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Establishing a Parent Stock Management Centre and Feed Processing Facility in Ethiopia

Business case

The ILO ProAgro Ethiopia Project

August 2022

Supported by



On behalf of



Federal Ministry
for Economic Cooperation
and Development

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ACRONYMS

GOE	Government of Ethiopia
BMZ	German Federal Ministry for Economic Cooperation and Development
ILO	International Labour Organization
FOREX	Foreign Currency
MSA	A Market System Analysis of the Poultry Sector, in Sidama and Amhara, Ethiopia
EIC	The Ethiopian Investment Commission
ATA	The Agricultural Transformation Agency
GDP	Gross Domestic Product
GTP	The Growth and Transformation Plan (I & II)
DOC	Day Old Chickens

Executive summary

In June 2021, the German Federal Ministry for Economic Cooperation and Development (BMZ) funded ILO ProAgro Ethiopia project conducted a Market System Analyses (MSA) of the poultry sector¹. In the report, in order to facilitate growth of the poultry sector, reducing the cost of poultry farming was identified as one of the key intervention areas. Following that recommendation, the ILO in consultation with the Ministry of Agriculture (MOA) and other relevant stakeholders took on the assignment of developing a business case to assess the efficacy and relevance for establishing grandparent multiplication and feed processing facility in Ethiopia which could potentially lead to a reduction in input costs for the poultry sector.

The business case study aims to provide key stakeholders—both the government and potential investors—with a data-driven analysis to improve binding constraints in the sector and present a call to action.

Despite subsequent efforts by the Government of Ethiopia (GOE) and development partners, the poultry sector in Ethiopia remains at its early stage. To stir growth of the sector, the GOE has set out an ambitious target in its 10-year perspective plan, with a goal of doubling both eggs and chicken meat production. This target could be achieved only if the binding constraints in the sector including poor productivity of chicken breeds, short supply of day-old-chickens (DOCs) and shortage of feed, are resolved. The underlying condition from where these challenges are born such as the shortage of foreign currency (FOREX), lack of grandparent management farm and increasing cost of inputs for feed production must be addressed.

Addressing these challenges starts with understanding the market potential of the poultry sector. Ethiopia has one of the largest chicken populations in Africa but is lagging in per capita consumption of eggs and chicken meat—often consuming two to 10-times lower than African peer countries. However, the average low consumption trend in the country is an indication of the considerable potential that the Ethiopian market holds. Urbanization, increasing income and the emerging nutrition-conscious low middle-class communities in Ethiopia are expected to improve consumption and significantly increase demand in the short-term. Suppliers of poultry products can reap the economic benefits resulting from these changes. However, to realize these economic and social gains, inputs such as DOCs and feed at affordable prices must be abundantly available.

At the back of this rationale, the business case for investing in establishing a parent stock management and feed processing centre has been found to be a viable economic opportunity. This study envisages setting up this poultry centre that would have the capacity to produce 15 million DOCs and 40,000 tons of poultry feed annually. The total investment cost to establish the centre is estimated to be USD 14.17 million and could be operational in 18 to 36 months. For both production lines, inputs including parent stock, premix, etc. will need to be imported while other inputs such as maize and soyabean will be sourced locally. Based on conservative estimates, a high-level cost-benefit analysis projects that the centre will generate an internal rate of return (IRR) of 31 per cent

¹ A Market Systems analysis of the Poultry Sector in Amhara and Sidama, Ethiopia, International Labour Organization, 2021

over seven years. The investment project will also create direct employment for over 400 people and will have an immense social and economic impact in the country.

The centre or investment project could be explored in various forms including bringing an all-new investment to establish the poultry sector, partner with existing feed producers and hatcheries or exploring potential partnerships with cooperatives and unions. A staged approach could also be explored where production could start in phases and would be scaled based on the market adoption.

The study importantly confirmed some of the initial findings of the MSA that the Ethiopian market is currently not mature enough for setting up a grandparent multiplication centre. The demand for eggs and poultry meat in Ethiopia is low and there is uncertainty about the capacity of the market to absorb increased production of poultry products. Further, the investment risk of grandparent multiplication centre is high due to poor biosecurity and lack of experienced human resources. Due to these constraints, the 'business case' for setting up grandparent multiplication centre in Ethiopia is not there yet. However, with a long-term vision of realizing this goal, the GOE, along with the private sector, can support development of the market, create a conducive policy framework and assurance, and avail necessary infrastructure for investors looking to explore the opportunity. When these major requirements are fulfilled, then the business case for establishing a grandparent multiplication centre could become evident in five to seven years.

