

**PROCUREMENT ARRANGEMENTS FOR LINKING BROILER FARMERS IN ILESA,  
OSUN STATE, NIGERIA TO A CHICKEN PROCESSOR.**

**(THE CASE OF IMO HILL FARMS LIMITED)**



**Okpaire Adudu Joseph**

**September 2020.**



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TO A CHICKEN PROCESSOR.**

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A research project submitted to Van Hall Larenstein University of Applied Sciences in partial fulfilment  
of the requirements for the degree of MSc. in Agricultural Production Chain Management.

Specialisation: Livestock Chains

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## **List of Abbreviations**

AGC	Agro-Geo Cooperative
BPD	Birds per Day
C. F	Contract Farming
C.C. F	Centralized Contract Farming
CBN	Central Bank of Nigeria
DOC	Day-Old Chicks
FG	Focus Group
FGD	Focus group discussions
I. M	Informal Model
IHF	Imo Hill Farms Limited
LGA	Local Government Area
NIRSAL	Nigeria Incentive-Based System for Agricultural Lending
O' Meals	Osun State Feeding Programme
OBOPS	Osun State Broiler Outgrower Programme Scheme
OSBOF	Osun State Broiler Outgrower Farmers
PAN	Poultry Association of Nigeria
PEST	Political, Economic, Social, Technological
S. P	Spot Purchase Procurement
SWOT	Strengths, Weaknesses, Opportunities and Threats
V. I	Vertical Integration
VCD	Value Chain Development

## ABSTRACT

In Osun State, Nigeria, live birds from smallholder farmers dominate the market. Live birds are sold unprocessed at live weight prices to traders in the chain. Extended feeding of broiler chickens, continuous consumption of other resources and high transaction cost forces broiler farmers to patronize daily markets and dispose of their live birds within the shortest possible time. This situation denies the farmer the opportunity to access and link up with profitable off-takers of live birds, especially outside yuletide seasons. Broilers raised under intensive systems of production are processed by large-scale processors such as Imo Hill Farms (IHF) Limited who process and slaughter these birds using intensive processing facilities. However, IHF's chicken processing facilities of 5000 BPD is currently underutilized. This has resulted in losses incurred due to unaccounted depreciation and accumulated interests from fixed assets, under-utilization of the firm's capital assets, human resources and a poor return to investments. Previous attempts by the organisation (IHF) to establish linkages and partnerships with broiler farmers to the address the firm's challenge of under-utilized facilities has been ineffective and inefficient due to knowledge gaps and information deficits as regards procurement strategies for the chain, performance of the chain, organisation of broiler farmers, linkages and market power amongst actors in the chain.

Through a value chain study, the purpose of the study is to identify procurement arrangements that can be used to establish value chain linkages between Imo Hill Farms Limited (IHF) and broiler farmers to efficiently maximize the utilization of chicken processing facilities owned by the firm. The study employed a qualitative approach including desk research, interviews and a focus group discussion. This approach is driven by the need to fully explore the knowledge gaps and information deficit in developing procurement strategies that can be used to integrate the broilers farmers into the value chain with IHF.

The broiler value chain in Ilesa comprises of the informal chain (live bird chain) and the formal chain but the chain is characterized with activities of actors drives the chain deep into a low-trust and weak value chain. The market governance structure of the chain further describes the arms-length relationship and transactions between the chain actors. Challenges such as unstable prices of inputs, market uncertainty and inaccessibility are major drivers limiting broiler production in the chain.

Procurement arrangements used in the broiler chain include spot markets, vertical integration and contract farming models. Independent broiler farmers in the chain use spot markets due to fewer market institutions and low-quality requirements for live broilers. There are no industrial processor off-taking birds from the farmers. Delayed payments on the side of contracting firms (processors outside Ilesa) discourages farmers from participating in the formal broiler value chain.

Procurement terms and conditions that can be used to link broilers in the chain to IHF includes flexible contractual arrangements between the farmers and the processor, guaranteed supply of inputs at steady prices, organization of farmers into groups/clusters, partnership with financial institutions or credit schemes facilitated by the Government, monitoring and information exchange between the farmers and the IHF.

In a quest to maximize IHF's processing facilities, it recommended the farmers and processor need to create and building trust backed up with contracts to protect the interest of both parties. Also, a value chain finance linkage model that connects the processor, specialized input suppliers, broiler farmers and a financial institution will address the challenges of broiler production and marketing in the chain which will guarantee the secured supply of chicken to IHF in maximizing its chicken processing facilities.

## CHAPTER ONE

### 1.0 Introduction

This chapter highlights the background of Nigeria's agricultural context, a review of the country's poultry sector, the background of the commissioner, research problems, objectives and finally the research questions. This study seeks to investigate procurement arrangements applicable in sourcing for live broilers in large quantities from farmers in the broiler value chain and the linkages between the actors in the chain.

#### Background

Nigeria; being a lower-middle-income country with an estimated population of more than 190 million and a GDP per capita of USD 1968 has 49.5 percent of its population (as at 2017) living in urban areas. The size of the middle class was estimated at around 20 percent of the population in 2013 (Corral Rodas, Molini and Oseni, 2019). The Agricultural sector is a contributor to the country's GDP; accounting for 21.2 percent, 36.5 percent employment and 60 percent of non-fuel export value (Odunze *et al.*, 2019). The sector is still is an important source of livelihood for approximately 70 percent of its labour force.

The sector is bedevilled by challenges such as weak institutional and regulatory arrangements, inefficient production techniques, poor quality of agricultural produce and environmental issues and low-value addition (Oladokun, Larbani and Mohammed, 2015). Nigeria's agricultural sector comprises of various subsectors such as crops, fisheries, livestock, and forestry. These subsectors are made up of small through medium to large farmers and farms with different levels of efficiency. Smallholder farmers, however, dominate the agricultural and livestock production landscape. Major outputs from the agricultural sector include rice, yam, cassava, maize, cattle, small ruminants (goats and sheep) and poultry.

### 1.1 Poultry Subsector

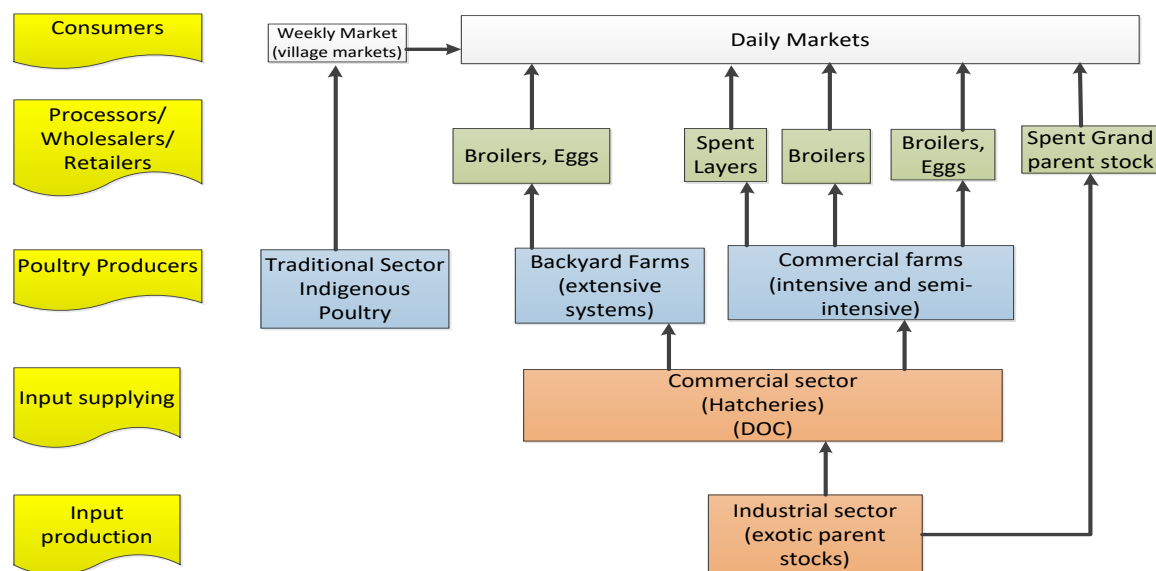
Poultry is one of the main agricultural industries in the country and the most commercialized of the livestock sub-sector, with a net worth of USD 600 million (SAHEL, 2015). The types of poultry that are commonly reared in Nigeria are chickens, ducks, guinea fowls, turkeys, pigeons, amongst others. Chickens (laying birds and broilers) lead the commercial landscape of Nigeria's poultry industry. The poultry industry (chickens) comprises of 180 million birds and the second-largest chicken population after South Africa's 200 million birds. These chickens are raised mainly under three production systems (Figure 1.0): The extensive or free-range system (46% of the standing population), semi-intensive (33%) and intensive systems (21%). The output from the sub-sector per year includes 650,000 tonnes of eggs and 300,000 tonnes of meat (Odunze *et al.*, 2019).

#### Broiler Industry

Broilers are reared for meat. They are generally maintained within 8-10 weeks. If and when appropriately managed and the right feeding administered, broilers can mature at 6-8 weeks at a target live weight of 1.8 - 2.0kg. This can be attributed to the advantage of broiler's fast growth rate, short generation interval, high efficiency in feed conversion, alongside being one of the cheapest, common and a good source of animal protein in the country (Udoro, Sunday and Ubokudom, 2017).

There are no updated records on the national population of domestic production of broilers. Although, it is estimated that 80% of the commercial flock are layers while broilers account for 20% (Pagani, Yerima Abimiku and Emeka-Okolie, 2008). Generally, culled layers, local birds and, to a less extent, spent parent stocks, supply the largest quantity of poultry meat consumed in the country. Available data from FAOstat indicates domestic production of broilers in Nigeria is estimated to be less 200,000 metric tonnes in 2018 (Figure 2). However, this assertion may likely exclude data from backyard poultry (extensive systems) considering their scattered distribution in rural areas.

**Figure 1: Overview of Nigeria's poultry market chain**

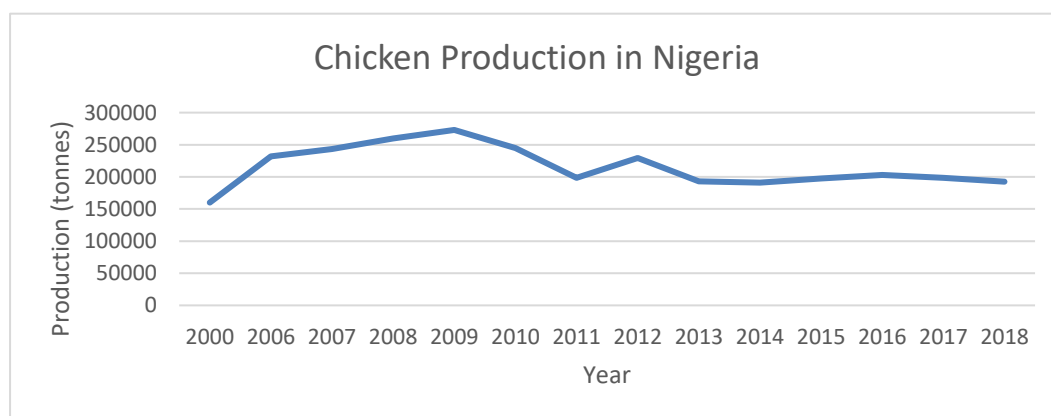


Source: Adapted from Pagani, Yerima Abimiku and Emeka-Okolie (2008)

### Consumption of Poultry Meat

According to Odunze *et al.*, (2019), Nigeria's annual consumption per capita is 1.8kg for poultry meat. This compares to about 7kg in Ghana, over 30kg in South Africa, and over 40kg in the USA (SAHEL, 2015). Drivers such as population growth, urbanization and gains in real per capita income will result in an increased demand for livestock products. The national demand in Nigeria is estimated to be more than 1.5 million tonnes of poultry meat per year. The FAO further projects that broiler meat consumption in Nigeria will increase at an annual rate of 3.8% (Odunze *et al.*, 2019).

**Figure 2: Domestic Chicken Meat Production in Nigeria**



Source: Generated by the Author from FAOstat data.

## **Trade Flows**

The Federal Government of Nigeria banned egg and frozen poultry imports in 2003 in an attempt to shield local producers from foreign competition. Although the ban fairly truncated imports due to increased scrutiny and seizure by regulatory authorities, however, frozen chicken products are smuggled into the country via land borders. Most of the products are exports of frozen poultry products from European countries, such as the Netherlands, France, and Belgium (Adene and Oguntade, 2008). Statistics from Eurostat highlight that between 2009 – 2011, over 3 million metric tonnes of poultry products are smuggled into the country from neighbouring countries such as Republic of Benin and these products end up in the Nigerian market. It is estimated that the consumption of imported frozen poultry meat in Nigeria is approximately 1.2 million metric tonnes (SAHEL, 2015).

Traders procure the frozen poultry meat in neighbouring countries and make unofficial payments to Nigerian border officials to clear border points. The frozen meat is often transported without refrigeration, raising quality and safety concerns. While most supermarkets have stopped patronizing imported frozen poultry to avoid penalties from authorities, local markets still sell these products.

In the same vein as the country's agricultural sector, the broiler industry is characterised with low productivity. Chief among the major challenges of the broiler industry include high cost of feeding, difficulty in accessing micro-credits services, inadequate market information, amongst others. Despite these challenges, an annual growth of 20% supply in the poultry industry between 2010 and 2020 which will be driven by a rapidly growing middle class and the country's large population has been projected by analysts (SAHEL, 2015).

### **Poultry Marketing and Processing System in Osun State, Nigeria.**

In Osun State, Nigeria, live birds dominate the market. Live birds are sold unprocessed at live weight prices to middlemen (wholesalers) in the chain. Extended feeding of broiler chickens, continuous consumption of other resources and high transaction cost forces broiler farmers to patronize daily markets (Figure 1) and dispose of their live birds within the shortest possible time. This situation denies the farmer the opportunity to access and link up with profitable off-takers of live birds especially outside yuletide seasons (Christmas, New Year celebrations and Muslim festivals) (Olufadewa, Obi-Egbedi and Okunmadewa, 2018).

Beyond the farm-gate, middlemen (wholesalers) continue the chain, this implies that retail sales rarely occur at the farm-gate. Furthermore, the poultry market involves transporting birds in large quantities along poorly maintained roads which further increases transaction cost for actors in the chain. Also, transporting live birds are associated with high mortality and shrinkage cost. This makes farm-gate a preferable market outlet for smallholder broiler farmers due to difficulties associated with the handling of live birds during transport (Olufadewa, Obi-Egbedi and Okunmadewa, 2018). Middlemen within the value chain dominate spot markets. These spot markets have on the spot-processing points where birds are slaughtered and mostly under unhygienic conditions.

In backyard poultry production systems (Figure 1), broilers slaughtered are characteristically raised for household consumption. Only a few of the product is sold for income to village markets by women and children. Buyers from other villages and urban markets often attend village markets (weekly markets) to purchase large numbers of chickens and transport them by truck for re-sale in urban areas (Pagani, Yerima Abimiku and Emeka-Okolie, 2008).

Industry experts indicate that about 90% of broiler produce from the commercial sector are slaughtered, processed and sold as frozen chicken, while the rest are sold live on the open market and slaughtered in households. About 50% of broilers produced are processed in automated slaughtering plants and stored in cold rooms before distribution and sale (Adene and Oguntade, 2008). Broilers raised under intensive systems of production are processed by large-scale processors such as Imo Hill Farms (IHF) Limited who process and slaughter these birds using intensive processing facilities. Fresh and frozen broiler products from large scale processors are sold directly to consumers either via retail outlets, open markets, commercial distributors, supermarkets, fast foods companies, hotels and other hospitality industry operators.

## **1.2 Imo Hill Farms Limited (Chicken Processor)**

Imo Hill Farms (IHF) Limited is an integrated livestock production and processing enterprise sited behind the elegant Imo Hill at Ilesa, Osun State, South-Western Nigeria. The farm is involved in the production of commercial table eggs, production of broilers, production of live-pigs, processing of broilers and pork products. Outputs from the firm include table eggs, branded frozen broiler meat, live pigs, pork and value-added pork products (such as hams, sausage, bacon, amongst others).

The organisation currently operates an integrated value chain in broiler production that is; the firm produces, processes and markets its broilers. The firm currently maintains a primary broiler production farm with an output of 1000 live broiler birds per day (BPD), that is 368,000 birds per year. The organisation also owns a chicken processing facility which processes 650birds per hour that is 5,000 birds per day (BPD), a blast freezer with a carrying capacity of 20 tonnes and a holding freezer with a storage capacity of 40 tonnes. This 5000-broiler chicken processing capacity compared to the output (live broiler birds) from the firm's broiler production unit which is 1000 BPD implies a deficit of 4,000 BPD. This situation has resulted in losses incurred due to unaccounted depreciation and accumulated interests from fixed assets, under-utilization of the firm's capital assets, human resources and a poor return to investments.

Previous attempts by the organisation (IHF) to establish linkages and partnerships with broiler farmers to the address the firm's challenge of under-utilized facilities has been ineffective and inefficient due to knowledge gaps and information deficits as regards procurement strategies for the chain, performance of the chain, organisation of broiler farmers, linkages and market power amongst actors in the chain.

It is therefore imperative to conduct a value chain study of the broiler meat value chain to generate evidence-based knowledge and information about the current performance of the chain, market relations and linkages in the chain.

## **1.3 Research Problem**

Despite the production potential of the country's broiler sub-sector, frozen chickens are smuggled into the country because farmers have not been able to meet up to the chicken meat demands of consumers due to bottlenecks associated with the broiler value chain. These bottlenecks include high cost of feeding, inaccessibility to micro-credit services, inadequate extension and training, poor quality day-old chicks, disease and parasite infection, and poor market linkages between actors in the broiler value chain (Heise, Crisan and Theuvsen, 2015; Olufadewa, Obi-Egbedi and Okunmadewa, 2018). These challenges have resulted in the low productivity of the broiler sub-sector.

The main problem of Imo Hill Farm Limited (chicken processor) is the inadequate and irregular supply of live broilers from farmers. This is attributed to the low productivity of the broiler sub-sector. This

problem of inadequate and irregular supply of broilers to the processor is further exacerbated by a knowledge gap in procurement strategies and information deficits about the market linkage between the broiler farmers in the chain and Imo Hill Farms (IHF) Limited. This has resulted in the under-utilization of the farm's chicken processing facilities and the low return to investments (ROI) for the processor; Imo Hill Farms Limited.

**Problem owner:** Imo Hill Farms Limited.

#### **1.4 Research Objective**

The purpose of the study is to advise the commissioner (Imo Hill Farm Limited) on procurement strategies that foster linkages between Imo Hill Farms Limited and broiler farmers in Ilesa, Osun State to maximize the utilization of the company's chicken processing facilities.

#### **1.5 Research Questions**

1. What is the current performance and characteristics of the broiler meat value chain in Ilesa, Osun State, Nigeria?

##### **Sub-Questions:**

- i. Who are the stakeholders involved and what are their roles in the chain?
  - ii. What are the governance structures and coordination dynamics within the chain?
  - iii. What is the cost price and value share distribution among actors within the chain?
  - iv. What are the reasons influencing broiler farmers' preferred choice of market channels?
  - v. What are the opportunities in the chain that can improve the linkage between broiler farmers and the processor?
2. What are the appropriate strategies that can be used to integrate broiler farmers in a developed value chain with Imo Hill Farm Limited as a processor?

##### **Sub Questions:**

- i. What are the current procurement arrangements used in off-taking broiler birds from broiler farmers in the value chain?
- ii. What is the current business model used by farmers in the broiler value chain?
- iii. What are the procurement arrangements, terms and conditions suitable for the developed chain?

