conservancy programmes involving additional income from agro-ecotourism by practicing integrated commercial and ornamental poultry management.

Environmental health and ecosystem services enhanced

The emergence of markets for carbon sequestration presents an opportunity for farmers to earn carbon credits, particularly for communities in the Aride and semi-arid Lands (ASALs) to benefit from their environments and ensure their sustainable management:

- Develop enabling conditions and promote innovation, incentives and partnerships to reduce greenhouse gas emissions, degradation and other negative impact.
- Create enabling conditions to institutionalize and generate incentives for enhancing poultry ecosystem services, carbon credits, nutrient recycling, and contribution to water recharge systems.

Innovation, generation and use of technologies, capacities, and entrepreneurship skills of RPVC actors

Central Africa could better focus on harnessing existing but underutilized technologies and promoting poultry innovant technologies and entrepreneurship hub. This will improve the performance of the RPVC, facilitate, attract and retain the participation of various stakeholders, particularly women and youth.

Use of existing technologies

A big number of available technologies with proven potential to impact positively on the performance of poultry value chains remain unutilized or underutilized. up-taking and up-scaling of those tools could help to realize impacts within the shortest possible. This requires:

- Inventory of technologies and local knowledge that can be exploited and prioritized at regional level and within the member states.
- Disseminate and promote suitable technologies through extension services and dissemination to stakeholders for well-versed decision-making on their adoption.

New technologies generated and utilized sustainably

Currently, most poultry investments in the region are dominated by the informal private sector acting as a source of innovation and local investment. However, that local potential for investment remains untapped. Here is necessity for policy, legal and regulatory frameworks supported by incentives to facilitate the organization, accessibility, and operationalization of local funds mobilization mechanisms to support innovation.

A key focus for enhancing the capacity for the generation of new technologies for sustainable utilization will be the provision of support to national agricultural research institutions to effectively fulfill their mandates. A Regional centre of excellence in poultry research and development should be developed and implemented to enable it to play a bigger role in supporting the capacity development of national institutions along the components of the poultry value chain.

Access to markets, services, and value addition

To remain aligned to the LiDeSA, the development of the RPVC in Central Africa should also focus on enhancing access to markets, services, and value addition by addressing the constraints local poultry producers are facing. This should be done taking into consideration the high transport costs in the region, poor storage facilities, volatility in access to market information, accessing quality inputs and informed services, the evolutionary demand in sanitary standards and illegal competition from imported poultry products.

Marketing and value addition infrastructure improved

The improvement of market and value addition infrastructure could best be implemented by fostering the creation of private / public partnerships (PPP) and increased governments investment in public goods infrastructure and services on a build, operate and transfer (BOT) model:

- Promotion of innovative PPP for infrastructure development to make them appealing and safe for private venture capital.
- With respect to the pillar II of CAADP (Improving Rural Infrastructure and Trade Related Capacities) and in line with the 10% budgetary allocation as agreed under the Maputo Declaration and reaffirmed at Malabo, local governments should increase investment in the provision of services to poultry farmers in rural areas.
- Promote the Build, Operate and Transfer (BOT) and Design Build and Operate (DBO) Models to fund the renovation of existing or construction of new poultry market or slaughterhouse according to the required norms and standards for the operation of a modern market chain.
- In the BOT, governments could grant to local private firms the right to develop and the franchise to operate a facility or system for a given time.
- In the DBO, governments could own and finances the creation of new assets, and private firms designs, builds and operates it to meet certain agreed outputs. The firm invest on the capital and will be compensated for the design-build of the asset and then an operating fee for an agreed operating period.

Value chain approach adopted by stakeholder/ total value increased

Poultry service providers in central Africa need to break-down barriers and adopt the value chain approach within collaborative multi-disciplinary teams that bring comprehensive and up-to-date technical advice to the production, processing and marketing components of the poultry value chain:

- Each member state's success stories should be shared within a regional platform, and replication allowed.
- The operationalization of the regional center of excellence in poultry value chain will facilitate the identification and piloting of new evidence-based value chains.
- stakeholders' organizations should be linked to the regional centre of excellence which should set up a coordination network, via an e-platform, to enable information exchange between those organizations.
- ECCAS and CERBEVIRHA should be actively engaged with the regional poultry value chain platforms to enable exchange on policy matters in relation to the poultry value chain commodity thematic agenda.