1. Introduction

1.1. Project introduction

The ProAgro Ethiopia project has been funded by the BMZ Special Initiative on Training and Job Creation to support Ethiopia to develop its agro-industry potential and create more and better jobs. To do this, the project puts forward an integrated strategy, combining policy support and social dialogue, skills development, enterprise development and entrepreneurship training, with the ultimate objective of creating decent job opportunities for women and young men in the selected sub-sectors: fruit and vegetables, poultry, and edible oil. The project will develop the capacity of national, regional, and local stakeholders to develop and implement policies aimed at boosting the job creation potential of the agribusiness sector while enhancing decent work conditions.

ProAgro Ethiopia had conducted a Market System Analyses (MSA) for the poultry sectors in Ethiopia². The key finding of the analysis shows that imported exotic breeds are typically more productive (both in meat and eggs) and rearing periods for imported breeds are about half that of indigenous breeds. However, to import these parent stocks for DOCs multiplication in Ethiopia, companies need to wait for a long queue to access foreign currency (FOREX). When FOREX becomes available, there usually is an oversupply of DOCs in the market, which exacerbates inconsistency of supply. In addition, import of parent stock is associated with high mortality rate during transportation, which increases cost of operation.

In addition, an analysis conducted by the Ethiopia Investment Commission (EIC) and the Agricultural Transformation Agency (ATA) indicated that having a grandparent stock multiplication centre within Ethiopia would reduce the DOC price by 55 per cent³ by reducing mortality rate of DOCs during transit from abroad and the demand for forex to import parent stocks. This could eventually increase domestic demand for chicken meat and eggs, leading to a positive change in the average consumption patterns of the Ethiopian population and hence enhance opportunities for the export market, which would in turn make the multiplication centre more sustainable.

Against this backdrop, the ILO ProAgro Ethiopia Project has commissioned the development of a business case for investing in the poultry sector in Ethiopia, specifically establishing a grandparent multiplication centre and feed processing, and provide the government with evidence-based data and analysis, thereby supporting development of the poultry sector and addressing the major bottlenecks that limit its potential.

During the initial phases of this study, it was understood that introducing a grandparent multiplication centre in Ethiopia would first require fulfilling many important prerequisites from the government, investors, and the market itself—which are currently not in place. Consequently, the focus of the business case was shifted to establishing a parent stock management centre. However, the business case will also provide insights on the foundational work that is needed to establish grandparent management centre in the long term.

² A Market Systems analysis of the Poultry Sector...Ethiopia, International Labour Organization, 2021

³ Food and Beverages Processing and Auxiliary Industry Strategy, EIC, 2020.

1.2. Study purpose and scope

Several value chain assessment reports conducted on the poultry sector in Ethiopia have identified lack of grandparent multiplication centres and adequate supply of feed as the main bottlenecks to poultry production growth⁴. Based on this premise, this business case report sets out to show the critical pieces that need to come together to make setting up a parent stock management centre a viable investment opportunity. Meeting the demands of such kind of venture requires an active and coordinated participation of policymakers, regulators, and the private sector. Hence, the business case study endeavours to provide a data-driven insight on the potential of the sector and what the appetite of stakeholders—both public and private—to take the necessary steps towards realizing the goal of setting up a large-scale parent stock management centre soon.

The business case study assesses various aspects of setting up a parent stock management centre in Ethiopia. These include the policy and regulatory frameworks, the market potential, the technical requirements, financial viability, and the socio-economic impact of the investment project. The scope of the business case study includes:

1. **Policy and Regulatory Framework:** Providing a review of key policies and strategies, planned and ongoing, that affect development of the poultry sector, with a view of their impact on the investment project itself
2. **The Market Potential:** Assessing both domestic and export market potentials including describing the key cross-border trade agreements that Ethiopia benefits from and presenting unique value to investors. In addition, the study will analyze local competition and identify key success factors. Risks related to market and project implementation and their potential mitigation strategies are identified
3. **Technical Assessment:** This exercise includes:
 - Describe the type, scale and business model of the feed processing and parent stock management centre, drawing lessons from African countries that have built efficient and sustainable parent stock centres
 - Defining the organizational structure, governance model and staffing needs for the proposed venture, including identifying the technical skills needed to successfully establish and operate the venture
 - Identifying the technical needs (e.g., construction, machinery, equipment, systems, etc.) of setting up a full-scale parent stock management centre, including estimating the cost of capital expenditure, inputs for production and working capital
 - Designing an implementation plan, considering the various licensing and regulatory processes related to setting up such kind of venture, sourcing of capital goods, identifying and hiring human resources, etc.