## CHAPTER TWO

### 2.0 Literature Review

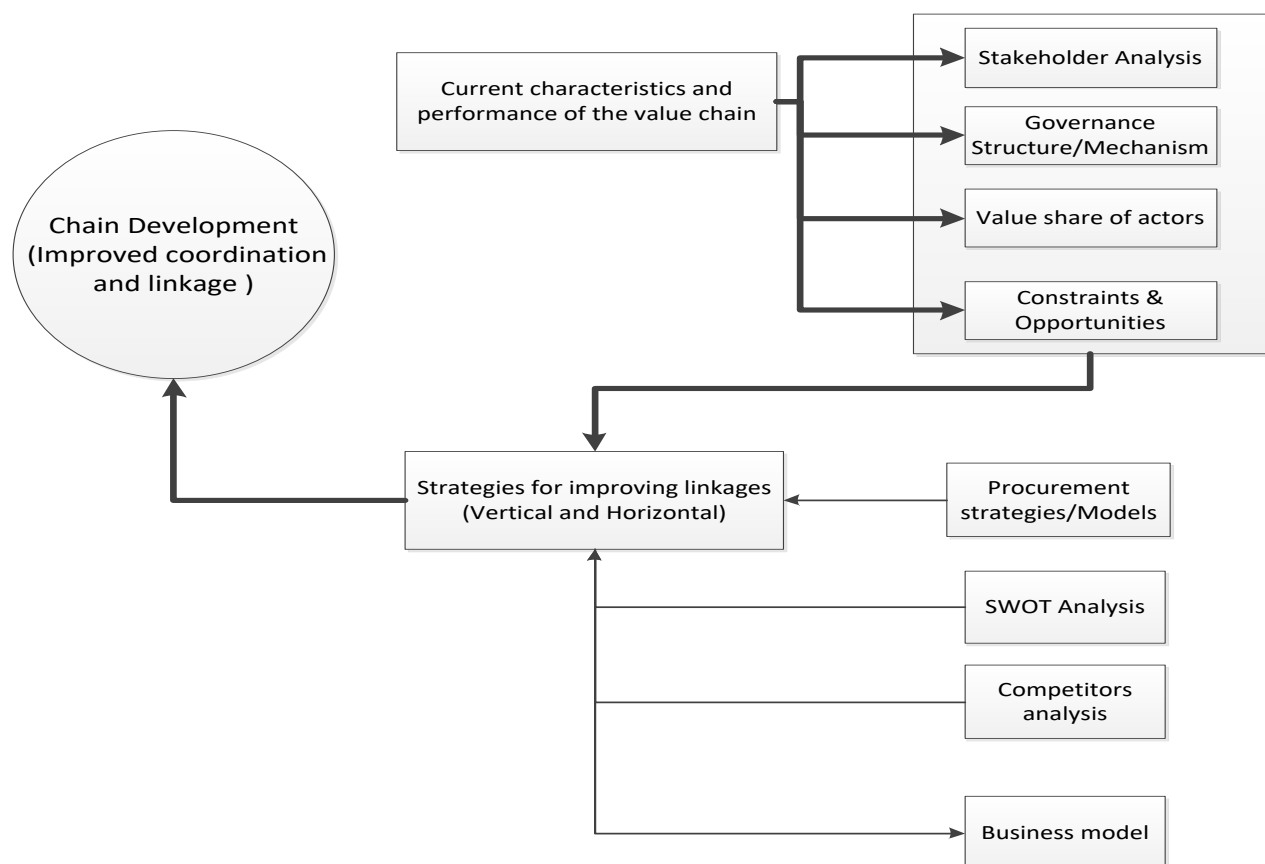
The literature review covers the conceptual framework of the research questions, definition of key concepts, a review of procurement models in developed and developing countries and a review of the procurement arrangements relevant to the broiler subsector in Nigeria.

### 2.1 Conceptual Framework

The thinking of the conceptual framework related to this study is shown in Figure 3. It is developed while factoring the use of the value chain approach and concepts to analyse the current performance and characteristics of the broiler value chain in Osun state. The combination of value chain analysis, detailed competitor analysis and development of inclusive procurement arrangement will serve as a blueprint in developing strategies (and business model) that will improve the broiler chain coordination and linkage between the processor and broiler farmers. An investigation into the various types and combination of procurement strategies and arrangements relevant to broiler production will play a crucial role in the development of linkages that will build trust between the broiler farmers and the processor.

The relationship between value chain actors is based on trust. Building trust between these actors will contribute significantly to developing the chain and serving the mutual interests of the actors involved.

**Figure 3: Conceptual Framework for Chain Development**



Source: Author's Construction



## Definition of Key Concepts in the Framework

**Value Chain Development (VCD):** Value chain Development refers to a type of intervention (either chain relations and market institutions) that aims to address poverty through improved linkages between businesses and poor households within a value chain (Devaux *et al.*, 2018). Value chain development in this context includes a constructive or desirable change in the value chain to extend or advance operations that will facilitate vertical and horizontal relationships with actors in the value chain. Chain development according to KIT, Faida Malli and IIRR., (2006), can occur in different ways of chain upgrading.

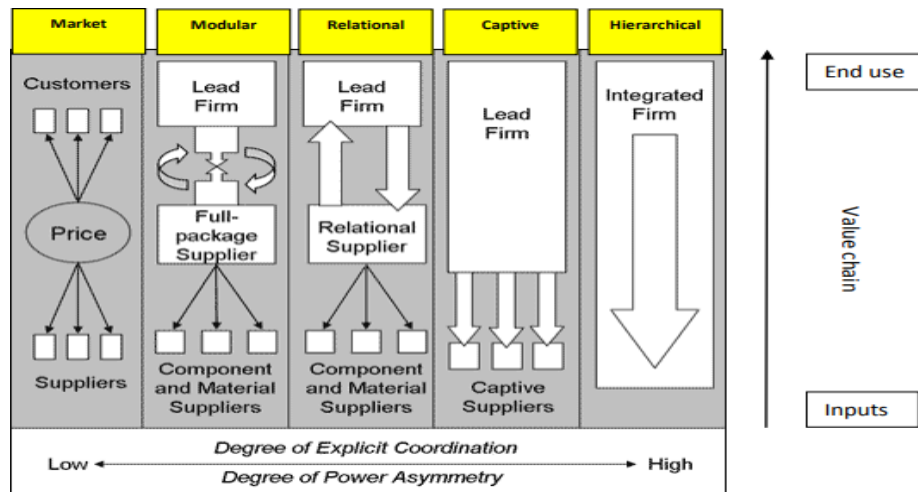
**Value Chain Upgrading:** Value chain upgrading is a form of chain development. The framework for value chain upgrading is developed from value chain analysis. Value chain upgrading takes four directions; these are process upgrading, product upgrading, functional or intra-chain upgrading and chain or inter-chain upgrading (KIT, Faida Malli and IIRR., 2006). In most cases, upgrading of value chains is achieved through attention to multiple business aspects, such as combined attention to product and process upgrading or collaborative product upgrading in combination with contractual arrangements (Trienekens, 2011).

**Value Chain:** The value chain encompasses the sequence of interlinked agents and markets that transforms inputs and services into products with attributes that consumers are prepared to purchase (Devaux *et al.*, 2018).

**Value Chain Linkages:** Value chain linkages are the links and information flows within the chain that reveals the strengths and weaknesses in the chain. The key to value chain development (and also market development) is to reinforce linkages and partnerships along the chain. Chain linkages involve the analysis of the relationships between the various actors involved (Bammann, 2007). The linkages between actors at the same level or stage are horizontal e.g. producer organizations while those along the chain are vertical (Webber and Labaste, 2010).

**Value Chain Analysis:** Value chain analysis focuses on the dynamics of inter-linkages (organisational and corrective activities) between the actors in the value chain. A value chain analysis can also be used to highlight the type of governance system concerning organization and relationships that exist between actors in a chain (Clay and Feeney, 2019). The value chain analysis is composed of quantitative and qualitative information.

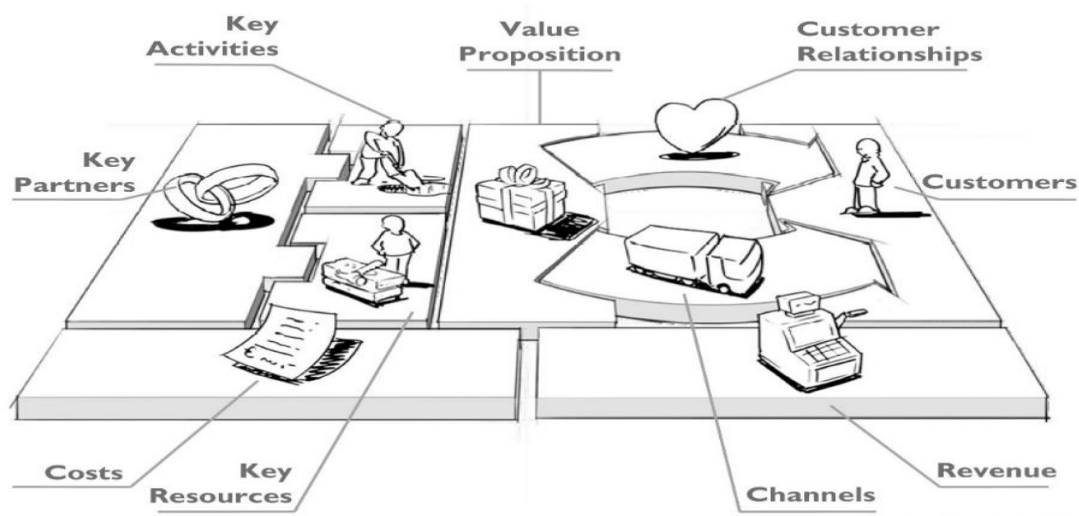
**Value Chain Governance:** The concept of chain governance refers to the ability to exert control along the chain for a particular purpose. The governance of a chain is exerted by a lead actor which can be a firm (buyer or producer) within the value chain or public or private institutions located in the environment of the chain. Bolwig *et al.*, (2010) defined governance as the process by which so-called 'lead firms' organise activities to achieve a certain functional division of labour along a value chain – resulting in specific allocations of resources and distributions of gains. Types of governance (Figure 4) include market, modular, relational, captive and hierarchy (Dietz, no date).



**Figure 4: Types of Chain Governance**

**Business Model:** The purpose of a business model is to ensure that all the stakeholders can understand and articulate how a business is configured so that it creates, delivers and captures value. A business model is defined as

*“a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams.”* (Osterwalder and Pigneur, 2013).



**Figure 5: Canvas Business Model Representation**

#### Components of the Canvas Business Model

The description of the components of the Canvas Business Model (Figure 5) includes:

**Key Partners:** describes the network of suppliers and partners that make the business model work

**Key activities:** describes the most important things a company must do to make its business model work.

**Value proposition:** describes the bundle of products and services that create value for a specific customer segment.

**Customer relationship:** describes how a company communicates with and reaches its customer segments to deliver a value proposition

**Customer segments:** defines the different groups of people or organizations an enterprise aims to reach and serve.

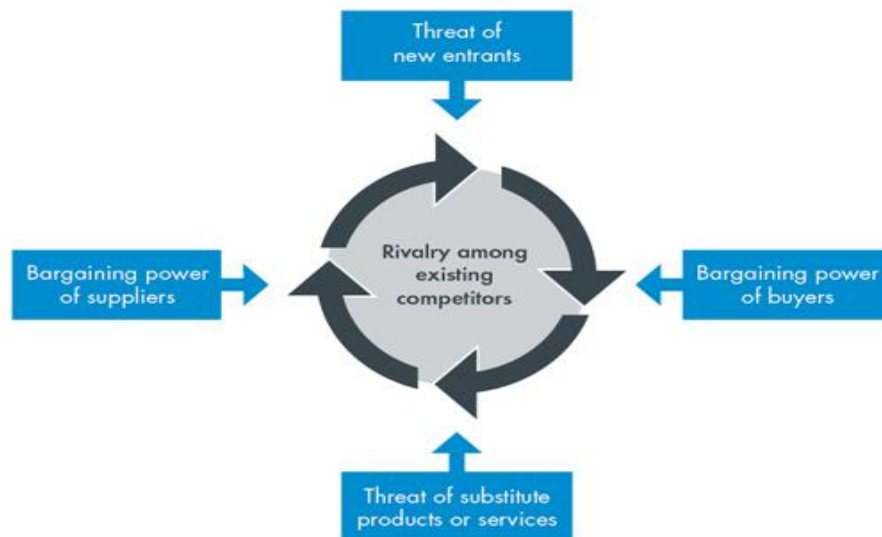
**Key resources:** describes the most important assets required to make a business model work. Key resources can be physical, financial, intellectual, or human. Key resources can be owned or leased by the company or acquired from key partners.

**Channel:** describes how a company communicates with and reaches its Customer Segments to deliver a Value Proposition.

**Cost structure:** describes all costs incurred to operate a business model.

**Revenue streams:** represents the cash a company generates from each Customer Segment (costs must be subtracted from revenues to create earnings)

**Competitor Analysis:** evaluates the strengths and weaknesses of competitors. This analysis provides strategic mechanisms to identify opportunities and threats in the value chain of an analysed industry like the broiler chain. In terms of Porter's five forces framework (Figure 6), the strengths of a firm are determined the competition level under the five forces. The framework is used to determine the competition level and attractiveness of the analysed industry, evaluate its position and construct strategies to gain competitive advantage.



**Figure 6: Porter's Five Forces**

**Procurement Models:** In this context, the procurement model refers the various arrangements and programmes used in procuring commodities from one function (node) in the value chain to another function (node) in the value chain. It also examines the capacities of suppliers and complexities surrounding the nature of value chain commodity; such as quality, timing amongst others.

**Stakeholder Analysis:** This term defines the stakeholders involved in a value chain. It analyses the roles of stakeholders and their constraints including the associated risks.

**Swot Analysis:** The SWOT tool is an analytical tool used in assessing the constraints and opportunities within a value chain context.

## 2.2 Operationalization of The Conceptual Framework

Table 1. shows the operationalization of the concepts included in the conceptual framework.

CORE CONCEPT	DIMENSION	ASPECTS	INDICATORS
Value Chain Development (improved coordination and linkages)	Structure of the chain	Stakeholder and their roles	Actors, supporters and their functions,
		Market power, Trust and chain relations	Coordination, chain governance, product flow, information flow and degree of relationship
		Value share distribution	Selling prices, cost prices, gross margin, value-added
	Performance of the chain	Production, opportunities and constraints	Production capacities, product specification, challenges and opportunities
		Market channels	Types of preferred off-takers, Types of competitors
	Strategies for improving linkages with farmers	Horizontal linkages	Mechanisms of Horizontal coordination, contract enforcement arrangements, standardization, market information systems
		Vertical linkages	Strength of vertical relationships, type of chain governance, specialized roles of actors, Type of chain coordination
		Procurement strategies/models	Types of procurement arrangements
		Business models	Types of business models for improving linkage

**Table 1: Operationalization of concepts**

## 2.4 Framework for Chain Development

According to KIT and IIRR., (2008), chain development within the context of building stronger relations and stronger market institutions between actors will require, effective coordination of relationships, and interactions between actors in the chain (Figure 7). Also, drivers such as urbanization, a geometrically growing population and an emerging middle class of income earners have contributed to the need to produce more food and a change from spot trading to more direct market networks with the application of governance tools such as organized farmers, contracts, etc.

These drivers have resulted in consumer's demand for custom-made foods, niche markets and increasing consciousness about food safety. As a result, processors and marketers have avoided traditional spot markets and have engaged in more direct market channels such as market and production contracts, full ownership or vertical integration (Kirsten *et al.*, 2010).



**Figure 7: Framework for Chain Development**

Source: Adapted from KIT and IIRR., (2008)

### **Strategies for Chain Development**

#### **Horizontal linkages**

Horizontal linkage offers astounding opportunities for value chain actors to upscale through interfirm coordination. By consolidating assets and sharing information, horizontal coordination enables chain actors to accomplish improved quality, payments, and service through expanded access to inputs, more influence in negotiating arrangements, and improved volume to structure activities that emphasize upgrading the value chain (Webber and Labaste, 2010). Horizontal linkage is partly defined by the market institutions governing the chain.

The market institution is an important component of horizontal integration include norms, rules, regulations, policies or services which defines how actors interact in the chain. These regulations established by market institutions build “rules of the game” for chain actors. The poultry sector lends itself to horizontal coordination because it also requires mechanisms for monitoring commercial arrangements, enforcing contracts and established sanctions for defaulters especially among groups of small-scale producers of eggs or broilers. Horizontal coordination also forms the business environment that surrounds the trading activities in the value chain.

#### **Vertical linkages**

A firm becomes more vertically integrated when it takes on more of the activities that take place within its value chain. A value chain becomes more integrated through the decisions of firm-level actors (Webber and Labaste, 2010). Vertical integration is a function of vertical linkages governing the chain. Vertical linkages define the “players in the game” that is, actors in the chain. Chain relations defines specialized roles in the chain, cost and risks associated with each role of actors in the chain. Vertical coordination of the chain is motivated by the need to reduce transaction costs and to ensure industrial complementarity between the stages of production and promotion (Minot, 2007). The poultry subsector offers itself to vertical integration due to the precision required in supply timing (e.g., in chick production and processing), the number of specific inputs, and the perishability of the broilers after slaughtering.

## Chain Coordination

Chain coordination is the process of transmitting information, stimuli and controls to ensure actor activities are consistent with strategic objectives of lead firms or the whole chain. Coordination controls product flows in terms of prices, quality, quantity and delivery conditions (Anh, Janssen and Tri., 2008).

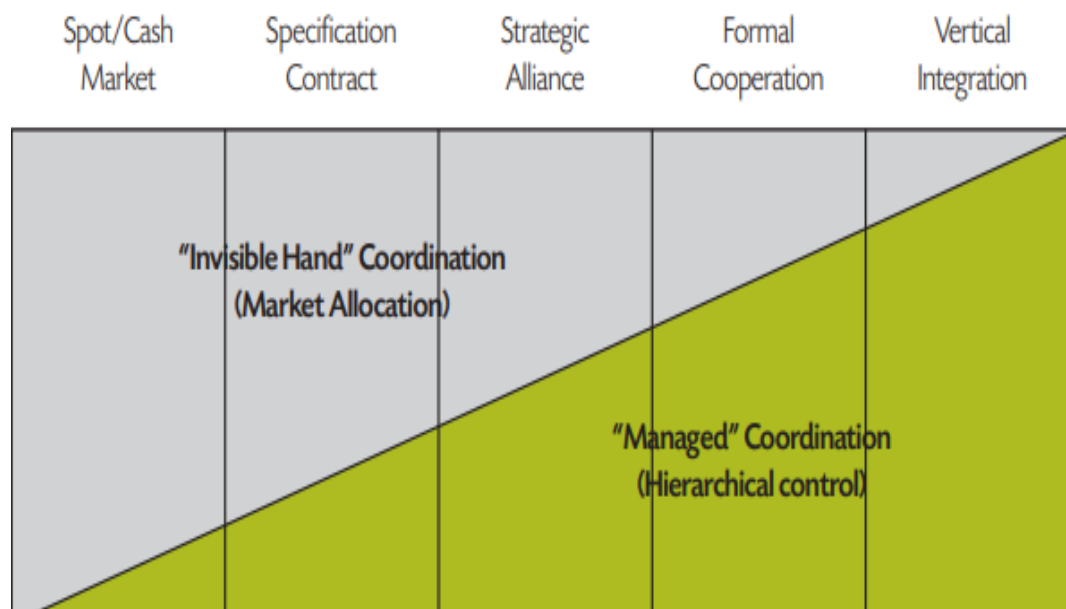
### Strategic Options for Chain Coordination

According to KIT and IIRR., (2008), strategies for developing strong chain relations can be achieved with strategies such as organizing the chain actors, creating a mutual understanding, specialization on certain roles and services, market institutions, contract enforcement mechanisms, coordination (vertical and horizontal) in the chain and developing a chain partnership. Specifically, an aspect of vertical chain coordination in the chicken processing industry is the strategy employed by processors in procuring live birds from actors in the production node of the chain.

Procurement strategies and arrangement employed by actors in the value chain in sourcing for inputs is an important characteristic of the value chain which can build trust between actors in the value chain (Webber and Labaste, 2010). The solidness and ampleness of live broiler procurement influence the utilization and capacity of chicken processing facilities. Various procurement strategies have been employed by chicken processors for securing a steady supply of live broilers for processing.

Some procurement strategies for vertical coordination includes Spot/Cash Market, Specification Contract, Strategic Alliance, Formal Cooperation, and Full Vertical Integration (Figure 10) (Prowse, 2012). The focus within this context on strategies includes vertical integration, spot markets and contract farming (specification contract).