Leverage on ICT to improve access to markets and services and value addition enhanced

Trainings supported by AU-IBAR Live2Africa project on the poultry value chain in centre Africa demonstrated that opportunities exist to apply ICT to facilitate communication and access to information, identify markets, for production of innovative quality products, product promotion, to improve transactions, for market research and analysis, to access international markets, for on-line selling, for networking and to lower transaction costs. Enabling

poultry producers and service providers make informed choices concerning the use of ICT and guidance on access and could use the following approaches:

- Implement the regional ATicHubs to develop innovations for poultry marketing, information sharing and other services including financial transfers, disease reporting and extension. This could be done in partnership with ICT companies.
- Facilitate access to a full range of communications services; creating strong institutional arrangements and technical capacity and competencies; and a consumer-friendly taxation environment.
- Encourage value addition and apply dis-incentives for export of raw poultry products.

Sanitary measures affecting poultry health, food safety, public health enforced

ECCAS Member States should support, implement and enforce OIE and Codex SPS standards while maintaining good One Health practice.

- Capacity development and coordination mechanisms for zoosanitary enforcement to enhance compliance with standards in the domains of disease control, surveillance, laboratory, diagnosis, trade, vaccine production, poultry feed, food safety, drug registration, certification, and traceability.
- Advocacy and lobbying among stakeholders of the poultry value chain to enhance knowledge of and compliance to standards to be aware of and to comply with SPS standards.
- Support cooperative development and public-private partnerships.

Access to inputs and services improved

Increased access to inputs, services and markets should be facilitated for poultry and poultry products. For it to be effective, the following strategies could apply:

- Promote innovative PPP enabling private sector, and mostly poultry farmer cooperatives participation in the provision of services and inputs.
- Create aiding policy setting and incentives to reduce the cost of inputs and services. Some countries cannot see their poultry sector taking off just because importation of inputs from overseas, and the heavy levies at the customs. Such National and regional policies have only been benefiting to western countries' farmers whose crop residues are dumped in Africa as animal feed.
- Promote local production and intra-regional distribution of essential inputs and supplies. Encouraging local production units to supply the demand and facilitating intra-regional trade in locally produced products will raise income levels along the poultry value chain and create significant employment opportunities particularly for youth and women.

Conclusion

This review aimed at developing a baseline understanding of stakeholders, institutional, infrastructural and policy environment and support services to identify potential areas of improvement of the regional poultry value chain in central Africa within the scope of LiDeSA.

The demand for the best palatable chicken products is high and growing faster than the production and productivity. The Economic Community of Central African States within the scope of LiDeSA envisions a sustainable and competitive poultry value chain to contribute to an integrated prosperous sub-region. That vision encompasses reflects a central Africa region free from import of poultry products and by-products, instead desire a sectore build from farmers preferred and locally adapted breeds satisfying the conditions of faster growth, better laying

performances and greater survivability. After exploring existing constraints and opportunities, a strategic vision was formulated, and guiding principles proposed toward its transformation. The prioritized strategic actions include: 1- Public and private investments along the poultry value chain, 2- Health protection, production, productivity, and resilience of regional poultry production systems, 3-Innovation, generation and utilization of technologies, capacities, and entrepreneurship skills of poultry value chain actors, and 4- Access to markets, services, and value addition.

Riding on the strategic actions formulated to address the identified constraints will yield poverty reduction and employment generation and position the local poultry sector in ECCAS countries to realize their potential independently of as a regional economic community. This also implies that producers are moved from small and informal poultry production to formal agribusinesses, and the regional poiultry value chain will also realize it potential to serve as vector for regional integrations in the ECCAS region.

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