⁴ Ethiopia's Food and Beverages Processing and Auxiliary Industry Strategy, ATA, 2021

4. **Financial Viability:** Developing a full financial model including income statement, balance sheet, cash flow statement, scenario analysis, etc., to assess financial viability of the investment project and employing profitability ratios to determine return on investment.
5. **Socio-economic Impact:** The study provides a high-level analysis of the socio-economic benefits and impact of investing in a parent stock management and feed processing facility.

Based on the above scope, the study provides evidence-based analyses and showcases what is required to set up the intended project. While the report reflects the current thinking of stakeholders, sufficient efforts are made to provide forward-looking recommendations, in recognition of the goal of the government and potential shift in consumption of poultry.

1.3. Study methods

The business case was developed using a three-pronged approach.

1. **Desk review:** Both qualitative and quantitative data was gathered through literature reviews. These included national development plans of Ethiopia, value chain assessment reports as well as research and analyses on the sector conducted by development partners and researchers. Further, the desk research included reviewing examples of other countries in Africa that have passed through a similar growth trajectory to draw lessons and best practices.
2. **Targeted interviews:** Primary research was conducted in Addis Ababa, Bahir Dar, Sendafa and Hawassa in March 2022. Interviews were carried out with a diverse pool of participants including government officials, producer associations, commercial farms, smallholder farms, researchers and potential investors. During this phase, over 25 businesses and organizations were interviewed. The interviews provided a deep insight into the business case for setting up the envisioned project.
3. **Consumers' survey:** To complement the interviews, over 150 consumers and retailers were surveyed to gather and analyze data about demand drivers, consumers' behaviours, and market trends. The analysis provided the inputs needed to determine the market size for the sector.

What is a Business Case?

"A business case provides justification for undertaking a project. It evaluates the benefit, cost and risk of alternative options and provides a rationale for the preferred solution."

From Association of Project Manager (APM) definition

<https://www.apm.org.uk/resources/what-is-project-management/what-is-a-business-case/>

The findings of this study were validated in a workshop organized on 14 July 2022 attended by ILO tripartite partners and relevant public and private sector representatives. At the workshop, over 30 participants discussed the findings and recommendations and provided their feedback, which have been incorporated in the final revision of this report (list of participants Annex 2).

1.4. Report structure

The report first provides a background on policy directions for the poultry sector. It then looks at the business case from the market—both demand and supply perspective. This is followed by a detailed assessment of the investment proposal (Section 3). Finally, the report describes the foundational work that needs to be explored to set up grandparent management centre in the long term (Section 4).

2. The Landscape of the Poultry Sector

2.1 Background

The agriculture sector is one of the major pillars of the Ethiopian economy. Due to the vast agronomically favourable land and high number of livestock in Ethiopia, the sector has been consistently driving the broader economic growth. Agriculture is the major employer in Ethiopia—with over 80 per cent of the population relying on agricultural development. The sector contributes an average of 33 per cent to the Gross Domestic Product (GDP) of Ethiopia and has grown by 5.3 per cent annually since 2010⁵.

Since the early 2000s, the government has introduced several policies and strategies to stir and maintain growth of agriculture. The agriculture-led industrialization agenda has helped to generate the fiscal, monetary, and human capital required for the ambitious infrastructural investment that Ethiopia has taken under the consecutive Growth and Transformation Plan (GTP I & II). The development gains from the sector have aided in uplifting domestic incomes, and thus helping to strengthen domestic demand.

Despite this achievement, the agriculture sector has been lagging compared to the growth of the industry and services sectors. The GDP of Ethiopia was estimated to have grown by an average 8.7 per cent in the GTP II period, placing Ethiopia as one of the fastest growing economies globally⁶. However, average growth of the agriculture sector was 4.1 per cent, and only 50 per cent of the target were achieved. Within agriculture, the livestock sub-sector growth is further behind—only 3.5 per cent average growth was exhibited during the implementation of GTP I and GTP II.