**Figure 8: Strategies for vertical coordination**



Source: Adapted from Prowse, (2012)

## **Spot Markets (Spot Trading)**

The coordination of activities in the value chain commodities subject to traditional spot markets (or open markets) is determined by price mechanisms. This form of organisation is common when the circumstances approach that of the perfect market, i.e. many buyers and sellers, homogeneous goods, and goods or commodities that have little quality variation and are less perishable (Kirsten *et al.*, 2010). Also, spot markets process a large extent of information concerning production and consumption trends, equating the demand and supply of a given commodity, at a given time and place.

Spot markets may not be applicable for broiler procurement in large quantities by chicken processor considering quality concerns of meat products after slaughtering. This is related to inadequacies in conveying information such as quality, timing, future request and characteristics attributed to imperfect markets (Catelo and Costales, 2008). Working with spot market, buyers (large scale processors) have no guarantee that supplies will be timed. This is particularly unsettling when the needs of the buyer (processor) are large relative to the total supply.

## **Full Vertical Integration**

Full vertical integration involves the full regulation of all stages of the vertical production-marketing chain — from production to consumption by a single firm. Thus, production data, market information and inputs are all made available within the firm. Full vertical integration, however, results in difficulties in the cost of labour (shirking, supervision cost, amongst others). Vertical integration also originates to diseconomies of scale and inefficient outcomes for commodities that require may require transportation from different production or processing plants (Kirsten *et al.*, 2010). If for instance, transporting an intermediate commodity from one phase unto the next phase might result in incurring higher expenses due to a high bulk/value ratio or loss of some important attributes, for example, quality. In the case of broiler, shrinkage losses and increased mortality.

## **Contract Farming Model**

Contract farming model is a midway form of industrial organisation in agriculture, standing between spot markets and full vertical integration. Contract farming is a type of vertical integration within agricultural value chains, such that the contractor or processor has superior control over the production process, as well as the quantity, quality, characteristics and the timing of the produce. It can be defined as

*“a contractual arrangement between a farmer and a firm, whether oral or written, which provides resources and/or specifies one or more conditions of production, in addition to one or more marketing conditions, for an agricultural product, which is non-transferable”* (Prowse, 2012).

Contract farming from a value chain perspective is a governance tool in market institutions which can be utilised to enforce the requirements of higher levels of managed coordination within the value chain. The contract farming model decreases production costs for farmers, marketing risk, and also increase their income. In the same vein, contract farming model aids agribusiness firms in quality control and minimizes uncertainty with regards to the supply of inputs (e.g. live broiler birds). However, the challenges accredited to contract farming model includes farmer's loss of independence, higher production risk, increased market power and higher transaction costs for agribusiness firms (Kirsten *et al.*, 2010).

## **Typology of Contract Farming Models**

Literature reviews from Bijman (2008) and Prowse (2012), highlighted five types of contract farming models; namely, centralized model, nucleus-estate model, tripartite model, Informal model and the intermediate model.

### **Centralized Model**

The centralized model is employed when a processor or packer contracts a large number of producers (farmers) with strict quality requirements and quantities. In this model, there is firm vertical coordination between the farmers and the contractor; which is strict implying that quality is well controlled, and quantity is determined at the onset of the planting or production season. Examples of commodities traded under this model include sugar cane, tea, coffee, milk, poultry and vegetables for the canning industry (Prowse, 2012).

### **Nucleus Estate Model**

In this model, vertical coordination between the contractor and producer fluctuates. The contractor sources from independent producers (or farmers) and its production facilities (an estate plantation). The nucleus-estate model is employed especially for perennial crops. The contract-farming model utilizes out-growers from a central estate (Bijman, 2008).

### **Multipartite Model**

The tripartite model is a joint venture between a public entity and a private firm where the associates enter into a contract with farmers. This joint arrangement may include public or private providers of inputs who may provide specialized services pending on the terms of the arrangement. This model can involve national and/or local government. A major feature of this model is the involvement of a public-partner whose political affiliations and interests might affect the farmer-contractor relationship (Prowse, 2012). An example is the Osun state Broiler Outgrower Scheme (OBOPS) in Osun State, Nigeria which is discussed below.

### **Informal Model**

The informal model is common in conditions whereby small companies or traders enter into annual (or seasonal) agreements, often on a verbal basis, with a limited number of farmers, frequently for products that require minimal processing; products such as fruits and vegetables. Crops usually require only a minimal amount of processing, such as sorting, grading and packaging. An informal contractual relationship provides fewer options for vertical coordination than a more formal relationship (Bijman, 2008).

### **Intermediary Model**

The intermediary model is a type where the firm or contractor sub-contracts interaction with the farmers to an intermediary, such as an agent or a trader. The model decreases the degree of control that the firm has over the process and the product.

According to Bijman (2008), the major difference between contracting arrangements and outgrower scheme is that contracting models are more common with private enterprises while outgrower models apply more frequently to public enterprises and institutions. A common feature between contracting models and outgrower schemes is that farmers are contracted to grow agricultural commodities for a



contractor who specializes in value addition activities such as processing or marketing of the agricultural product (Bijman 2008; Prowse, 2012)

### **Types of Contracts**

The use of contract as a tool of chain governance and coordination further strengthens and builds trust between actors involved in the chain. Contracts are categorized into three different types: Market-specification contracts (or marketing) contracts, Production-management contract, Resource-providing contract (Kirsten *et al.*, 2010; Prowse, 2012).

#### **Marketing Contract**

Marketing contract is a type of contract which guarantee the producer a marketing channel and time of sale, and possibly a price structure if an approximate degree of quality is met (market-specification contracts). Here, the farmer maintains authority and autonomy over his farming activities and his production assets. Under this contract, the farmer bears all the risk associated with his production operations. (Prowse, 2012)

#### **Production-Management Contract**

Production management contract specifies some measure of company control as well as provision to sell the commodity to the processor at an agreed price. Under this type of contract, the producer agrees to follow precise production processes and specify usage as proposed by the contractor. This is because the contractor is taking on most of the risk associated with the market (Prowse, 2012). Hence, the contractor will inspect production processes and supervise the use of raw materials or inputs.

#### **Resource-Providing Contract**

Resource-providing contract specifies the provision of contractor or company's inputs as well as full control of production, that is complete control of production operations passes to the company, who will supervise production, provide the necessary inputs and services and remunerate the producer of the commodity at an agreed price. Under this type of contract, provision of inputs is a mechanism used in providing in-kind credit, the cost of which gotten after the product has been delivered (Kirsten *et al.*, 2010; Prowse, 2012).

## **2.5 Procurement Arrangements for Broilers in Developed and Developing Countries**

### **United States**

In the United States, broiler processors acquire live birds from three types of arrangements/sources. The first type; company-owned grow-out operations (full vertical integration) in which primary broiler production facilities (housing, equipment, etc) are owned by the processor and broiler production is initiated and managed by the processor. The second type; direct-contract operations (contract farming) in which broiler farmers maintain possession of their production facilities but grow-out operations are supervised by the processor. Finally, the third type; independent producers (spot markets) who manage and self-own grow-out operations and do not rely on any form of contractual agreements with a processor or outside feed company. However, more than 90% of live birds are sourced from direct-contract operations (Shimizu, 2011).

## **Peru**

According to Shimizu (2011), large scale chicken processors in Peru procure broilers in three ways; from their grow-out farms, from rented farms and outside farms under production contracts. Integrated chicken processors in Peru procure a large portion of their broilers from their grow-out farms. The use of outside farm as a supply base for live broilers by large scale operators is limited. This is attributed to the following reasons. Firstly, 80% of broilers are distributed as live birds in wholesale markets because production areas are located relatively close to consumption areas which allow for live-birds distribution to consumers with limited shrinkage losses. Secondly, the niche market for slaughtered and processed products is relatively undeveloped.

## **South Africa**

Vermeulen, Kirsten and Sartorius (2016), reported that in South Africa, large scale processors employ company-owned grow-out operations for primary broiler production. These large scale integrators also have contracted outgrowers who supply broilers according to specifications set out these processors usually in a three-year production contract (direct-contact). The contracts with farmers often include the supply of inputs such as the chicks, feed and other inputs for primary production with the cost eventually deducted from the farmer's variable cost of production.

Vertically integrated operations and the use of the contracting model represent around 81% of total poultry sales, Small-Medium Scale Enterprises account for 2% of total poultry sales in the country while the rest of the market is based on spot sales at local markets in rural areas and in smaller urban settlements, where sales of live chickens are still popular among members of the indigenous communities (Vermeulen, Kirsten and Sartorius, 2016).

One important fact established by Vermeulen, Kirsten and Sartorius (2016) is that the procurement of poultry and eggs completely excludes the spot market and these products are largely procured by vertical integration or long-term production contracts. The spot market is only applicable in the informal and niche markets.

## **Nigeria**

According to industry experts in Nigeria, processors source for live broilers using different types of arrangements and sources. Some of these arrangements/sources include independent producers, outgrower schemes or from the processor's own primary production unit. Procurement of broilers is dominated by independent producers who supply their birds to daily/spot markets (spot trading) from informal broiler value chains. This is attributed to two characteristics; first, the broiler industry has been dominated by small-scale producers and secondly, the Poultry Association Nigeria (PAN) which is dominated by larger-scale egg producers who are active members (Pagani, Yerima Abimiku and Emeka-Okolie, 2008).

The spot markets (live bird markets) comprises of different bird species mixed and amalgamated with other market activities. The majority of live bird markets are retail markets apart from a few wholesale markets such as the Shasha Live bird Market in Ibadan, Oyo State (Pagani, Yerima Abimiku and Emeka-Okolie, 2008). These open markets have on the spot-processing points where birds are processed and mostly under unhygienic conditions.

Large scale processors source for live birds from their production units (full vertical integration) or contract primary broiler production to selected broiler cluster farmers' groups (sub-contract farming).

Some other large-scale processors who play integrated roles of retailing also employ the use of outgrower schemes in procuring birds for further processing.

### **Outgrower Schemes in Nigeria**

In a bid to boost and unlock the potential of Nigeria's poultry sub-sector, various initiatives and policy arrangements have been introduced to create linkages between actors in the chain. Examples of such initiative are the Akwa Prime Outgrower Scheme, Osun State Broiler Outgrower Scheme, amongst others.

#### **Akwa Prime Outgrower Scheme**

This initiative is a sub-national outgrower agenda serving the poultry sector with the private sector and state equity participation using the multipartite contract model. Under this model, an arrangement is established between Akwa Prime Hatchery and selected poultry producers designed at improving farmers' optimum production capacity by supplying day-old chicks, other inputs and extension services to empower and optimize productivity. The day-old chicks hatched and supplied by Akwa Prime are raised by the farmers to specified mature live weight at a maximum of six weeks, after which the company guarantees a buyback at an agreed live weight price for value addition and onward sale to the ready chicken market (Umoh, Essien and Asuquo, 2019).

Results from a study on the Akwa Prime Outgrower scheme conducted by Umoh, Essien and Asuquo (2019), indicated that there was a positive impact of the scheme on small independent poultry farmers' productivity, profitability and survival. Participating farmers were found to have high income and stocking density while the cost of day-old chicks and other production inputs provided by the scheme accounted for 99.1% variation of the farmer's income. However, major drawbacks of the scheme include; a compromised role of Akwa Ibom State government, imposed buyback price on farmers and late procurement of the market weight broiler birds from the farmers.

#### **Osun State Broiler Outgrower Scheme**

Another initiative at the National level is the Osun State Broiler Outgrower Scheme (OBOPS). Oghenemaro (2019) remarked that the OBOPS was targeted at improving poultry production by rising 1.2 million day-old chicken per annum. The scheme was initiated to promote poultry production in Osun state and to empower the out-grower poultry farmers. The model provided the broiler farmers with inputs such as day-old chicks (DOC), feeds, drugs and technical advice, also, the scheme provided buyback guarantee for the farmers. The scheme is based on the outgrower model or the multipartite contract model

The OBPOS programme contracted out the growing of chickens to a network of over 2,000 smallholder farmers by supplying them with of 3.1 million day-old chicks, leading to the production of 4.4 million kg of broiler meat valued at N1.7 million for Osun state feeding programme (O'Meals). The scheme reported a profit of N 185 million (\$ 1,129,770) from December 2011 to 2014 (PCD, 2012).

## **2.5 Governance and Coordination in Poultry Value Chains**

In Nigerian, poultry (eggs) value chains, governance structures are characterized by arms-length and relationship-based interactions. Poultry producers and trader tend to codify their actions which arbitrate exchange between them (Akinwumi *et al.*, 2009). Information exchange, price determination

and control, standards, payment mechanisms, contracts, and market power are the major instruments of governance.

“Market power” is defined as the level of concentration and access to key physical and intangible assets owned by a few actors (Essien and Umoh, 2016). The actors with extensive market power are the major determinants of the distribution of profits and risks through their activities and organisations.

Most smallholder poultry producers have little or no influence on negotiation because their position in the value chain where a few of the multinational companies producing day-old chicks, feed, drugs and vaccines are dominating the market at the input supply side (upstream) while downstream; the traders, wholesalers and retailers exercise excessive power on the farmers by deciding the price of the commodity. This is further exacerbated by their large numbers and lacking horizontal coordination, smaller turnovers and margins and excessive risks these farmers encounter.

Standards in the Nigerian poultry (egg) industry are ad hoc (spot trading), with limited coordination among actors. Consumers have little input on the quality and show a low willingness to pay (Akinwumi *et al.*, 2009).

## **2.6 Broiler Production Systems in Nigeria**

The broiler production system in Nigeria is categorized into three categorised; the extensive or free-range system (46 percent of the standing population), semi-intensive (33 percent) and intensive systems (21 percent) (Odunze *et al.*, 2019).

The extensive production system is characterized by farmers who keep indigenous birds that are left to roam and search for feed. The objective of this production system is mainly for family consumption. This system is common in the northern parts of Nigeria. Under the semi-intensive production systems; small-scale producers tend to dispose of live birds through informal market channels. Semi-intensive poultry farms are mainly located in the southern part of Nigeria. The intensive system ranges from medium to large-scale commercial enterprises and a high premium is given to stock breed, feeding, housing and health services. The more advanced integrated holdings use automated chain feeding and watering systems. This system is dominant in the southern regions of the country.

Based on the scales of production; broiler farmers can be categorised into commercial, medium-scale commercial, small-scale commercial, backyard producers. Commercial producers maintain more than 10,000 birds, medium-scale farmers maintain 2,500 – 10,000 birds, small-scale commercial farmers maintain 500- 2,500 birds while backyard systems maintain 200 – 1,500 birds. Management and rearing practices for commercial producers are relatively the same. These systems differ only in technical solutions particularly amongst the smallest producers (Pagani, Yerima Abimiku and Emeka-Okolie, 2008).

## CHAPTER THREE

### 3.0 Research Methodology

The chapter presents the geographical location of the study area, research design, strategy, the current state of the study area amidst the COVID-19 pandemic and it goes further to describe how collected data was analysed

### 3.1 The Study Area: Ilesha, Osun State, Nigeria

The name “Osun” comes from a river that flows through the state. It is emblematic because it serves both spiritual and tourist purposes in the state. Osun state is one of the thirty-six states in Nigeria. It is located in South Western geopolitical zone of Nigeria. The state was created on 27th of August 1991 with its state capital located in Osogbo.



**Figure 9: Map of Osun State, Nigeria**

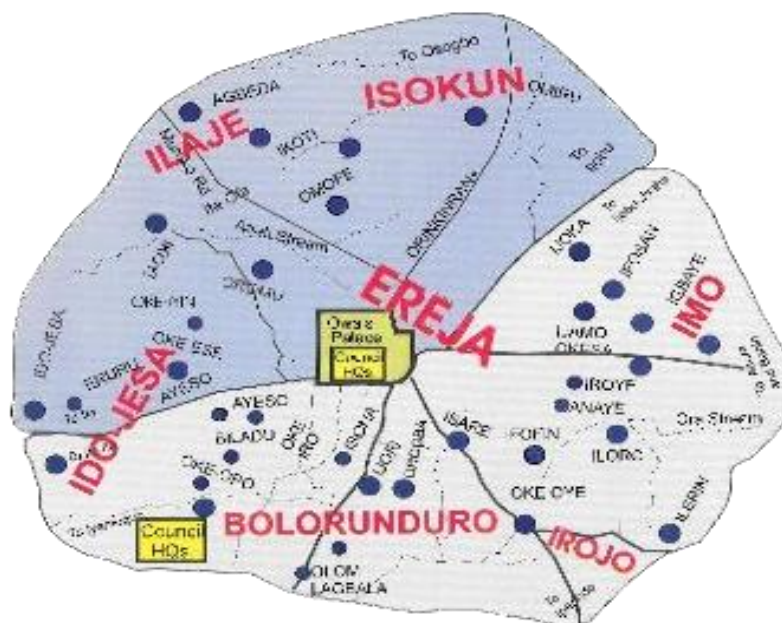
The state has thirty Local Government Areas (LGAs) as shown in Figure 11. Ilesha West LGA is one of the LGAs located in Osun State, Nigeria. It is located in the tropical rain forest region of Nigeria. It covers an area of approximately 63sq km and lies between latitude 7° 30' 0" N and longitude 4° 30' 0" E and 40 34'E.

Agriculture in Osun State is predominantly rain-fed with small-scale irrigation limited to Fadama farming. It is dominated by the peasantry and matured people cultivating less than one hectare. Agriculture employs over 70% of the labour force in the state. The indigenes focus more on the cultivation of food and cash crops such as yam, cocoa, kola nut, citrus, and oil palm. The people of the State are also involved in the rearing of livestock such as goat, cow and most especially poultry farming (chicken).

There are no updated records on the population of broiler farmers in the LGA. However, according to Adedeji *et al.*, (2014), the socio-economic characteristics shows that the majority of poultry farmers in

Ilesha LGA are educated and that men are those who practice poultry farming. They remarked that exotic improved breeds of poultry are maintained mostly under intensive management system of poultry production.

The research study was carried out in Ilesha West LGA, Osun State (Figure 12). Ilesha West is a Local Government Area in Osun State, Nigeria. The chicken processor (Imo Hill Farms Limited) and broiler farmers are located within the study area.



**Figure 10: Map of Ilesha West, Osun State, Nigeria.**

Ilesha West Local Government is about 114km in land-area and size and it is located on 19° 30'1 South of the equator and 5° - 75'1 west of the Greenwich Meridian. The LGA has 10 wards and it is about 30km from Osogbo, the state capital. It shares boundaries with Obokun Local Government Area of Osun State in the North, Oriade Local Government Area in the West, Atak. The headquarters of Ilesha West is in the town of Oja Oba (Ereja Square) on the outskirts of the city of Ilesha. It has an area of 63km<sup>2</sup> and a population of 194,445 inhabitants (NPC 2006) with agrarian farming families.

### 3.3 Research Strategy

The study was an investigation which is required to explore and analyse the broiler value chain in the study area to develop strategies for improving chain relations between the chicken processor and broiler farmers. The research, therefore, employed a qualitative approach. These include the use of desk research, and semi-structured interviews and a focus group discussion as shown in Table 1. This approach is driven by the need to fully explore the knowledge gaps and information deficit in developing procurement strategies that can be used to integrate the broilers farmers into the value chain with the chicken processor.

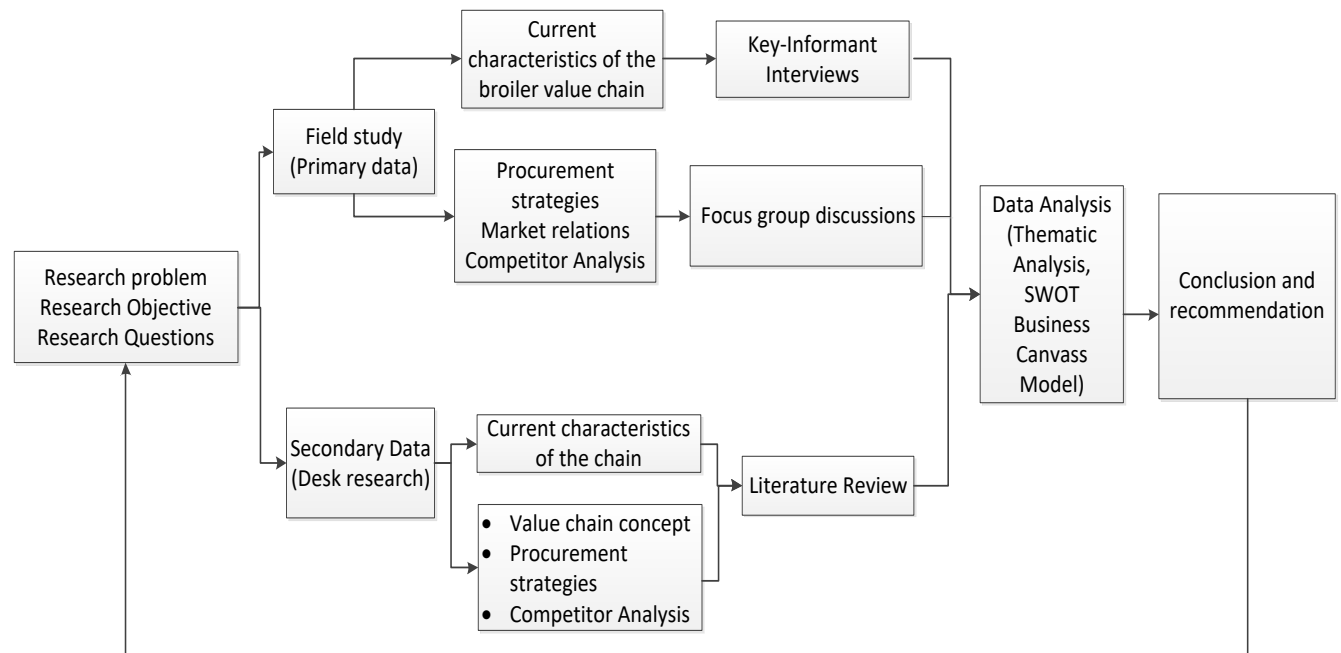
#### Research Strategy Justification

The qualitative approach (interviews and focus group discussions) provided in-depth information and knowledge about characteristics and performance of the value chain; including the cost of broiler production, gross margin, value share distribution among actors, the preferred choice of market channels for broiler farmers, existing broiler farmer cooperatives or clusters, the governance structure of the chain and identification of lead farmers in the study area. This approach enabled the author to further explore 'why' and 'how' these characteristics of the broiler value chain impact the procurement arrangements and programs, chain relations, proposed business models and market institutions in the chain as shown in the conceptual framework (Figure 3).

### Triangulation of Data Collection Methods

Triangulation of data collection was achieved using the order of research method; desk research for gaining secondary information about the broiler value chains in Osun state, and then primary data was obtained from online interviews with key informants in the broiler value chain within the study area and finally, focus group discussions with broiler farmers operating the production node of the chain.

This order was used to triangulate information from the secondary data obtained from literature, including the authors' experience of the broiler industry. This information was checked with primary data obtained from key informants and finally, the information gathered from the three focus group discussions was used to confirm and triangulate the findings of the research.



**Figure 11: Research Strategy**

### Summary of Research Questions and Data Sources

Table 2. shows the summary of research questions and their appropriate data sources.

Type of question	Questions	Method of accessing Data	Data collection tool
<b>Main Question 1.0</b>	<b>What are the current characteristics of the broiler value chain in Osun state?</b>		
<b>Sub Questions 1.1</b>	Who are the stakeholders and what are their roles in the chain?	Desk study, key-informant Interview and focus group discussions	Literature review, Semi-structured questionnaire, checklist.

1.2	What is the governance structure and linkage within the chain?	Key-informant Interview and focus group discussions	Literature review, Semi-structured interview and checklist
1.3	What are the reasons influencing farmers' preferred choice of market channels?	Focus group discussions.	Checklist
1.3	What are the opportunities in the chain that can improve the linkage between broiler farmers and the processor?	Focus group discussions.	Checklist
1.4	What is the distribution of value share between actors in the chain?	Key informant interview and focus group discussion	Semi-structure interview and checklist
1.5	What is the cost price associated with the functions in the chain?	Key informant interview and focus group discussion	Semi-structure interview and checklist
<b>Main Question 2.0</b>	<b>What are the appropriate strategies that can be used to integrate broiler farmers in a developed value chain with Imo Hill Farm Limited as a lead-firm processor?</b>		
<b>Sub questions 2.1</b>	What are the current procurement models used in off-taking broiler birds from the production node of the chain?	Focus group discussions.	Literature review and Checklist
2.2	What is the current business model used by broiler farmers in the value chain?	Focus group discussions.	Literature review and Checklist
2.3	What are the procurement arrangements, terms and conditions appropriate for the developed chain?	Focus group discussions.	Literature review and Checklist

**Table 2: Summary of Research Questions, Research Methods and Tools.**

### 3.4 Data Collection Methods

Table 3. shows the proposed data collection method and sources of data that will answer research questions

Data Collection	Purpose/Justification	Data collection tool	Respondents/source of Data
<b>Secondary Data Collection</b>			
<b>Desk research</b>	Literature review on value chain concepts, value chain development, business model, characteristics of broiler production systems, competitor analysis, broiler procurement arrangements, models amongst others.	Google Scholar, Greeni search engine	<a href="https://scholar.google.com/">https://scholar.google.com/</a> (Google scholar),  <a href="https://www.greeni.nl/iguana/www.main.cls?url=home">https://www.greeni.nl/iguana/www.main.cls?url=home</a> (Greeni search engine)



<b>Primary Data collection</b>			
<b>Focus group discussion</b>	Supporting information on procurement strategies, market relations and chain governance	Checklist	32 small and medium farmers (10 farmers each from 3 wards in the LGA )
<b>Interviews (online)</b>	Full insight and more depth information about the broiler in the chain.	Semi-structured interviews	4 small scale processors, 4 retailers/wholesalers, 1 input suppliers, 1 chain supporter (purposively selected respondents)

**Table 3: Data Collection Methods**

### Desk Research

Desk research was used to obtain secondary data on the broiler value chain. Desk research was used to obtain information on procurement strategies used by processors in sourcing for live broiler birds, components of business models used in linking processors to farmers. Secondary information was also sourced from the commissioner's annual reports and the internet (including books, journals, policy reports, conference proceedings, amongst others).

### Focus Group Discussion

The study employed three (3) focus group discussions (FGD). The first focus group discussion had 15 participants (8 females and 7 males), the second focus group discussion had 12 participants (4 females and 8 males) and while the third focus group had 9 participants (5 males and 4 females). This makes a total of 36 farmers for the focus group discussions.

The focus group discussions were guided by a discussion checklist to gather information about stakeholder functions in the broiler value chain, gross margin of farmers, market information, chain relations and procurement programme commonly used in sourcing for birds from the farmers.

### Interviews

The study also employed online interview sessions with key informants who are stakeholders in the broiler value. The interviews were guided by a semi-structured interview checklist (Annexe 1) to obtain information about stakeholder functions, product flow, information, the value share of actors, market channels and actor relations. Stakeholders interviewed included

<b>Experts/Key – informants</b>	<b>Information gathered</b>
Tuns Farms	Broiler value chain, OBOPS, procurement programmes used in sourcing for birds, outgrower schemes, challenges of processors, broiler marketing channels for processors.
Peace Scientific Farms, VH Farms	Broiler value chain, procurement programmes used in sourcing for birds, outgrower schemes, challenges of processors, cost of production, selling prices of frozen chicken, broiler marketing channels for processors, competitors.

Penny Deriik Farms, Benjo Farms	Broiler value chain, procurement programmes used in sourcing for birds, outgrower schemes, challenges of processors, cost of production, selling prices of frozen chicken, broiler marketing channels for processors, the competitiveness of the broiler chain.
Coordinator, Osun State Broiler Outgrower Farmers (OSBOPS)	Broiler production, procurement programmes used in sourcing for birds, outgrower schemes, challenges of farmers, broiler marketing channels for farmers, Anchors Borrower's Programme (ABP)
Chairman, Poultry Association of Nigeria – Ijesa land	The current state of the broiler value chain, the role of the PAN, the role of Veterinary doctors. Challenges of outgrower schemes and the current state of the Poultry cooperative.
Stomach Treat foods, Mummy Tee Frozen Foods, Twins Frozen Foods, Mercy of God Frozen Foods	Value chain of frozen chicken, challenges of frozen chicken shop owners, procurement arrangements with processors/farmers, relationship with chain actors.

### 3.5 Data Processing and Analysis

Data from interviews and focus-group discussions were collected through audio recordings and processed into verbatim transcripts. Dataset obtained were arranged in folders based on the date received, area of origination, amongst others.

The transcripts were coded using a combination of standard software programmes that is Microsoft Word and Excel. The dataset obtained was maintained in a codebook as suggested by Laws *et al.*, (2013). The coded transcripts were analysed using the thematic analysis approach. Processed data were analysed using the following tools shown in Table 4.0

**Table 4: Analytical Tools**

Analytical Tool	Justification
<b>Stakeholder matrix</b>	Used for analysing the roles of stakeholders in the chain and their constraints
<b>Value chain map</b>	Used for mapping the actors, the flow of products, information and services in the chain
<b>PEST</b>	Used for identifying the factors affecting the performance of the chain
<b>Value Chain analysis</b>	Used to estimate the value share of the actors, chain governance and chain coordination dynamics.
<b>SWOT</b>	Used for analysing the strengths, weaknesses, opportunities and threat within the chain
<b>Porter's Five Forces</b>	Used for analysing the performance of competitors' in the chain
<b>Canvass Business Model</b>	Used for describing and developing value propositions for linkages between the chicken processor and broiler farmers.

The results from data obtained were interpreted and compared with relevant literature. Therefore, theoretical discussions from literature and empirical data analysis from interviews and focus group discussions were used to developed informed conclusions and recommendations.

## **CHAPTER FOUR**

### **4.0 Results**

The chapter presents results garnered from interviews with key informants and focus group discussions with farmers in the broiler value chain in Ilesa. The results presented aims to answer the research sub-questions developed for this study.

#### **4.1 Stakeholders and their Roles in the Broiler Value Chain**

Information on the actors, their functions, chain supporters were gathered from online interviews, and focus group discussion. The broiler value chain is comprised of the actors and supporters performing various functions while some functions are integrated. The following describes the roles of actors involved in the broiler value chain.

##### **Input Supply**

The input supply function is executed by actors operating in the different types of inputs relevant to broiler production. These inputs include Day Old Chicks (DOC), broiler feed, poultry equipment, drugs and vaccines. The DOC producers and suppliers identified in the study area include Amo Byng, FIDAN Hatchery, RTO Hatchery, Zartech Hatchery, Olams Hatchery, etc. Feed manufacturers popular among broiler farmers in the study include Breedwell Feed Limited, Olams Feed, Premier Feed Mills. These feed brands are marketed and distributed by retail distributors operating in Ilesa, Osun state. Popular feed shops include Godwin feed stores, Mama Niks, amongst others. Drugs and vaccines are majorly imported by large scale input suppliers (e.g. Animal care) in Oyo state (which is about 114km from Ilesa). They are marketed and distributed by retail distributors and veterinary shops.

##### **Broiler Production**

The broiler production function in the chain is dominated by independent small - scale broiler farmers in Ilesa who raise between 500 to 2000 birds per batch. Broiler farmers combine inputs obtained from the input supply node to rear broiler DOCs from day old to 4 – 8 weeks. Small-scale vertically integrated broiler farmers also process the broilers themselves, sell them fresh or and store them in deep freezers.

Broiler production in Ilesa is also carried out by broiler farmers under outgrower schemes. There are currently two private contracting firms operating a broiler outgrower scheme in the Ilesa. They are Tuns Farms and Amo Byng. They possess facilities for breeding and producing DOCs as well as feed milling.

Findings from the 36 participants of FGDs indicated the various characteristics associated with production as shown in Table 5.

**Table 5: Categories of farmers identified during the focus group discussions**

<b>Category of broiler producer</b>	<b>Number of Farmers</b>	<b>Percentage number (%)</b>	<b>Scale of production (Birds)</b>
<b>Independent broiler farmers</b>	27	75	500 – 1000
<b>Vertically integrated Farmers</b>	6	17	500 – 1000
<b>Outgrower farmers</b>	3	8	1000 – 2000
<b>Total</b>	36	100	

### **Trading**

The trading function in the broiler value chain is carried by broiler farmers and hawkers. Broiler farmers sell the birds themselves in piecemeal from the farm. Hawkers also buy live birds from broiler farmers at farm gate prices and resell in the streets and open markets. They obtain birds of different ages that are from 4 – 8 weeks. They estimate the weight of the bird using their hands and eyes (visual assessment) and negotiate on price accordingly.

### **Processing**

The processing of broilers in Ilesa is carried by small-scale processors who process chickens using manual setups in processing. Penny Deriik Farms processes between 200 – 300 birds on the spot depending on the availability of live birds. Barbecue chicken producers popularly referred to as “Mallam or Hausa” also buy live broilers in piecemeal (10 – 20 birds) from broiler farmers at farm gate prices. They process broilers into chicken barbecue and sell to end consumers or they resell on a live basis. Tuns farm located in Osogbo which is about 33km from Ilesa processes 5000 – 6000 birds per day, Peace farm located in Ilesa processes 300 birds per day, VH Farms located in Ilesa processes 300 per 500 per cycle of broiler production.

### **Wholesaling and Retailing**

The wholesaling function is done simultaneously with retailing that is actors within this node of the chain perform the role of a wholesaler when there is a large stock of frozen chickens and resell to retailers in small quantities at wholesale prices. The wholesaling function is common when the actors buy birds in bulk directly from large scale processors (like IHF or outside Ilesa) and supply to retailers at wholesale prices. When frozen chickens are not available in large quantities, they sell in retail. Other categories of retailers include supermarkets such as Akewusola supermarket, amongst others.

The stakeholder matrix shown in Table 6, shows the stakeholders, their roles and risks associated with their responsibilities.

**Table 6: Stakeholder Matrix of Broiler Value Chain Actors**

Function	Stakeholder	Roles	Risks
Input Supplying	Day Old Chicks producers and suppliers	They produce broiler Day Old Chicks (DOCs) for broiler farmers.	➤ Sporadic electrical power failure
	Feed Manufacturers and suppliers	They produce finished feed or customized.	➤ High cost and poor quality of feed ingredients; ➤ Sporadic electrical power failure
	Drugs and vaccine distributors	They resell drugs to farmers in small quantities.	
Broiler Producing	Independent Broiler Farmers	They raise broiler DOCs from Day Old up till either 4 – 6 weeks. They also process sell.	➤ Daily fluctuating prices of DOC ➤ Absence large scale off-takers of live broilers
	Outgrower Broiler Farmers	They raise DOCs obtained from the off-takers, raise them for 5-6 weeks and the off-takers buyback the birds	➤ Delayed payment ➤ Poor quality of supplied inputs
Trading	Hawkers	They buy broilers from farmers at 4 – 8 weeks and sell on a live basis in open markets, streets or neighbouring towns	➤ Low demand for live birds outside festive periods.
Processing	Chicken Barbecue Processors (“Mallams”)	They buy birds directly from farmers on a live basis. They process the chickens into barbecue and sell on retail or to HORECA.	
	Broiler processors	They process and dress broiler (1.8 – 2.2 kg) into frozen chickens. They buy the birds on a weight basis.	➤ Poor electrical power generation and distribution ➤ Competition from smuggled frozen chicken products
Wholesaling/ Retailing	Wholesalers/Retailers	They buy frozen broiler chickens from processors in large quantities or retail quantities.	➤ Poor electrical power generation and distribution ➤ High cost of fuel
Consumers	Individual consumers	They buy live birds or frozen chickens from farmers, traders or retailers	
	Institutional consumers (Captain Cook, Solitaire)	They buy frozen chickens from wholesalers and sell to individual consumers.	

## Broiler Value Chain Supporters

The result from the study identified the supporters in the broiler value chain play various roles to support the broiler value chain. Table 7 showed supporters involved in the broiler value chain in on the local level and national level.

**Table 7: Chain Supporters in the Broiler Value Chain**

SUPPORTERS	ROLES	CONSTRAINTS
Poultry Association of Nigeria (Osun state Branch)	They play a role in mobilizing broiler farmers for outgrower scheme programme.	Inactive and non-committed members
Ijesa frozen Food Association	They coordinate the market institutions surrounding frozen food in the Ijesa land (Ilesa)	Currently inactive
Osun State Broiler Outgrower Farmers (OSBOF)	They mobilize and coordinate broiler outgrower farmers for government initiatives relating to broiler production value chain in the state	Inactive and non-committed
Agro-Geo Cooperative (AGC)	They are responsible mobilize and coordinate farmers for the Federal government's intervention themed "Anchor's borrower Programme"	Un-verifiable farmers for the ABP
Standard Organisation of Nigeria (SON)	They monitor and regulate the operations of manufacturing organization including broiler processing and operators.	
National Agency for Food and Drug Control (NAFDAC)	They audit and certify the food and drug produced and distributed in Nigeria. This includes processed chickens.	
The Nigeria Incentive-Based Risk for Agricultural Lending (NIRSAL)	They are responsible for funding approved interventions relating to Nigeria's agricultural sector.	Funding constraints Government bureaucracy
Osun State Environmental Monitoring Agency	They inspect and monitor compliance with the environmental hygiene policies instituted for broiler chicken processors.	

Source: *Field Data, 2020*

## 4.2 Governance Structure and Coordination Dynamics

### Market Governance

The study revealed that the governance structure between actors in the broiler value is best described by the market type of governance that is the relationship between the actors is based on price. Spot markets dominant all transactions between independent broiler farmers and other actors. The farmers revealed that on the side of input suppliers, prices of DOCs, feed and drugs are imposed on them with no option of bargaining. DOC/drug marketers and feed distributors control information about the prices of inputs, their sources including the gross margins.

On the side sales and marketing, the farmers reported that sell their birds at fixed prices to traders, processors and/or retailers. In a quest to minimize feeding the birds, above 4 – 6 weeks, they are compelled to sell to traders and processors at prices with low gross margins, or in severe cases, process

the bird themselves and supply directly to wholesalers/retailers of frozen shops who also impose fixed selling prices on the farmers irrespective of the farmer's cost of production because they know the farmers have no alternatives. One of the interviewed stakeholders involved in the frozen chicken said:

The interviews and focus group discussion further revealed that there is no coordination within the

*"..... it is cheaper buying freshly dressed chickens directly from the farmers, negotiating prices with them is easier because they always want to dispose of the birds quickly, they also do not have cooling storage for the birds especially during glut...."*

(Retailer, Frozen Chicken)

broiler value chain. The farmers agreed that there is no cooperation amongst them, and they are usually disorganized. Most of them report that PAN was only used during the OSBOPS project but after it ended, the association has remained dormant. Executives of PAN interviewed during the study however, highlighted the negligence of the cooperatives' activities and values because farmers feel they have nothing to gain from the association.

### **Captive Governance**

Another type of governance identified in the chain is captive governance which is relevant to outgrower farmers operating in the chain. It was reported by the participants that outgrower farmers working with contracting firms are guaranteed market channel, but they (outgrower farmers) are mandated to buy inputs (DOCs, feed and drugs) producers and supplied by contracting companies; reference was made to contractual arrangements between Amo Byng and outgrower farmers. Participants of the focus group discussion also reported that farmers who were not able to supply the expected weight (1.8kg/bird) established in the contract were fined ₦10Naira on each bird supplied. This amount is multiplied across the number of birds supplied to the off-taker. In cases of side selling, it was reported that the off-taker subjects such cases to litigation. The contracting firms wield their control over outgrower farmers. One of the participants said:

*" ..... all those hatcheries that buy birds back from farmers are a rip-off. They are using farmers to make money. They don't pity farmers at all. They tell farmers to pay cash for their DOCs, they expect you to buy their feed which is not of good quality compared to others and at the end of the day, they will still delay your money. I pray never to do business with them again."*

(Focus Group Participant)

## **4.3 Cost Price of Broiler Production and Value Share Distribution**

### **Cost of Production**

The cost of processing a live bird (6 weeks) = ₦850Naira<sup>1</sup>/kg for contracting firms and ₦800Naira/kg for small scale processor. The cost price of broiler production is not easily determined according to the focus group participants. The key-informants attributed this certainty to the unstable prices of DOCs

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<sup>1</sup>Exchange rate at the time of data collection: €1 = ₦475 Naira

which changes weekly and constantly increasing cost of broiler feed. However, using recent records of DOCs, feed and drugs, the key-informants and farmers confirmed that the cost price of a live broiler to be within ₦950 – ₦1000 per bird (Table 8). However, the major difference between the independent producers and outgrower farmers is the price of DOCs. The prices of DOC for outgrower producer is fixed at ₦180/DOC while the price of DOC for independent producer fluctuates between ₦250 - ₦400/DOC. These findings were based on the quantitative data supplied by participants and key-informants. This tabulation excluded fixed costs.