Specifically, poultry production has remained at an early stage, despite its potential to raise the incomes of farmers. 90 per cent of Ethiopian chickens are indigenous breeds—which indicates low productivity and high mortality rates. This problem, combined with the high cost of feed, have made the sector largely uncompetitive, domestic-oriented and focused on only egg production. The potential of the sector to improve income, satisfy food and nutritional needs, create jobs, and play a catalytic role in the country's economic development remains untapped.

To remedy the lagging growth of the livestock sector, the 10-year Perspective Development Plan (2021 – 2030) has set out to 1) increase productivity of the livestock sector by improving breeds, feeding and healthcare, and thereby 2) meeting the demand for industrial inputs, increasing export earnings, and making greater contribution to the overall economic growth⁷. During implementation of the plan, it is targeted to increase the contribution of the livestock sector to overall agricultural production from 28 per cent to 38 per cent.

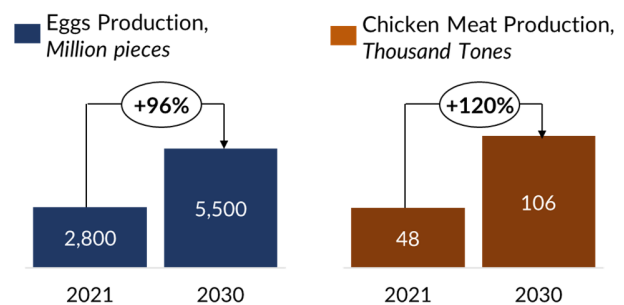
⁵ The 10-Year Perspective Plan, Ethiopia Planning and Development Commission, 2021

⁶ The Agriculture Sector 10-year Development Plan, Ministry of Agriculture, 2021

⁷ *Ibid.*

Particularly, improving the output of the poultry sector has been identified as a priority. The plan targets to increase egg production from the current estimate of 2.8 billion pieces to 5.5 billion pieces by 2030 and chicken meat production from 48 thousand tons to 106 thousand tons⁸. Given the nutritional value of both chicken meat and eggs, production growth is expected to enable Ethiopia to meet its growing population's demand, and even produce a surplus for industrial use and/or export.

Figure 1: Growth Target for the Poultry Sector



In addition, the poultry sector has an immense potential to create job opportunities, especially to women and the youth. Relative to other sectors, poultry farming requires a low amount of capital to start, and with the right training, can be well managed by farmers. The sector is marked as one that has the potential to increase income for farmers, thereby improving their livelihoods.

Achieving the targets set in the 10-year plan calls for improvements in available chicken breeds, access to input for poultry farming, access to finance and adoption of best practices in farming. To bring about the desired sectoral transformation, the key levers have been identified as 1) increasing production of day-old-chickens (DOCs), and 2) increasing feed production and supply⁹. To this effect, the government has set a goal to establish one national and four regional grandparent stock multiplication farms, increase production of maize and soya bean and make significant investment in feed producing facilities¹⁰. Fiscal and non-fiscal incentives are offered by the government to encourage investments in the sector. These include duty-free exemption for capital goods, construction materials, laboratory equipment and spare parts, and income tax exemptions. Overall, there is a need for significant public and private investment to address the gaps in production and distribution of quality input i.e., DOCs and feed, to boost growth of the poultry sector.

2.2 Market overview

2.2.1 Demand for poultry products

Ethiopia has been experiencing tremendous demographic and social changes that have increased demand for poultry products. The Ethiopian population has almost doubled to 115 million since the turn of the millennium¹¹. The country is still predominantly a rural country with only 20 per cent of people living in urban areas. However, the Central Statistics Agency (CSA) estimates that the urban population will double to 42.3 million by 2037.¹² In urban areas, a health-conscious middle-class community is also emerging, which has increased demand for nutrition-rich foods. Further, driven by increasing tourism and changes in lifestyle, the restaurant and hospitality sector are increasingly

⁸ The Agriculture Sector 10-year Development Plan, Ministry of Agriculture, 2021

⁹ A Market Systems analysis of the Poultry Sector...Ethiopia, International Labour Organization, 2021