**Table 8: Cost of production comparison between independent and outgrower farmers**

Expenses	Units	Qty	Price (Naira)	Independent producers Total (Naira)	Outgrower Producers Total (Naira)
Cost of broiler chick		1000	250/180	250,000	180,000
FEED COST	Kg				
(a) Cost of feed -broiler starter	1020	1.200	172.00	210,528	210,528
(b) Cost of finisher feed	1020	2.600	168.00	445,536	445,536
DRUGS AND VACCINES	Vials				
(a) Drugs (5% of feed cost) e.g. Coccidiostat, Oxytetracycline, multivitamins, etc.				32,803	32,803
(b) Newcastle vaccine (Lasota)	1000 dose twice	2000	1.20	2,400	2,400
© Infectious Bursal Disease (Gumboro)	1000 dose twice	2000	1.80	3,600	3,600
Transportation Cost					
(a) DOC Transportation		1000	10.00	10,000	10,000
(b) Feed Transportation	Bags	155.04	50.00	7,752	7,752
Operating Expenses/ Batch					
(a) Labour cost	Staff (10,000/ Month)	2	1	20,000	20,000
(b) Charcoal Purchase and transportation (for brooding)	Bags	2	1500.00	3,000	3,000
(c) Wood Shavings purchase and transportation	Bags	50	10.00	500	500
Total Variable Cost				986,119.20	986,119.20
<b>Cost Price Per Bird</b>				<b>986.12</b>	<b>916.12</b>

Source: Author's calculation from Field Data, 2020



## Value Share Distribution

The value share distribution among actors operating with contracting firms is shown in Table 9, Table 10 shows the value share distribution among actors operating independently and Table 11 show value share distribution within the informal chain.

**Table 9: Gross margin, Gross Income and Value Share Distribution for farmers operating with contracting firms.**

Actor	Variable cost/kg (Naira <sup>2</sup> ) ₦	Revenue (Selling price/kg) (Naira) ₦	Gross income (Revenue – Variable costs) (Naira) ₦	Gross Margin (Gross income x 100/Revenue)	Added Value (Revenue received – previous actor's revenue) (Naira) ₦	Value share (%) (Added value x 100/Retail price)
Farmer	450.00	550.00	100.00	18%	550.00	42%
Processor	750.00	950.00	200.00	21%	400.00	31%
Wholesaler	960.00	1025.00	65.00	6%	75.00	6%
Retailer	1150.00	1300.00	150.00	12%	275.00	21%
<b>Total</b>						100%

Source: Author's Calculation from Field Data, 2020

**Table 10: Gross margin, Gross Income and Value Share Distribution for farmers operating Independently.**

Actor	Variable cost/kg (Naira) ₦	Revenue (Selling price/kg) (Naira) ₦	Gross income (Revenue – Variable costs) (Naira) ₦	Gross Margin (Gross income x 100/Revenue)	Added Value (Revenue received – previous actor's revenue) (Naira) ₦	Value share (%) (Added value x 100/Retail price)
Farmer	490.00	530.00	40.00	8%	530.00	41%
Processor	750.00	950.00	100.00	11%	420.00	32%
Wholesaler	960.00	1025.00	65.00	6%	75.00	6%
Retailer	1150.00	1300.00	150.00	12%	275.00	21%
<b>Total</b>						100%

Source: Author's Calculation from Field Data, 2020

<sup>2</sup> Exchange rate at the time of data collection: €1 = ₦475 Naira

**Table 11: Value Share Distribution among actors in the live bird value chain (Informal broiler chain)**

Actors	Revenue (Selling price/bird) (Naira) ₦	Added value (Revenue received – previous actor’s revenue) (Naira) ₦	Value share (Added value x 100/Retail price)
Farmer	1150	1150	46%
Trader	2500	1350	54%
Total			100%

#### **4.4 Reasons Influencing Broiler Farmers’ Preferred Choice of Market Channels**

##### **Direct and Quick Payment from Traders**

Focus group participants reported that traders (hawkers and chicken barbecue) pay for live birds sourced from them on the spot or in some cases pay 1 – 2 days later. This situation enables them to maintain cash flow with quick and direct payments when selling to traders.

The participants also confirmed that it is relatively easier to monitor and track traders that buy birds on credit because they are located within the surrounding area compared to off-takers who buy in bulk and are far away in Osogbo which 33km from Ilesha and Ekiti state which is about 88km from Ilesha; while factoring the inconvenience of travelling long distances and the additional cost of transportation.

##### **Live bird Market**

The live bird market in the study area has no criteria or rules of standardization and quality. The participants highlighted that traders source for live broilers irrespective of the weight or age. The traders weigh the birds with eyes and hands and, then negotiate prices with the traders. The traders buy birds from 4 weeks (“broad and sell”) up till 8 weeks. Furthermore, some of the participants considered the price paid by the traders to be more profitable than the price they sell to processors.

However, others argued that the prices offered by traders are not always profitable and that traders and Hausa-Mallams always have the bargaining power because they know that farmers have no alternatives.

*“...there is no market. When the bird is ready, we don't have a ready-made market for it. There are no processors. We keep begging the Mallams to come and buy the birds and when you call them, they dictate the price to you.”*

(Focus group Participant)

The participants reported that processors on the hand, only source for birds from farmers within 1.8kg to 2.2kg. Live broilers outside this weight range are not usually accepted by processors. Farmers whose birds are outside these established weight criteria are not able to sell to off-takers. Secondly, the prices offered by processors are not always negotiable. They are always fixed sometimes ₦520 – 550

Naira<sup>3</sup>/kg. However, the participants acknowledged that selling to processors reduces labour and the cost of feeding and birds after 6 weeks because they buy in large quantities.

### **Increase in demand during the festive season**

Information from key-informant revealed that due to the high demand for chickens during festive period especially Christmas and New Year Celebrations, farmers prefer to sell the birds live and directly to individual consumers because the selling price of live chickens during this period is always higher than the average price.

### **Delay payments from Processors**

The focus group participants referred to processors as “alternative market”. They reported that the processors buy live broiler at fixed prices with stringent weight expectations and compliance to drug withdrawal instructions. In addition to these conditions, they delay payment of birds harvested from broiler farmers. They reported that most processors pay after 2-3 weeks and sometime after 2 months

*“I use to have a contract with farms (processors) before, but they do not stick to the terms of the contract as agreed as well as other farmers, so I left the arrangement ...”*

(Focus Group participant)

They highlighted that delayed payment affects their stocking intervals and stocking capacity of the farms. They also reported that processors do not respond to an increase in the cost incurred during broiler production. The unstable prices of DOCs and increasing prices of broiler feed makes it difficult for farmers to fix cost prices for each batch of broilers produced. Farmers operating under outgrower schemes and contract broiler farming also highlighted the delay in payment from contracting firms.

## **4.5 Current Procurement Arrangements**

The following are procurement arrangements used in sourcing for birds from broiler farmers in the area includes spot trading, vertical integration, centralized contract model, multipartite contract model and informal model. Table 12 shows the categories of farmers involved in the focus group discussion and the procurement arrangement employed in off-taking birds by actors in the broiler value chain.

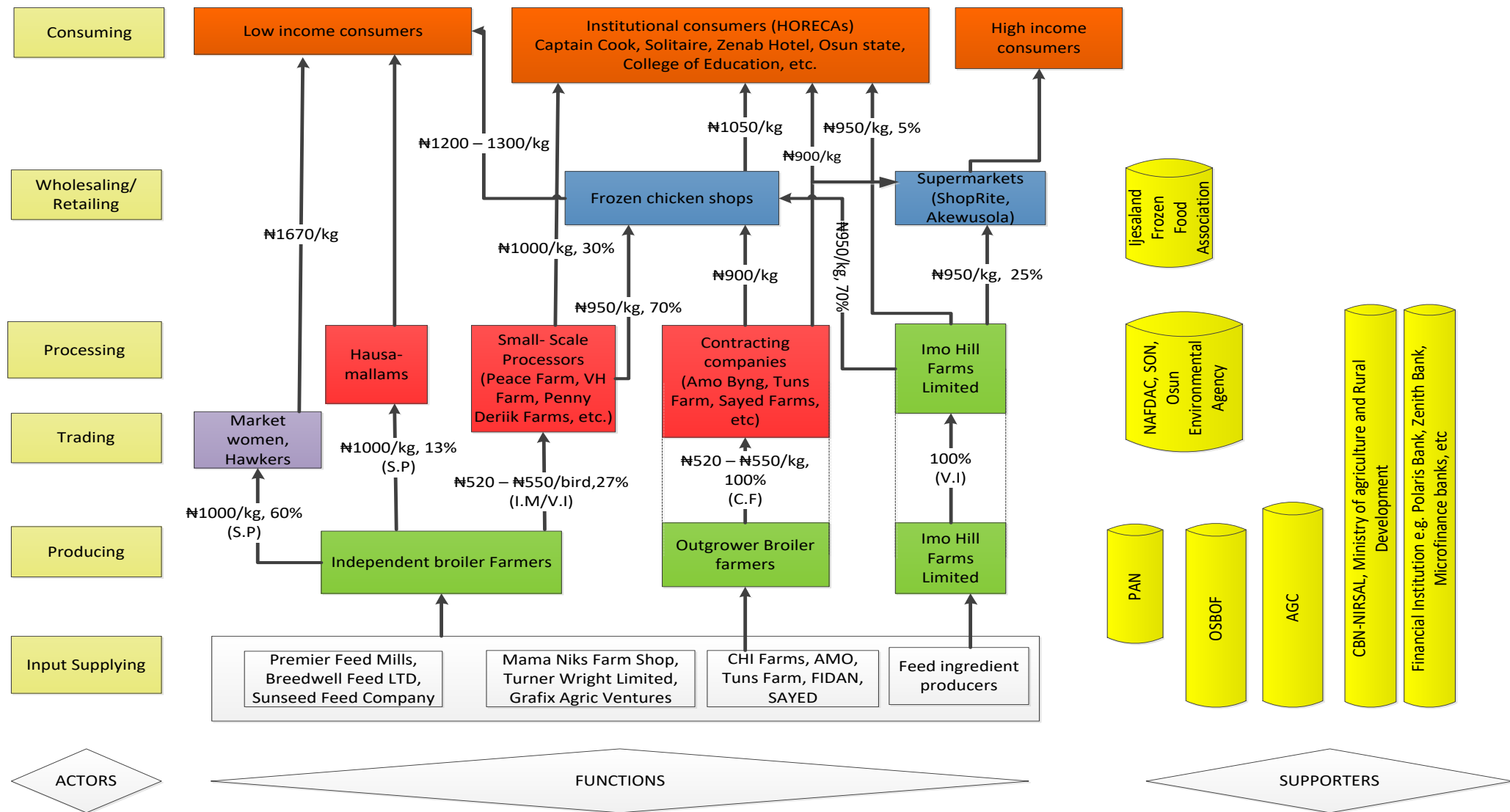
**Table 12: Categories of farmers and procurement arrangements used.**

Category of broiler producer	Number of Farmer	Percentage number (%)	Procurement arrangement
<b>Independent broiler farmers</b>	19	65	Spot purchase (S.P)
	4	10	Informal contract model (I.M)
<b>Vertically integrated Farmers</b>	9	17	Vertical integration (V.I)
<b>Outgrower farmers</b>	3	8	Centralized contract farming (C.C.F)
<b>Total</b>	36	100	

<sup>3</sup> Exchange rate at the time of data collection: €1 = ₦475 Naira

The table indicates the categories of farmers identified during the focus group discussion and the procurement arrangement used by FG participants. Figure 12 shows the overall value chain map of broiler in the study area indicating the procurement arrangements used in sourcing for broiler birds in the chain. As shown in the chain map (figure 12), the three major categories of producers are independent broiler farmers, vertically integrated farmers and broiler outgrowers.

**Figure 12: Value Chain of Broiler Value Chain in Ilesha**



S.P = Spot Purchase Procurement, I.M = Informal Model, C.C.F = Centralized contract Model, V.I = Vertical Integration Procurement (Field Data, 2020)

### **Spot purchase procurement**

65% of the independent broiler farmers involved in the FGD reported their birds are procured from spot markets by hawkers, chicken barbecue operators (“Hausa-Mallams”) in the value chain without prior arrangements. The live birds are sold when both actors agree on a price at a place and a particular time. The price for live bird changes daily depending on prevailing circumstances such as the cost of inputs and seasonality.

### **Vertical Integration procurement**

17% of participants in FGD (e.g. Benjo farms, Penny Deriik Agro Allied Farms Ltd.) also revealed that after production of 6-7 weeks, they process, dress the broilers themselves and sell to retailers of frozen chickens. Processing and dressing of broiler chicken by the farmers as is common when they encounter difficulties in selling the broilers on a live basis. Large scale processor like IHF also employs vertical integration in procuring birds for processing into frozen chickens.

### **Multipartite Contract Farming Procurement Model**

Information from key-informants also revealed that multipartite contract farming model is currently used under the Federal Government initiative through the Anchor’s Borrower Programme (ABP) in partnership with private firms to operate a value chain with broiler farmers in the country. Under this model, the public institutions (CBN-NIRSAL) through commercial banks play the roles of financiers providing a loan of ₦1 million Naira<sup>4</sup> per farmer at a 9% interest rate per annum. This capital is provided in the form of broiler production inputs (feed, DOC and drugs). The private institutions in this model include inputs suppliers, aggregators and processors (off-takers). According to the key-informant, the multipartite model employs the use of formal contractual agreement between input suppliers, farmers, farmer groups and processors. The multipartite contract model uses a resource – providing contracts to facilitate these outgrower schemes. The nature of these resource-providing contracts is the fixed – fee contract because the processor is responsible for bearing all risks related to marketing. However, according to the FG participants and the PAN chairman, this model is not currently used in the study area.

### **Centralized Contract Farming Procurement Model**

8% of the FG participants reported the centralized contract farming model is currently used in procuring chickens from them. According to the participants, the central contract farming model is currently used by vertically integrated private institutions (contracting companies) such as Amo Byng, Tuns Farm, Sayed Farm, etc. in sourcing for live birds from farmers. Under this model, the broiler farmers are provided inputs such as DOCs and feed by the contracting company based on the stocking capacity of the farmer. After 6-7 weeks with an expected average weight of 2kg, the contracting company buyback the birds from the broiler farmers. All contracting firms involved in the type of contract farm model have breeder farms, hatcheries, feed milling facilities and chicken processing facilities.

According to the FGD participants, contracting companies like Amo Byng require farmers to pay for inputs such as DOC (on a cash basis), drugs and feed before farmers are guaranteed of a secured market that is, farmers must procure inputs produced by the contracting company before they

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<sup>4</sup> Exchange rate at the time of data collection: €1 = ₦475

(contracting companies) buys back the birds at agreed market weight of 1.8kg upwards. After, 2 – 4 weeks, Amo Byng pays the farmers based on an agreed and already fixed market price.

Contracting institutions like Tuns Farm require farmers to pay a deposit of 20% for their production cost upfront before farmers are guaranteed a secured market channel for the sales of their birds. After production, the farmers are paid the gross margin which is the difference between the revenue generated from the tonnage of birds supplied and the total variable cost of production.

The study revealed these firms employ resource – providing contracts in procuring birds from broiler farmers. The nature of the resource – providing contracts is a fixed fee contract because the contracting company also bear the overall burden and risks of marketing and revenue received by the farmers is already fixed. The participants highlighted that general features of the contractual arrangement include the fixed prices of DOC, feed, expected weight of live birds, fixed buyback price of live birds, established payment dates and permission to access farmer's production site for monitoring. These contracts are backed by witnesses from both parties and court affidavits for farmers.

### **Informal Procurement Model**

10% of the participants involved in the FG discussion reported the informal model in procuring chickens from them. According to key-informants interviewed, the informal model of contract farming is used in procuring by off-takers from Osogbo (Osun state), or neighbouring states such as Ekiti (Nigeria) as well as small scale processors operating in ilesha. Under this model, all arrangements are made verbal, with no binding written agreements. The processors are verbally informed by farmers about the stocking dates of DOCs. This information enables the processor to arrange logistics, warehousing and marketing of frozen chickens. During broiler production, 2 – 3 weeks before harvesting, communications between the farmer and off-taker is re-established to confirm the availability of the birds and their weight. Furthermore, processors and farmers agree on price when the birds are ready for harvest at 5-6weeks. Upon maturity, the off-taker is invited to pick the birds which are done in batches or at once. Some participants reported that compared the procurement model used by the small-scale processor and contracting companies.

One of the participants said:

*"... We have noticed that those that come with verbal arrangement are mostly small-scale processors and perform better in terms of their relationship with broiler farmers compared to big companies who do not keep to the agreements despite documentation"*

(Focus Group Participant)

According to the key- informants, the payment terms under this model are usually 2 – 3 weeks after the birds are collected. The study revealed that the informal model employs some of the elements of marketing contracts in procuring birds from farmers. However, it is verbal, informal, subject to negotiation, and price fluctuation. The key-informants revealed that arrangements are made for logistics and harvesting is done by the processor and procurement of live broilers is successful when the off-takers collect all the birds at a verbally agreed price. Participants also reported that actors who buy birds from farmers with verbal arrangements comply agreed terms and conditions compared to contracting firms that off-take in large quantities.

#### 4.6 Challenges and Opportunities for linkages in the Chain

The following factors were identified as opportunities and challenges common to the broiler value chain in Ilesa, Osun state. They are analysed using PEST analysis shown in Table 13

**Table 13: PEST factors affecting the performance of the broiler value chain**

FACTORS	ISSUES
<b>Political</b>	Policy supporting the ban of the importation of frozen products and poultry eggs. Closure of the Land borders surrounding the country Continuous smuggling of imported frozen chickens from neighbouring countries such as the Republic of Benin. Tax exemption on imported agro-related equipment Conflict of political interest and affiliations on broiler outgrower schemes Inadequate infrastructure (roads and electricity) Inaccessibility to micro-credit facilities
<b>Economic</b>	Low-income earners in Ilesa. High cost of imported inputs especially drugs and vaccines Unstable prices of DOCs High cost of electrical power High cost of fuel and diesel Absence of hatcheries in the Ilesa or Ijesa land Absence of industrial off-takers (processors) in the Ilesa Delayed payment by processors
<b>Social</b>	Increasing rate of rural-urban migration High degree of unemployment as farmers are exiting the business of broiler production Inadequate extension services to broiler farmers Sharp practices of input marketers and distributors Dormant poultry cooperative and farmer groups
<b>Technological</b>	Use of manual broiler processing equipment Good experience in the technical husbandry skills for broiler production Poor electrical power generation and redistribution Poor quality of DOCs and feed ingredients Small scaled broiler production (500 – 2000 birds per batch)

The factors shown in table 13 indicate the performance of the broiler value chain is affected by integrated elements of the society including the political, economic, social and technological indicators.



The opportunities identified from the PEST factors in that chain that improve the linkage between the broiler farmers and the processor is presented in the SWOT analysis (Table 14).

**Table 14: SWOT analysis of the broiler value chain**

	STRENGTH	WEAKNESSES
INTERNAL	<ul style="list-style-type: none"> <li>➤ Physical resource and infrastructure to upscale broiler production</li> <li>➤ Good experience of broiler production and required technical husbandry skills.</li> <li>➤ Government regulation on the banned importation of frozen foods</li> </ul>	<ul style="list-style-type: none"> <li>➤ High cost of broiler feeds/ingredients</li> <li>➤ Unstable prices of DOC</li> <li>➤ Poor electrical power generation and distribution</li> <li>➤ Inaccessibility to micro-credit facilities</li> <li>➤ Inadequate capital to upscale and finance the business of broiler production</li> <li>➤ No training workshops from extensions services</li> <li>➤ There are no broiler hatcheries located within Ilesa or Ijesa land.</li> </ul>
	OPPORTUNITIES	THREATS
EXTERNAL	<ul style="list-style-type: none"> <li>➤ There are no large scale processors (off-takers) sited in Ilesa off-taking live birds from broiler farmers in large quantities.</li> <li>➤ Hawkers and “Mallams” buy in small quantities.</li> <li>➤ Broiler farmers with 1000 birds and above sell in piecemeal to traders.</li> <li>➤ The added cost of feeding (after 6 weeks) due to the absence of large scale off-takers.</li> <li>➤ High demand for tough poultry meat obtained from noilers and culled layers.</li> <li>➤ Broad-spectrum of consumers outside Ilesa</li> <li>➤ Delayed payment from previous large scale off-takers.</li> <li>➤ No active broiler farmer groups in the Ilesa</li> </ul>	<ul style="list-style-type: none"> <li>➤ The consumer market for frozen chicken is limited.</li> <li>➤ Continuous smuggling of frozen foods into the country.</li> <li>➤ Small scale processors do not brand their frozen chickens.</li> </ul>

#### 4.7 Competitiveness of the Broiler Value Chain

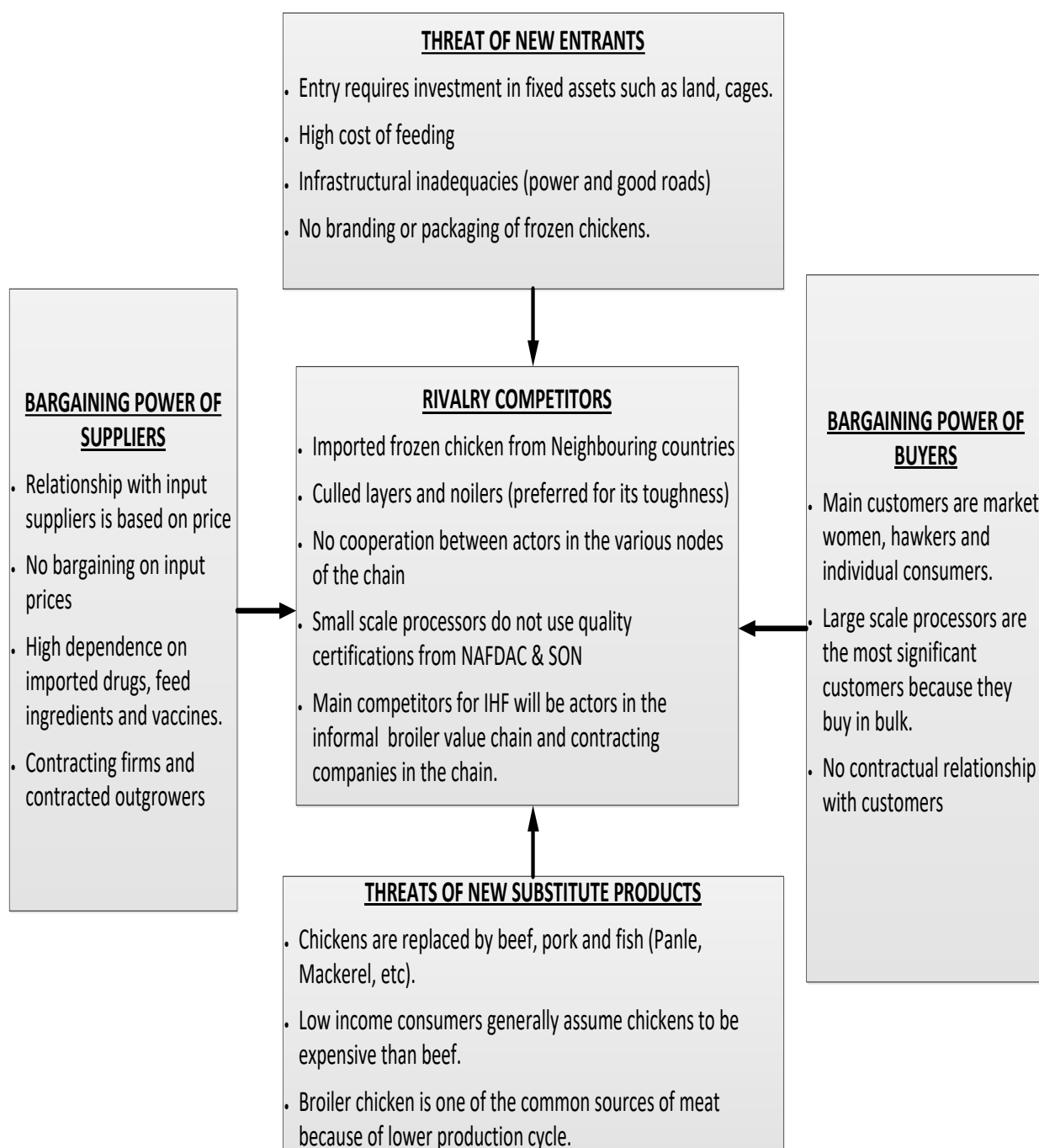
The competitiveness broiler of the broiler is influenced by the elements of porter’s five forces as shown in Figure 13. The force of the bargaining power of suppliers has a strong effect on the final production cost because inputs are imported, and small-scale broiler farmers do not have the leverage associated with volume and neither can they bargain the prices of inputs such as DOCs, feed or drugs.

The effect of the force of rivalry competitors on the broiler value chain is also strong because of the high influx of imported frozen chickens smuggled into the country. According to the FG participants, imported chicken rivals locally produced chickens either live or processed because they are cheaper compared to the local products. Furthermore, the absence of large scale off-takers in the area contributes to the increased consumption of imported frozen chickens over local produced frozen chickens.

The effect of the force of bargaining power of buyers is strong because small scale farmers sell their birds using spot purchase in open/free markets as reported by the 65% of the FG participants. These markets are subjected to daily price fluctuations in production cost and the selling prices because small-scale farmers have less bargaining power in these open markets. This force negatively affects the competitiveness of the chain.

According to respondents, substitute product for broiler chickens is beef, pork and fish. Customer readily buys beef and fish (Mackerel and Stockfish) because they presumed to be cheaper than chicken.

**Figure 13: Competitiveness of the broiler chain**



Source: Field Data, 2020

#### **4.8 Business Model Currently Used by Independent Broiler Farmers in the Broiler Value Chain**

The current business model (Annexe 4) employed by independent broiler farmers (Table 12) operating in Ilesa.

##### **Customer Segments**

The independent broiler farmers in Ilesa sell their birds to traders of the live bird markets (Hawkers, individual consumers, chicken barbecue producers (Hausa-Mallams), and small scale processors. The main customers are usually hawkers and Hausa-Mallams whom off-take birds using spot purchase. Small-scale processors employ informal contract models in securing birds from these categories of farmers.

##### **Customer Relationship**

The relationship between customers and broiler farmers is based on market conditions. No contractual agreement with the various customer segment listed above. Farmers only sell on credit basis to trusted customers they have been dealing overtime aside this most procurements are done established on cash and carry basis. Small-scale processors collect birds and payback in 2-3weeks later.

##### **Distribution Channels**

The major distribution channel for live broiler is from the farm gate. Farmers avoid selling the bird in the open market due to cost of sales such as transaction costs. Thus, customers come to the farm to buy the birds. The birds are transported to open markets with motorcycles. Small-scale processors use hauling vehicles to transport birds from the farmgate to processing facilities.

##### **Value Proposition**

The farmers produce broilers of broilers with customised weight ranges (1.2 – 2.2 kg) for the customer segments. They also process and dress the broiler chickens based on end customers' request.

##### **Key Activities**

The farmers brood the DOCs, feeding the birds daily (4-6weeks) to attain good feed conversion ratio (FCR), vaccinations against Newcastle disease and Infectious Bursal Disease (Gumboro), medication against coccidiosis and other outbreaks, establishing biosecurity rules and compliance, sanitation, sales and marketing of live birds through phone calls, referrals and sometimes directly to end consumers.

##### **Key Resources**

Farmers regularly employ family labour and hired labour to carry out the key activities relevant to broiler production. The farmers are experienced in technical husbandry operations related to broiler production including animal health. Broiler production business for the farmers is financed with their funds; which is limited.

##### **Key Partners**

Major key partners of the farmers are inputs suppliers. The input producers/suppliers include Amo Byng, RTO, Tuns Farms, Fidan, Sayed, CHI farms supply DOCs. Partners such as Breedwell LTD, Premier Feed Mills, Olams supply feeds, and retail distributors such as Mama Niks supply drugs and vaccines. These partners only conduct marketing workshops to push new products into the market.

### **Cost Structure**

The average cost of production per bird for 6 weeks is ₦950 Naira<sup>5</sup>/bird with an average weight of 2kg. Feeding cost accounts for 70% of the production cost while drugs and vaccines account for 5% of the production cost. Sales and market cost are usually unaccounted before they are done with word of mouth (referrals) or phone calls.

### **Revenue Stream**

The revenue stream for independent broiler farmers depends on the market channels for which the birds are sold. The selling price per kilo (kg) to processors is ₦520 – ₦530 Naira per kg while selling prices of live bird (5 weeks) to traders is ₦1200 – ₦1500 Naira per bird (Live bird market). Other sources of revenue for the farmers include noilers, turkeys, eggs and culled layers. The method of payment is usually cash payment and mobile bank transactions.

## **4.9 Procurement Arrangements, Terms and Conditions Suitable for the Developed Chain**

The focus group discussion brought to the forefront some terms and conditions that can facilitate the steady supply of live broiler to the processor. These include;

### **Guaranteed supply of inputs at steady prices**

The participants revealed that empowering farmers with inputs especially feed and a fixed price for DOC is a major intervention that can improve the newly developed chain between the farmers and processor. A reliable supply of good quality feeds and stable prices of DOCs guarantees the processor a secured supply of live broilers.

The farmers referenced the Osun state broiler growth scheme (OBOPS) in 2011 – 2014 where farmers were contracted and supplied inputs by the scheme manager (Tuns Farms) and mobilization funds were supplied by the Osun state government. This outgrower scheme provided a secured supply of live birds to the scheme manager which the marketing problems associated with broiler production was reduced with the scheme. The farmers reported that it was difficult generating capital to source for DOCs as well as feed higher quantities of broiler (that is 1000 birds and above) and the scheme empowered them to address these challenges.

### **Mutual agreement on contractual terms and conditions**

The FG participants also agreed that transparency, trust and mutual understanding with processors will ensure a secured supply of live birds if the price for off-taking live birds is collectively established by both off-takers and the farmers. Furthermore, the processor should ensure that all birds are procured without excuses of poor demand or delayed payment from customers of frozen chickens. Also, the price to be paid for live birds should be based on the weight of the birds on the production site before transportation to the processing plant.

The farmers reported that a major challenge with contractual agreements with off-takers is the delayed payment of the farmer's share after broiler have been harvested from their farms. Hence, payment dates established in contractual agreements should be realistic to enable farmers promptly restock DOCs for the next cycle of broilers.

It was also suggested that processors should ensure that they have secured and quick paying outlets/customers for frozen chickens. Quick paying market channels will reduce the delay in paying farmers their share of the revenue generated from broiler sales to off-takers.

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<sup>5</sup> Exchange rate at the data collection: €1 = ₦475 Naira

**Monitoring and continuous improvement**

FG Participants suggested that procurement arrangement should include monitoring, field visit and training workshops to ensure that farmers are continuously trained and aware of recent developments to protect the interest of the processors as well as the interest of the farmers. This suggestion came to light after farmers considered that there is no training from extension services in the poultry sector except private inputs suppliers who tend to market their new products through trainings.

**Partnership with the processor**

FG Participants also suggested that since the processor cannot supply inputs such as DOCs and feed, then the processor partners with broiler producers in the area to enable them access loans from financial institutions given that the processor is not focused on input production of DOCs and Feed. The partnership can enable the farmers upscale and focus on primary production and while the processor can serve as a steady secured market channel for their live birds. The farmers referenced specialized financial institutions like Bank of Industry that provide microcredits to farmers provided they have guaranteed and verifiable market channels.

## CHAPTER FIVE

### 5.0 Discussion

#### 5.1 Stakeholders in the Broiler Value Chain

Findings from the study indicated that the production, processing and marketing of broiler chicken follow a series of activities and functions carried out by actors. The study revealed that the value chain of broiler in Ilesa is connected with multiple channels. The informal part of the value chain involves broiler farmers, traders and barbecue chicken producers (Hausa – Mallams) while the formal part of the value chain involves the functions of the following actors; broiler farmers, processors, wholesaler/retailer. This agrees with the results of the value chain studies conducted by Bulama *et al.*, (2010) and Bwalya and Kalinda, (2014).

Evidence from the study showed that actors in the broiler value chain operate independently due to mistrust between actors, weak information flow and this is consistent with value chain studies conducted by Ekene *et al.*, (2019). Farmers in Ilesa do not trust DOCs marketers to supply quality DOCs, outgrower farmers do not trust the contracting companies to supply quality feed ingredients, contracted broiler farmers breach contractual arrangements by engaging in side-selling (especially during the festive season), processors (off-takers) do not adhere to payment terms and conditions agreed upon by both parties, too many small-scale and backyard farmers in the chain results to competitions and mistrust between stakeholders in the broiler value chain (Webber and Labaste, 2010; Ekene *et al.*, 2019). Furthermore, the negligence of PAN's activities by its members has resulted in the dormancy of the poultry cooperative driving the broiler chain deep into a low-trust and weak value chain.

Creating and building trust between stakeholders in the chain is the heart of value chain development and it is a crucial step that will tackle bottlenecks as well as strengthen mutually beneficial linkages among firms so that they work together to take advantage opportunities within the chain (Webber and Labaste, 2010; Ingweye and Qadwe, 2018). Hence, for farmers to tackle bottlenecks such as poor markets for broilers; and for off-takers to maximize its under-utilized facilities; both parties need to create and build trust with each other to achieve their interests.

#### 5.2 Chain Governance and Coordination Dynamics

##### Market governance

The study revealed that the type of governance structure and relationship in the broiler value chain is the market governance and this agrees with the study of Prayugo, Daryanto and Djohar, (2012) where a similar value chain study in Bangladesh reported the market governance structure in the broiler value chain. This characteristic is evident in the arms-length transactions between input suppliers/marketers and farmers (Ingweye and Qadwe, 2018). The same arms-length relationship exists between farmers and processors/traders of broilers. The prices of market weight live birds in the market is subjected to the buyers' bargaining power (Prayugo, Daryanto and Djohar, 2012) and these prices do not reflect the increasing cost of production (Oloso *et al.*, 2020).

The results show that broiler value chain is dominated by spot markets (65% of the participants) in the vertical relationships between input suppliers, broiler farmers, traders and processors, thus indicating a

weak value chain (Ingweye and Qadwe, 2018). Horizontal linkages between farmers are weak as farmers groups (PAN, OSBOF, AGC) are lacking strong organisation and cooperative values and bonds also implying weak coordination between farmers (Akinwumi *et al.*, 2009; Ingweye and Qadwe, 2018). Weak vertical and horizontal linkages actors are indicators of an underperforming and non-competitive broiler value chain (Ingweye and Qadwe, 2018).

Generating informed and credible governance aimed at attaining high-value results is one of the core objectives of value chain development. The presence and partnership with a competitive off-taker (e.g. Imo Hill Farm Limited) with broiler farmers in the chain may induce sufficient competitive pricing for small-scale farmers as well improve the governance structure of the chain and also creating a secured supply of birds to the competitive off-taker (Webber and Labaste, 2010).

### 5.3 Cost Price, Value Share Distribution and Gross Margins

Respondents indicated the cost of production fluctuates daily because the price of DOCs, changes daily as well as prices of feed and drugs which is consistent with Ekene *et al.*, (2019). This is attributed to the high dependence of the imported inputs (Oloso *et al.*, 2020). The difference in cost price (Table 9 and 10) between independent producers (₦490 Naira<sup>6</sup>/kg) and outgrower farmers (₦450/kg) is attributed to the price of DOC which is fixed for outgrowers while the price varies weekly for independent producers. This implies that outgrower farmers enjoy the benefits of fix prices of DOCs supplied by contracting firms. Off-takers (like Imo Hill Farms Limited) without DOC producing facilities may not be able play the integrated roles of contracting firms. This is a challenge for most processors in securing live birds from farmers.

The value share (Table 9 and 10) for independent farmers (42%) is relatively equal to the value share of outgrower farmers (41%). However, the estimated gross margin for outgrower (18%) is higher than that of the estimated gross margin for independent farmers (8%). This is because outgrower farmers obtain a fixed price for DOC (₦180 Naira/DOC) while independent farmers are subjected to weekly fluctuations in the prices of DOCs. Also, the selling prices of live chickens to small-scale processors fluctuates daily for independent farmers while the selling price for outgrower farmers remains fixed.

### 5.4 Market Channels

Results from the study showed broiler value chain has two major market channels namely traders/Mallams and processors. Evidence from the study showed that farmers (65% of the participants) sell their bird to traders/Mallams who make quick and direct payment to farmers that is they either pay on the spot or payback in 1 -2 days after selling the birds. This agrees with the findings of Olufadewa, Obi-Egbedi and Okunmadewa, (2018). Secondly, traders do not use weighing scales to weigh the birds and they buy birds from any age especially 4 – 5 weeks irrespective of the weight.

A third reason influencing broiler farmer's choice of a market channel in Ilesa is the delayed payments by processors (off-takers). This agrees with the study conducted by Umoh, Essien and Asuquo (2019) on the Akwa prime outgrower scheme in Akwa Ibom State, Nigeria. According to the participants, delayed payments and fixed prices affect their stocking interval and stocking rates for DOCs. This drives independent farmers in the chain to shy away from contracting companies. However, the focus group

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<sup>6</sup> Exchange rate at the data collection: €1 = ₦475 Naira

participants collectively revealed that selling to processor reduces risks associated with marketing which agrees with Begum (2005) and Umoh, Essien and Asuquo (2019).

Interviewed processors, on the other hand, identified delay payments from institutional consumers (such as Hotels, supermarkets, restaurants) as the reason resulting in the delay payments to farmers. Addressing the issue of delayed payments, potential off-takers should consider exploring quick paying markets channels (including exports) for frozen broiler chickens and as well establish contracts with indicating prompt payment dates. Off-takers must be transparent with partners (small-holder farmers) on payments terms and conditions and collaborate them on strategies to improve the marketing of frozen broiler chickens.

### **5.5 Challenges and Opportunities for Linkages Between the Processor and Broiler Farmers**

Evidence generated from the study indicated various challenges (Table 13) contributing to the weak performance of broiler value chain in Ilesa. The farmers identified the absence of industrial processors in Ilesa who off-takes birds from them as a major challenge. Other challenges highlighted by the participants include high cost of inputs, unstable prices of DOCs, inaccessibility to micro-credit facilities, inadequate capital, poor electrical generation and distribution. These constraints are consistent with the findings of Olufadewa, Obi-Egbedi and Okunmadewa (2018); Adeoti and Soyele (2019) and Ekene *et al.*, (2019).

Opportunities (Table 14) for the processor (IHF) to develop linkages with broiler farmers include the possibility in the sourcing of birds from broiler farmers in the study area given that there are no industrial off-takers. Also, farmers have the technical experience, stocking capacity and structures to stock and upscale broiler production (Adedeji *et al.*, (2014); and Adeoti and Soyele (2019). Furthermore, the farmers expressed enthusiasm and willingness to partner with the processor (IHF) to handle risks associated with broiler marketing while they specialize in improving efficiency in broiler production. These opportunities place the processor in a suitable position to secure the uptake live birds from the farmers in Ilesa.

### **5.6 Procurement Arrangements used in the Chain**

Results from the study brought to light the procurement arrangements used in sourcing for broilers from farmers. Spot purchase procurement is a common arrangement by independent broilers farmers, traders and Hausa-Mallams (barbecue chicken producers). This is consistent with findings of Vermeulen, Kirsten and Sartorius (2016). The authors highlighted that spot markets in the poultry industry is common for niche markets, informal chains. Results from the study also revealed that broiler farmers in Ilesa employ vertical integration as a procurement arrangement in sourcing for birds that is, they raise their birds for 5 – 6 weeks, process, dress, store and sell the chickens (Prowse, 2012). The farmers sell to retailers and individual consumers. The commissioner also employs vertical integration on a large-scale basis.

Results from the study showed that contract farming models, that is, multipartite contract model, centralized contract model and informal model are currently used in sourcing for broilers from farmers.