¹⁰ Ethiopia livestock master plan (2015-2020), Ministry of Agriculture, 2015

¹¹ World Bank Data, 2020

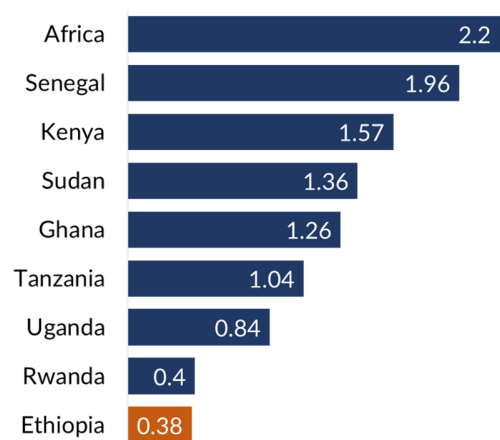
¹² Why Should Ethiopians Care about Urbanization?, World Bank, 2019

catering to diverse poultry-based dishes. In addition, local and international brands specializing in chicken meat (e.g., Pizza Hut, KKFC, In-Joy, etc.) are gaining popularity among the growing young population¹³. These developments are contributing to an expanding poultry sector in Ethiopia.

In urban households, eggs and chicken meat are becoming part of the normal diet. In a recent survey conducted in February 2022¹⁴, it was observed that 98 per cent and 40 per cent of households in urban cities frequently consume eggs and chicken meat, respectively. However, frequency of consumption for eggs is higher compared to chicken meat. During the survey, 96 per cent of participants indicated that they purchase eggs all year round, while the case was the same for chicken meat with only 40 per cent of participants.

Despite some progress, per capita consumption of eggs and chicken meat is still low in Ethiopia. In 2019, the per capita consumption of eggs in Ethiopia was estimated to be 0.38 kg, which lags behind its East African peers¹⁵. For example, consumption of eggs in Kenya, Sudan and Tanzania are 4-times, 3.6-times, and 2.7-times higher than Ethiopia, respectively. Similarly, consumption in Ethiopia, compared to the African (2.18 kg) and global average (10.03 kg) is five-times and 26-times lower. Ethiopia is ranked among the lowest consumers of eggs globally at 155th out of 161 countries. The countries with the highest per capita consumption of eggs in Africa include Algeria (7.16 kg), Tunisia (7.15 kg) and South Africa (5.77 kg).

Figure 2: Per capita consumption of eggs, 2019



While the Ethiopia's overall eggs consumption is low, the case is relatively improving in the main urban areas. For example, residents in the capital, Addis Ababa, are estimated to consume an average 3.5 kg of eggs annually, which is 10-times higher than the country's average¹⁶. Urban cities are the main market outlet for backyard, small-scale and commercial poultry producers due to higher purchasing power and nutrition-consciousness of urban residents. Hence, although still below the FAO recommended intake of 4.5 kg per year, consumption of eggs is significantly higher in urban areas compared to the rural population.

Likewise, per capita consumption of chicken meat in Ethiopia is one of the lowest in the world. In 2019, the country ranked at 159 place out of 161 countries with an annual consumption of 0.69 kg, only better than Chad and Burundi¹⁷. African peers such as Kenya, Sudan, Rwanda and Uganda consume two-times or more poultry meat compared to Ethiopia—indicating the poultry meat market in Ethiopia is still at an infant stage.

¹³ Invest in the Ethiopian Poultry Sector, ENTAG, 2020

¹⁴ The survey included 150 households in Addis Ababa

¹⁵ Consumption of eggs, FAO Stat/Helgi Library, 2019

¹⁶ ILO survey in February 2022

¹⁷ Consumption of poultry meat, FAO Stat/Helgi Library, 2019

Consumption of poultry meat is heavily affected by religious practices like fasting. Orthodox Christians, the dominant religion practiced in Ethiopia, has some 250 fasting days during the year, about 180 considered obligatory¹⁸. During this period, many members abstain from consuming eggs and poultry meat, as a result, demand falls significantly. This affects market consistency and contributes to the low per capita consumption in the country. On the contrary, at the end of the fasting period, which is usually followed by religious holidays, demand for eggs and chicken meat reaches its peak—and often results in price hikes and shortage of supply.

In terms of preference, many Ethiopians opt for procuring live chicken and slaughter themselves. During interviews, consumers have indicated that buying live chicken gives them peace of mind—they need not worry about when the chicken was slaughtered, how it was slaughtered, whether it is organic or not, etc. This consumption preference presents high-risk of biosecurity for producers and has been deterring commercial processing of chicken meat.