#### **Centralized Contract Model**

The centralized contract model used in the chain connects individual farmers to contracting firms such as Amo Byng and Tuns farms. The nature of contracts employed by contracting firms is the fixed-fee



contracts because the contracting firms bear the risks associated with marketing, hence, the remuneration received by farmers is fixed. Inputs are provided to the farmers while the off-takers buy back the mature broilers from the farmers. This agrees with findings of Catelo and Costales, (2008) on the types of contracts used for broiler production in India and the Philippines. However, they reported forward-price or profit-sharing contracts are now used for the broiler production landscape in Thailand.

These arrangements have guaranteed the secured supply of broilers to integrators operating broiler value chain in some countries such as India, Philippines and Thailand (Catelo and Costales, 2008), Brazil (Alberto *et al.*, 2015) as well as in South Africa (Vermeulen, Kirsten and Sartorius, 2016).

### **Multipartite Contract Model**

The multipartite contract model was referenced in the focus group meetings. This model employs a private-public partnership between anchor companies, development partners, broiler outgrowers and financial institutions. Examples include the broiler outgrower scheme (OBOPS) project in 2011 – 2014 and the current Anchor Borrower's programme (Coker *et al.*, 2018). The multipartite contract farming uses a formal resource – providing contracts (Prowse, 2012) and the nature of these contacts are fixed – fee contract which agrees with Catelo and Costales (2008). However, only a few participants of the focus group discussions were aware of the Anchor Borrower's Programme (ABP) and the modalities involved in the scheme. Evidence from the key-informant reported that the OBOPS project was halted as a result of political interests from the partners involved in the project. These findings agree with propositions made by Prowse (2012) that political affiliations and interest might affect farmer – contractor relationship. This arrangement, however, may not sustainable in the long term especially in cases when the financier (either Federal or State Government) pulls out of these outgrower schemes.

### **Informal Model**

Results from the study revealed that small-scale processors; who process broilers into frozen chickens employ some elements of the informal model of contract farming. This arrangement is verbal, prices are not fixed, and it is not backup by contracts or witnesses. The processor negotiates with farmers on price and upon agreement collects all the birds usually between 500 – 1000 birds. This agrees with the study of Catelo and Costales, (2008). Under the informal contract model, the processor is not responsible for providing inputs or production risks. They only bear the risk of marketing. However, some processors provide credits to inputs suppliers to meet the production needs of trusted broiler farmers while some others processor like VH Farms pays 50% upfront to guarantee the sales of the bids after 5 – 6 weeks to the firm. This model does not guarantee a secured supply of birds to processor nor a secured market for the farmer given the uncertainties associated with fluctuations with cost production, market prices and seasonality.

In summary, a review of procurement arrangements used in the chain suggests that centralized contracting model between farmers and off-takers guarantees secured supply of birds to off-takers and as well guarantees the farmers a secured market (Catelo and Costales, 2008; Webber and Labaste, 2010; Prowse, 2012). However, the sustenance of the benefits associated with this centralized contracting model depends on the shared value as well as the intensity of the relationship between farmers and the contracting firm. This shared value is lacking in the centralized model used in Ilesa because the participants reported having opted out of the centralized contracting models due to biased terms and conditions on the contracts as well as delayed payments.

## 5.7 Competitiveness of the Value Chain

The effect of the five forces is strong on the broiler value chain. The strong effect of bargaining power of suppliers is related to the high dependence of the broiler industry on imported inputs (Oloso *et al.*, 2020) and the domination of the broiler landscape by small-scale producers as seen in the focus group discussions. The processor can partner with farmers through contract farming model to mitigate this by leveraging on collective procurement of inputs from directly input suppliers, thus enjoying the economies of scale (Alberto *et al.*, 2015). The strong effect of the bargaining power of consumers because about 65% of the FG participants reported that their birds are procured in open markets (Alberto *et al.*, 2015). This can be mitigated by initiating customer loyalty through collaborations (with off-takers such as Imo Hill Farms who sell branded chickens) or loyalty programs (Alberto *et al.*, 2015). The strong effect of rivalry competitors on the broiler value chain requires actions at multiple levels such as policy enforcement, use of domestic inputs, customer awareness amongst other on the issues associated with imported chickens smuggled into the country.

## 5.8 Current Business Model

As common with small-scale agricultural enterprise, the current business model of independent broiler farmers indicates inadequacies associated with the weak performance of the broiler value chain including dispersed buyers, mistrust between farmers and other business actors, farmers selling to traders in informal markets, lack of access to services such as credit, poor quality and unstable prices of DOCs, and inadequate trainings. While the current business model highlights these inadequacies associated with the business of the farmers, it also shows the areas of improvement and opportunities which the processor can utilize in cooperation with the farmers to serve each other's fundamental interests (Lundy *et al.*, 2014). Possible areas of improvement identified from the business model include collective procurement of inputs by farmers group from specialized inputs producers, value chain financing models and adequate information exchange between independent broiler farmers, inputs suppliers and off-takers. These strategies can enable off-takers obtained a secured supply of birds as well provide steady inputs for independent broiler farmers to upscale production for improved gross margins.

## 5.9 Procurement Arrangements Suitable for the Processor and Broiler Farmers

Results from the study revealed procurement arrangements, terms and conditions that can guarantee the secured supply of broiler to processor (IHF) in the chain. Chief among the numerous options include facilitating the guaranteed supply of inputs at steady prices, organization of farmers into groups/clusters and partnership with financial institutions or credit schemes facilitated by the Government. This arrangement agrees with the findings of Heise, Crisan and Theuvsen (2015) where it reported that the participation in farmer cooperatives and availability of micro-credits for smallholder already supported by the government can enable farmers to bulk and upscale production.

The participants suggested that if the processor cannot supply inputs (DOCs and feed) to guarantee a secured supply of birds, then it can enter into a partnership with farmers and financial institutions (e.g. Bank of Industry (BOI) or the ABP) to provide micro-credits to farmers in form of inputs while the processor serves as a market channel and pays back the balance of the micro-credits to the financial institution. This is likened to value chain finance linkage model (Charitonenko *et al.*, 2005) which is similar to the CBN-NIRSAL initiative (Coker *et al.*, 2018). The participants reported that they maintained small flock (500 -1000) birds because they do not have financial capacity to feed birds of large

quantities (more than 1000) for 6 weeks. This was attributed to the fact feeding covers more than 70% of the production cost and other PEST factors shown in Table 13. Hence, if they can be empowered with inputs, they are capable of ensuring supply of live birds to the processor.

The farmers suggested the development and application of flexible contractual arrangements with mutual benefits for both the farmers and processor will play a vital role in meeting the interests of both parties. This agrees with the finding of Catelo and Costales (2008) and Prowse (2012), where it was reported contracts either formal or informal can as a medium for accessing formal markets as well as a governance tool for market institutions which can be utilised to activate the requirements of higher levels of managed coordination within the value chain.

However, as opposed to the contracts used in the centralized contract model, the farmers emphasized that the modalities of the linkage contract must be collectively agreed upon by partners involved. This would help avoid biased terms and conditions to both parties.

### **5.9.1 Reflection Journal on My Thesis Trajectory**

The purpose of the research was anchored on the need to efficiently maximize the utilization of chicken processing facilities owned by the commissioner; Imo Hill Farms Limited. The objective was to advise the commissioner on procurement strategies that will foster linkages between the commissioner (chicken processor) and broiler farmers.

#### ***Research Focus and Topic***

The research focus was inspired by the business case of processor-led value chain involving Holland Dairy (milk processor) in Ethiopia's dairy sub-sector which the researcher actively participated. This aforementioned business case was similar to the objective of this research. The researcher consulted with the commissioner about his research focus and get positive feedback to proceed with research because it aligns with the organization's strategic plan to efficiently maximize its facilities. Furthermore, the recommendations from the research would point the commissioner in which direction to focus its resources to achieve this strategic objective.

#### ***Reflecting on Field Data Collection***

The researcher employed a qualitative approach. Thus, primary data was collected through focus group discussions and interviews with stakeholders. Given, the current state of Ilesa, Osun State, Nigeria as regards the COVID-19 pandemic, the "new normal" of social distancing and limited number persons within a social gathering which is less than 20 persons per meeting. This restricted the number of participants to less 20 participants for each focus group discussion. Data was collected with three separate focus group discussions. The first focus group discussion had 15 participants; the second group had 12 participants and the third had 9 participants. The interview sessions had 15 respondents and 2 key-informants.

It was difficult for the researcher and his assistant to mobilize participants for focus group discussions because of the COVID – 19 pandemic as movements within the study area were totally restricted. Howbeit, respondents were mobilized with phones and continuous text messages to update and remind on new dates for the meetings. The schedules date for the third focus group discussion was changed twice as a result of a second lockdown which was initiated by Osun State Government specifically within the study area (Ilesa). The increasing number of COVID-19 active cases within the area affected the attendance of participants i in the third focus group discussion and this, also

restricted the number of focus group discussions to only three. The researcher used snowball sampling participants for the third focus group discussion because of the second lockdown. However, the researcher conducted online interviews via WhatsApp calls with some participants who missed the fourth focus group discussion given the time constraint on data collection period. The online interviews session was, however, marred by constant disruption with poor internet connectivity on the side of the interviewees; as a result, useful information might have been missed or misinterpreted. Next time, in a similar situation, it is important the researcher confirms and check properly that information supplied by the interviewees is clear after stable internet connections has been re-established.

Looking back at the first focus group discussion, the participants requested to know who the researcher was and why they were providing information for the study. In a quick reflex, the researcher engaged the participants with live WhatsApp video call with participants to ascertain his integrity and also assured them that the information they provided would cause no harm to them or their business interest. However, the video call was marred by poor internet connectivity. This time, a pre-recorded video stating the researcher profile and also, indicating the research focus and objective of the study. The researcher recognized and learnt from this situation that it is important to pre-inform and equip the researched with adequate details to avoid miscommunication and biased responses. The pre-recorded video was replayed before the start of the second and third focus group discussions.

Building on the experience the researcher gained about providing adequate information to respondents before the meeting; the researcher discussed and provided adequate information about the objective of the research to respondents to be interviewed online. This was necessary to gain the trust of the respondents given that they could not see the researcher. Some of the experts/key-informants were not satisfied and hence conducted background checks with the researcher's organization to ascertain the authenticity of his research as well as his personality. The information supplied by the research about the objective of the study contributed to receptive responses to questions raised during interviews.

An important lesson point for the researcher was the need to effectively probe interviewees and ensure that the interviews questions were stationed on the checklist. It was a bit difficult steering the conversation to align with the checklist because at some point, the researcher was overwhelmed with information supplied by interviewees. The online fieldwork however hindered probing as some interviewees had poor internet connections. The researcher was not able to probe deeper due time wasted on trying to ensure unstable internet connection. Next time, in a similar situation, it is important the researcher asks questions that are focused on the checklist, and if the circumstances permit, conduct the interviews face-to-face for effective probing.

### ***Reflecting on Data Analysis***

The researcher conducted all online interviews within the timeframe of 22.00 and 23.00 European time given the difference between Nigeria and the Netherlands. This was based on the fact most respondents were available at night. The researcher couldn't transcribe the data immediately, so most times, was tired after the interviews sessions and had to rest. Thus, most of the interviews were transcribed the next day or some days later.

Thematic analysis was used to analyse the qualitative data obtained from respondents and key-informants. This method was used to sufficiently answer sub-questions raised during the study. The method was used to identify reoccurring themes identified during the literature review of the research.

### ***Reflecting on the limitations, validity and reliability of the research methodology***

The researcher encountered a series of limitations. The first limitation was the miscommunication on the proposed dates of focus group discussions due to the news of the rampant spread of the COVID-19 pandemic specifically within the study area. The focus group participants were not certain of the fixed date for the focus group discussion. Hence, text messages were sent twice to reschedule the third focus group discussion. Due to time constraint and the second lockdown, the fourth focus group discussion as proposed in the research proposal was cancelled. Reflecting on this event, the researcher must ensure that accurate and timely information is disseminated between the research team and the respondents.

The research study did not include activities and information from actors (traders/Hausa-Mallams) in the value chain. This is because the researcher was not able to contact these actors aforementioned despite the snowball sampling techniques used to identify them. The researcher could not reach these actors on WhatsApp voice calls after making various attempts and appointments to reach them via mobile calls. However, key-informants were able to give insight into the activities of traders within the value chain.

Language barrier was also a limitation for the researcher. Some of the respondents could only speak Yoruba. The researcher had to conduct some online interviews in native dialect (Yoruba) of the respondents. After the sessions, interviews were translated from Yoruba to English before transcribing. The researcher might have misinterpreted or missed some of the pieces of information during translation. Next time in the future, when a similar situation occurs, the researcher should engage the services of a translator skilled in the native dialect of the respondents.

The participants of the focus group discussion gladly cooperated with the research assistant in responding to checklist questions. The interviewees were receptive to the probing questions the researcher raised from the interview guide. The research assistant was also advised to dress appropriately to fit into the situation so as not to introduce involuntary bias that might encourage the respondents to supply information based on their perception of his outfit. This guided against biased responses from the participants and improved the reliability of data supplied by the respondents.

The online interviews conducted with key informants and experts were occasionally disrupted by poor internet connectivity. Thus, some pieces of information may have been missed or misinterpreted. However, despite the various prevailing circumstances, the researcher was able to reduce bias and assess the validity of the findings from the research through triangulation. The information that was willingly supplied by key-informants and experts was triangulated with information which was gladly provided by supportive and cooperative respondents (farmers) and, this again triangulated with relevant literature. The findings across all sources of data were consistent after triangulation. Furthermore, to assess the validity of the findings, the researcher fed back the finding to some key-informants and some participants of the study and they positively affirmed the findings of the research.

### ***Relevance and Suitability of the research***

The research is relevant because it gave the researcher an in-depth insight into the current characteristics of the broiler chain, thus providing reliable and valid data to advise the commissioner on procurement strategies that would link the organisation to broiler farmers as well as facilitate broiler value chain development within Ilesa. Also, the research is relevant because it contributed to existing knowledge on the broiler value. However, to the best of researcher's knowledge, the research is the first value chain study conducted in the Ilesa, Osun State, Nigeria.

In conclusion, there were no unexpected changes to the research methodology and there was no conflict of interest in the research because the researcher does not know the interviewees personally nor their background. So, there was no possibility of using the researcher's personality or experience of the industry to influence responses of the research.

## CHAPTER SIX

### 6.0 Conclusion and Recommendation

This chapter highlights the conclusions deduced from the study based on the triangulation between research data sources and research tools, in the latter end of the chapter, there are evidence-based recommendations for the commissioner (processor) garnered from the study. The applied recommendations are produced to answer the research objective of the study.

### 6.1 Conclusion

The objective of the research is to advise the processor on procurement strategies that will link the processor to broiler farmers to maximize the utilization of its chicken processing facilities. A qualitative approach was used. Thus, interviews with key-informants, respondents and three focus group discussions (FGDs) were used. Stakeholders selected for interviews and FGDs were individuals who have been adjudged to be actively involved in the broiler subsector for the past 2 years. The conclusions of the findings from the research are as follows;

The broiler value chain in Ilesa comprises of the formal and informal channels of value addition activities along the chain. The sub-output of the formal chain is the frozen chicken while the sub output of the informal chain is the live birds. The informal chain dominates the broiler production landscape in Ilesa, Osun State, Nigeria because there are no large-scale processors off-taking live birds from the farmers except for private contracting firms (outside the study area) and outgrower schemes initiated by the Federal and/or State Government. Given, the qualitative nature of the study, the numbers of broiler producers as well as partners with contracting firms and small-processors in the study area was outside the scope of the study.

Farmers operating the broiler value in Ilesa are small-scale, they are not organised into groups and the chain coordination dynamics is weak because there are no effective linkages with processors while transactions with dispersed traders/hawkers are dominated by spot trading/markets. These spot markets contribute to the market governance structure of the broiler chain while farmers involved in outgrower schemes are entangled in a captive governance structure.

The current characteristics of the broiler value chain in Ilesa impact the procurement programmes used in sourcing birds from farmers. The various arrangements used in the broiler value in Ilesa include spot purchase procurement, vertical integration, informal model, multipartite contract models, and centralized contract models.

The spot purchase procurement model is common with the informal broiler value chain that is between farmers and traders/Hausa-Mallams. Vertical integration is employed by farmers/firms that produce, process and market their chickens including the commissioner(processor).

The informal model is common with small scale processors and independent broiler farmers. The arrangement used is verbal. This model is characterised with uncertainty on prices of inputs such as DOC on the side of the farmers as well as market uncertainty on the side of small-scale processors. These uncertainties discourage contractual agreements between farmers and small-scale processors.

Centralised and multipartite contract models used in the broiler value employ resource -providing contract with a fixed -fee arrangement between contracting firms and broiler farmers. Contracting

firms supplies inputs, farmer rear the birds and the firm buys back the birds and pays the farmers after agreed dates proposed in the contracts.

Farmers in the study area (Ilesa) identified delayed payments from contracting firms and absence of secured markets as their challenges as regards the formal broiler value chain while the processor (IHF) needs secured supply of broilers in large quantities, but it is surrounded by small scale broiler farmers. Strategies that can enable the processor to maximize its processing facilities as well as establish effective linkage with farmers include a guaranteed supply of inputs by the processor at steady prices, transparency, mutual agreement and understanding on terms and conditions included in the contracts, the collaboration between the broiler farmers and processor to enable the farmers to gain accessibility to micro-finance credits and continuous monitoring and information exchange between the processor and established broiler farmer groups.

The guaranteed supply of inputs at steady prices while enable and empower farmers to focus and maintain production in large volumes while the processor will take up the role of marketing becoming a secured market channel for the farmers.

## **6.2 Recommendations to the Commissioner (Imo Hill Limited – Chicken Processor)**

The objective of the study is to suggest to the processor procurement strategies that will foster linkages between Imo Hill farms and broiler farmers in Ilesa, Osun state to maximize the utilization of the company's chicken processing facilities. The following recommendations generated from the research will play a vital in achieving the set objective aforementioned.

### **➤ Organisation of farmers into groups or clusters.**

To obtain a secured supply of birds in bulk from the small scale commercial farmers, it is recommended that the processor facilitates the organisation of broiler farmers with similar interests into new groups or existing groups such as OSBOF. Aggregation of farmers into groups will enable the processor to source for birds in bulk for its chicken processing plant. The processor can achieve this by activating the use of lead farmers, existing cooperatives and a chain facilitator to facilitate the development of the farmer groups and the development of an efficient formal value chain.

### **➤ Piloting phase with thirty (30) independent broiler farmers.**

The processor can pilot test the project by purposively selecting 30 independent broiler farmers within the farmer group with a minimum stocking capacity of 1000 birds. 30 broiler farmers will supply a minimum 30,000 birds to bridge the deficient of 4000 BPD. A production plan will be developed to be used to aggregate the cyclic supply of birds to the birds. These 30 farmers can be used as pilot testing for establishing linkages between specialized input suppliers, the processor and a lending (financial) institution. This smaller group will be used as a starting point to test possibility as well as the risk of off taking birds from the farmers with Ilesa, Osun State, Nigeria. The pilot testing phase can be maintained within the first three years and then more farmers can be included in the project gradually pending on the outcome. The project should be subjected to risk analysis, project cycle management tools such as log-frame and an annual monitoring and evaluation schedule.

### **➤ Contractual arrangement between organised farmer groups and the processor.**

To secure and protect the interest of the processor and the farmer group against risk and liabilities, it is recommended that the use of procurement contracts should be used to the back up the trust



established between the processor and the pilot farmer groups selected for the project. During the focus discussion, farmers also collectively agreed a formal contractual arrangement will protect the interests of both parties. The terms and conditions of the contract should be collectively agreed on upon by both parties without biased terms and conditions. The procurement contract to be used can be an integrated resource – providing contracts for farmers. The resource – providing contract should be integrated with a fixed-fee contract since the processor will bear the risk and burden of marketing. These contracts will establish payment based on the weight of live birds supplied by the members of the farmer group.

Also, marketing contracts should be used to source for birds from independent farmers that are not part of the farmer group provided established quality criteria for live birds (Table 15) are satisfied.

➤ **Activating the use of peer guarantors for pilot testing farmer groups**

It is also recommended to the processor that before farmers are selected for contractual arrangements, they need to provide verifiable data on peer guarantors to back up their integrity and validity as broiler farmers. Peer guarantors, in this case, should be fellow farmers around the geographical location where the selected broiler farmers operate and maintain their flock. Peer guarantors can serve as a source of monitoring the activities of selected farmers as they can also aid the processor to guarantee the true ownership of stocking facilities. The use of peer guarantors further validity transparency between the processor and farmers.

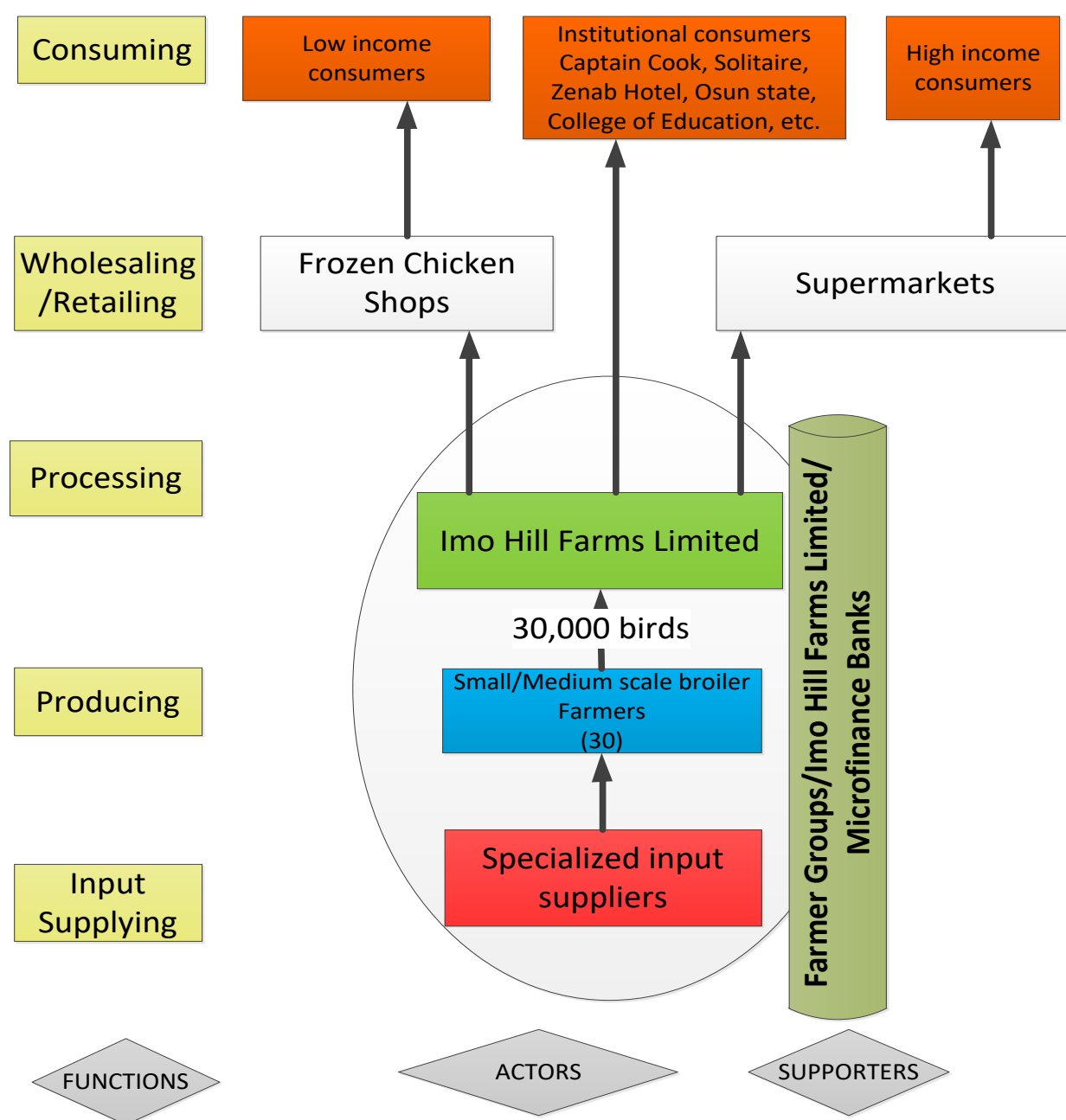
➤ **Facilitate a value chain or agricultural finance linkage model with input suppliers, organised farmer groups, financial institutions and the processor.**

To guarantee the steady supply of inputs at fixed rates, and also secure the birds obtained from the farmers, it is recommended that the processor initiates a value chain finance linkage between specialized input suppliers, financial institutions (such as the CBN-NIRSAL initiative that is the Anchor Borrower's Programme or specialized financial institutions) and the processor (IHF). A representation of this linkage is shown in Figure 14. The concept of value chain finance employed will enable farmers to receive microcredit in form of inputs, the processor offtakes the birds and pays to the bank, while the farms obtain the balance of payment from the bank. The specialized input suppliers will serve as a source of supply for quality DOC and fixed prices of DOC. The financial institution such as (Agriculture Development, Bank of Industry, or CBN-NIRSAL initiative that is the ABP) will serve as a source providing micro-credit to the farmer groups. These specialized institutions are in the business of providing loans to farmer groups provided they have validated sources of markets for their agricultural products. In this, IHF is a validated and verifiable source of the market channel for the farmer group.

This initiative will enable the farmers to collectively obtain inputs at the scheduled time, stock and rear birds as scheduled and relatively supply birds at the same time to the processor. This initiative is also recommended based on the fact that the processor (IHF) does not have breeder farmers, hatchery facilities or feed ingredients as well as industrial feed milling equipment. Aside from this, the processor does not have the financial capacity to supply inputs to the farmer groups.

Alternatively, the processor can also enter into marketing contracts with independent broiler farmers and specialized input suppliers to supply DOCs at a fixed rate to its selected individual farmers. However, the farmers will still bear the costs of production. The alternative excludes the participation of financial institutions in the linkage.

Figure 14: Proposed Developed Value Chain



Source: Author's construction, 2020

### ➤ Market Research

To avoid delayed payments, which is common with contract farming procurement models, the processor should conduct market research to identify new market channels for frozen chickens outside Ilesha, Osun state. This is because the collaboration with broiler farmers implies increased inventory stock of frozen chickens for the processor's cold storage facilities. This increased stock might exceed the current customer strength of the processor. Hence, these new market channels identified by the processor should be able to absorb the large volume of frozen chickens produced by the processor and also pay promptly for the frozen products supplied. This is important so that the processor can meet payment dates as agreed within the contract and avoid delayed payment to the farmers.

➤ **Proposed Business Model of the Broiler farmer group**

Finally, the proposed business model (Table 15) generated from the research gives a pictorial representation of a model which links broiler farmer groups to the processor; it highlights the use of contracts in backing up the procurement arrangements between the processor, and the farmers as well as the linkage with inputs producers and financial institutions. The business model also highlights the use of training workshops as a means of information exchange between actors. The model also establishes the value proposition of the farmer group to the processor. The business model as shown suggests key partners that can perform specialized roles as regards input supplier and as well as financing the value chain.

The new business model for IHF shown in Table 16 proposes an efficient utilization of the chicken processing facilities owned by IHF. The value proposition for IHF is the guaranteed supply of branded certified quality chickens to customers from a secured source of the newly developed chain with broiler farmers in Ilesha.

**Table 15: New Business Model for the Newly Developed Farmer Group**

<b>Key partners</b>  ➤ Agrited ➤ Breedwell Feed Company ➤ Imo Hill Farm Limited (IHF) ➤ Financial institutions under the CBN-NIRSAL Initiative or ➤ Bank of Industry (BOI)  Agrited supply DOCs. Breedwell supplies feed. Microfinance institutions provide credits (in form of input).	<b>Key activities</b>  ➤ Brooding ➤ Feeding ➤ Vaccination and medication ➤ Monitoring by IHF’s technical field specialist team and executives of organized broiler farmer groups.  <b>Key Resources</b> ➤ Family labour ➤ Broiler farming experience ➤ Personal funds ➤ Training workshops in partnership with IHF and Key partners.	<b>Value proposition</b>  Produce live broilers that; ➤ weigh from 2 – 2.2 kg (at 5 – 6 weeks) ➤ free from antibiotics 7days before culling ➤ free from ammonia burns on the breast bones. Guaranteed supply of broilers to the targeted customer (IHF)	<b>Customer relationship</b>  ➤ Trust ➤ Contractual agreement with Imo Hill Farm Limited ➤ Mutual relationship and understanding with Imo Hill Farm Limited (IHF) ➤ Resource – providing contract with fixed fee condition  <b>Distribution channels</b> ➤ Farm gate	<b>Customer segments</b>  ➤ Imo Hill Farms Limited
<b>Cost structure</b> ➤ The average cost of production = 900 Naira/bird with an expected weight of 1.8 – 2.0kg. ➤ Feeding cost accounts for 65 -70% of the production cost using customized feed formulation. Other costs include price of DOC, drugs, vaccines, labour, amongst others.		<b>Revenue streams</b> ➤ Selling price per kilo (kg) = 530 – 550 Naira/kg (Imo Hill Farm Limited) ➤ Other poultry product = noilers, turkeys and culled layers ➤ Method of payment: Cash payment through the financial institution involved in the linkage.		
<b>Social and Environmental cost</b> Green House gas emission from Outgrower farms		<b>Social and Environmental Benefit</b> Employment opportunity for broiler producers. Appropriate use of antibiotics. Awareness of climate-smart poultry production practices. Incorporation of cooperative values and value chain approach to farmers.		

**Table 16: New Business Model for Imo Hill Farm Limited**

<b>Key partners</b>  ➤ Agrited ➤ Breedwell      Feed Company ➤ Broiler      Farmer Groups ➤ Financial institutions under the CBN-NIRSAL Initiative or ➤ Bank of Industry (BOI)  Agrited supply DOCs. Breedwell supplies feed. Microfinance institutions provide credits (in form of input).	<b>Key activities</b>  ➤ Processing of broilers (with 2kg weight) into frozen chickens. ➤ Integrated quality control along the newly developed broiler value chain. ➤ Monitoring and provision of technical support to outgrowers. ➤ Training workshops for framers group based on needs assessment.  <b>Key Resources</b> ➤ Chicken processing and storage facility ➤ Human resource (including expatriates) ➤ Broiler farming and processing experience	<b>Value proposition</b>  ➤ Produce quality branded frozen chickens with; ○ an average dressed weight of 1.2kg ○ or retail cuts (4-part cuts) ○ quality certification from NAFDAC and SON.  ➤ Guaranteed supply of quality frozen chickens to customers.	<b>Customer relationship</b>  ➤ Trust ➤ Contractual agreement with foodservice industry, Hotels, Canteens and Export markets.  <b>Distribution channels</b> ➤ Farmgate distribution ➤ Cold chain delivery to hotels, supermarkets, and wholesalers and export markets.	<b>Customer segments</b>  ➤ Hotels (Radisson, Zenab, Eko Atlantic, etc.) ➤ Supermarkets (ShopRite, Akewusola, etc.) ➤ Wholesalers (frozen Chickens) ➤ Export Markets
<b>Cost structure</b> ➤ The average cost of production of frozen chicken = 800 Naira/kg.			<b>Revenue streams</b> ➤ Selling price per kilo (kg) = 1000 Naira/kg ➤ Other poultry product = eggs and culled layers ➤ Method of payment: Bank transactions	
<b>Social and Environmental costs</b> Green House gas emission from processing facilities.			<b>Social and Environmental Revenues</b> Employment opportunity for indigenes within Ilesà.	

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## Annexes

### *Annexe 1: Checklist for focus group discussion*

		Checklist	
1	1.1	Stakeholders	<ul style="list-style-type: none"> <li>• Other people in the broiler industry</li> <li>• Roles and risks of other people in the broiler industry</li> <li>• Services do you get from the supporters (extension services, NGOs, processors or any group)</li> </ul>
2	1.2	Chain Governance	<ul style="list-style-type: none"> <li>• Market information on broilers</li> <li>• Relationship between farmers, processors, input suppliers?</li> <li>• Who has more information in the broiler market?</li> <li>• Who controls the price of broilers (either live/frozen/smoked) in the market? (why?)</li> <li>• Do you have linkage with broiler processors? (describe the relationship?)</li> </ul>
3	1.3	Value share and gross margins	<ul style="list-style-type: none"> <li>• How many broilers do you raise per batch?</li> <li>• Selling price of live broilers and frozen chicken?</li> <li>• Cost of production</li> <li>• Gain/loss of broilers per batch?</li> <li>• How many broilers per batch?</li> <li>• Average batches per year</li> <li>• How long do you take to sell your broilers?</li> <li>• How do you transport your chickens to market?</li> </ul>
4	1.4	Market channels of broilers	<ul style="list-style-type: none"> <li>• Form of broilers sold by farmers</li> <li>• Which one do you prefer and why?</li> <li>• Where do you sell your chickens? (market outlet)</li> </ul>
5	1.5	Opportunities for broiler farmers, processors, traders	<ul style="list-style-type: none"> <li>• What are the challenges of broiler marketing?</li> <li>• How do customers get to know you have broiler for sales?</li> <li>• Opportunities for broiler farmers in ileisa?</li> </ul>
6	2.1	Issues related to procurement of broiler	<ul style="list-style-type: none"> <li>• Who are the regular buyers for your chickens?</li> <li>• How do your buyers pay for the chicken?</li> <li>• What are challenges of the different broiler selling process with your buyers?</li> <li>• What are the arrangements used in broiler selling processes?</li> <li>• What is the duration of the arrangement?</li> <li>• How is the contract enforced?</li> </ul>
7	2.2	Strategies for procuring birds	<ul style="list-style-type: none"> <li>• What is your experience with the different types of broiler selling programmes?</li> <li>• What is the nature and extent of broiler buying programmes you have been involved in?</li> <li>• What are the types of contracts suitable and preferable for selling your broilers?</li> <li>• What are issues associated with the buyers of your broiler?</li> <li>• What are the ways to improve the arrangement between farmers and processors?</li> </ul>
8	2.3	<b>Business Model development</b>	<ul style="list-style-type: none"> <li>• <b>SEE THE TABLE BELOW</b></li> </ul>

## Annexe 2: Checklist for Business Model

<b>Key partners</b>  Key suppliers  ➤ Who are your input suppliers? ➤ What support do you get from your key partners? ➤ What activities do your partners perform?	<b>Key activities</b>  ➤ What broilers production activities do you perform? ➤ What marketing and sales activities do you have?  <b>Key Resources</b> ➤ Describe the most important strategic assets. ➤ Do you have a brand name for your broilers? ➤ How many permanent employees do you have (Males and females)? ➤ How do you finance your business? ➤ What is the size of your land? What other physical infrastructures do you have apart from land?	<b>Value propositions</b>  ➤ How do you handle customer (buyers) complaints? ➤ Which customer (buyers) needs are you satisfying? ➤ How do customers (buyers) access your product? ➤ Which customer (buyers) needs are we satisfying as a broiler farmer?	<b>Customer relationship</b>  ➤ Do you have contract with your customers (buyers)? ➤ Do you have any training or workshops for your customers? ➤ How you get, keep and grow customers? ➤ Types of relationships with each customer?	<b>Customer segments</b>  ➤ How many products are you producing? ➤ What group of customers (buyers) are you targeting? ➤ Which customer group is most important?
			<b>Distribution channels</b> ➤ Where do you sell your broilers? ➤ How do you communicate your customers? ➤ How do you reach your customers? ➤ How do you cope with your customer routines?	
<b>Cost structure</b> ➤ What are the average production costs incurred in broilers production? ➤ What are the sales and marketing costs? ➤ Which resources are most expensive for broiler farming?			<b>Revenue streams</b> ➤ What is the price per broiler market weight? ➤ What other products apart from broilers are the farmers selling and at which price? ➤ What is the method of payment?	

**Annexe 3: Checklist for Porter's Five Forces**

1	<ul style="list-style-type: none"> <li>➤ What are strengths and weaknesses of broiler farmers in ilesa?</li> <li>➤ Do you know your competitors in broiler market in ilesa?</li> <li>➤ What are the strengths and weakness of your competitors in ilesa?</li> <li>➤ What is your advantage and disadvantages over your competitors in the broiler market in Ilesa?</li> <li>➤ Do you cooperate with any of your competitors? (if yes, how)</li> </ul>
2	<ul style="list-style-type: none"> <li>➤ Describe your relationship with your input suppliers?</li> <li>➤ Does this relationship give you an advantage over broiler competitors?</li> <li>➤ What is your bargaining power with input supplier?</li> <li>➤ What are the advantages or disadvantages when negotiating prices for supplied input products (such as DOC, feed, vaccines, labour,)?</li> <li>➤ What is your strategy for improving your bargaining power with your input suppliers?</li> </ul>
3	<ul style="list-style-type: none"> <li>➤ Who are your main customers of broilers?</li> <li>➤ Who are your most important customers of broilers, and how do they stretch you to improve your performance?</li> <li>➤ Do you have a contractual relationship with your broiler customers?</li> <li>➤ Can you meet the demands of your broiler customers?</li> <li>➤ What is your relationship with these broiler customers?</li> <li>➤ What is your bargaining power with your customers?</li> <li>➤ What are the advantages or disadvantages when negotiating prices with your broiler customers?</li> <li>➤ What is your strategy for improving your bargaining power with your buyers?</li> </ul>
4	<ul style="list-style-type: none"> <li>➤ Are there new businesses entering your market or field of broiler business?</li> <li>➤ Why are they able to enter your market or field of broiler business?</li> <li>➤ What are their advantages or disadvantages relative to you?</li> </ul>
5	<ul style="list-style-type: none"> <li>➤ Do the products on the market that could replace your broilers?</li> <li>➤ Is there a drastic technical change or changes in demand affecting the competitiveness of your products?</li> </ul>

**Source:** Novakovic, Grujic and Vujadinovic (2015)

**Annexe 4: Current Business Model used by Independent Broiler Farmers**

Key partners	Key activities	Value propositions	Customer relationship	Customer segments
AMO Mama Niks RTO TUNS Farm CHI FIDAN SAYED Breedwell Feed Top Feed	<ul style="list-style-type: none"><li>➤ Brooding DOCs</li><li>➤ Feeding</li><li>➤ Vaccination and medication</li><li>➤ Biosecurity</li><li>➤ Sanitation</li><li>➤ Marketing through phone calls.</li></ul>	<ul style="list-style-type: none"><li>➤ Produce broiler chickens with weight ranging from 1.2kg – 2kg (from 4 – 6 weeks) based on market conditions.</li><li>➤ Supply dressed broiler chickens based on customers’ requests.</li></ul>	<ul style="list-style-type: none"><li>➤ No contractual agreement with customers</li><li>➤ Relationship with customers on market conditions.</li><li>➤ Sell on credit basis to trusted customers.</li><li>➤ Get new customers through word of mouth, personal marketing and referrals.</li><li>➤ No training workshop with buyers of broilers.</li></ul>	<ul style="list-style-type: none"><li>➤ Traders</li><li>➤ Individual consumers</li><li>➤ Chicken Barbecue producers (Hausa-Mallams)</li><li>➤ Small scale processors</li></ul>
	<b>Key Resources</b> <ul style="list-style-type: none"><li>➤ Family labour</li><li>➤ Hired labour</li><li>➤ Broiler farming experience</li><li>➤ Personal funds</li></ul>		<b>Distribution channels</b> <ul style="list-style-type: none"><li>➤ Farmgate (by visiting the farm)</li><li>➤ Trucks and motorcycles</li><li>➤ Open markets and streets</li></ul>	
<b>Cost structure</b> <ul style="list-style-type: none"><li>➤ Cost of production = 950 – 1050 Naira/bird (6 weeks) with an average weight of 2kg.</li><li>➤ Feeding cost accounts for 70% of the production cost. Other cost includes drugs, DOCs, amongst others.</li></ul>			<b>Revenue streams</b> <ul style="list-style-type: none"><li>➤ Selling price per kilo (kg) = 520 – 530 Naira/kg (Processors).</li><li>➤ Selling price per live bird = 1200 – 1500 Naira per bird (Live bird Market).</li><li>➤ Other poultry product = Noilers, Turkeys and culled layers.</li><li>➤ Method of payment: Cash payment and Mobile bank transaction (phones).</li></ul>	