Per capita is also affected by a single-use approach to consuming chicken meat in Ethiopia. Chicken meat is mainly used to make chicken sauce (doro wot), and making this dish is costly and time taking—thus it is not a dish made frequently. As a result, this lack of diversity in making chicken-based dishes affects demand for poultry meat.

Clearly, Ethiopia is yet to make poultry meat consumption an integral part of the normal diet, as the case is in other developing countries in Africa. For example, West African countries such as Senegal and Ghana have a poultry meat per capita consumption of 7 kg or above, which is 10-times higher than Ethiopia¹⁹. Unlike Ethiopia, chicken meat is used in diversified cuisines like street foods, fried chicken, roasted chicken, etc. in these countries.

However, the average low per capita consumption of eggs and poultry meat is also an indication of the considerable potential for growth that the Ethiopian market holds. Poultry is one of the most affordable nutritious foods and many families in Ethiopia are becoming aware about its impact on health and reducing malnutrition in children. In addition, several initiatives are underway to create demand—both led by the government and development organizations²⁰. The impact of these initiatives, coupled with increasing awareness and growing purchasing power, is expected to increase demand for eggs and poultry meat.

To satisfy the potential demand growth for eggs and poultry meat, small-scale and commercial farms need to increase their supply. However, farmers can only increase supply if equipment and inputs such as feed, supplements and vaccines are available. Poultry farmers are constantly raising concerns about affordability, availability, and quality of these inputs, especially feed. Because feed constitutes up to 60-70 per cent of the cost of poultry production, its quality and availability directly affects the performance of farmers. In addition, quality feed has the potential to increase carcass yield and eggs production, hence, affects profitability of poultry farming.

¹⁸ Fasts & Feasts in the Ethiopian Orthodox Tradition. Southworld, 2021 (<https://www.southworld.net/fasts-feasts-in-the-ethiopian-orthodox-tradition>)

¹⁹ Consumption of poultry meat, FAO Stat/Helgi Library, 2019

²⁰ Few initiatives include Agricultural Growth Program (AGP), The African Poultry Multiplication Initiative, African Chicken Genetic Gain (ACGG), Livestock and Fisheries Sector Development Project and Urban food markets in Africa: *Incentivizing food safety using a pull push approach*.

The demand—supply gap for poultry feed in Ethiopia is widening. In 2015, the demand for poultry feed in the country was estimated to be over 120,000 tons, with a transaction value of over USD 157 million²¹. In 2020, demand was projected to reach over 250,000 tons, while supply would remain below 100,000 tons²². The unmet demand for poultry meat is expected to be addressed by increasing local production.

In addition to local supply, Ethiopia has a strategic locational advantage to compete internationally. Ethiopia is centrally located in the global economy and has proximity to the key markets of Africa, Middle East, and Europe. The East and North African markets alone are estimated to be valued over USD 3 billion, and are largely import-dependent, and growing²³. Ethiopia is a member of the Common Market for Eastern and Southern Africa (COMESA) with preferential access to regional market of over 400 million people. In addition, the country has accepted to join African Continental Free Trade Area (AfCFTA), an agreement that will allow free market access in the continent. Further, Ethiopian Airlines, the largest carrier in Africa, makes Ethiopia a strategic location to establish businesses and serve the greater African market. Ethiopian currently serves a network of over 125 passenger and 44 freighter destinations. It connects Ethiopia to 57 destinations in Africa, providing ease of access to African markets. Ethiopian currently is the main carrier to import frozen chicken and DOCs to Ethiopia and would be a key partner for investors looking to produce and export poultry products.

With the right product and strategy, Ethiopia-based producers can effectively compete in this growing African and international market and become an alternative sourcing hub.

2.2.2 Supply of poultry products

Ethiopia has the largest livestock population in Africa with a record of more than 200 million²⁴. In 2020, the chicken population was estimated to reach 56.8 million. Over the past 10 years, growth of the chicken population has been stagnant, with an average year-on-year growth of 3 per cent. Growth has been limited due to high mortality rate of chickens. In 2019/20 alone, over 39 million deaths were recorded. Low adaptation of exotic breeds, diseases, and predators prevalent in the scavenging production systems are the major causes of death of chickens²⁵.

²¹ Review on Compound Animal Feed Processing in Ethiopia..., Demissie Negash, 2017 (<https://www.avensonline.org/wp-content/uploads/JNH-2469-4185-03-0030.pdf>)

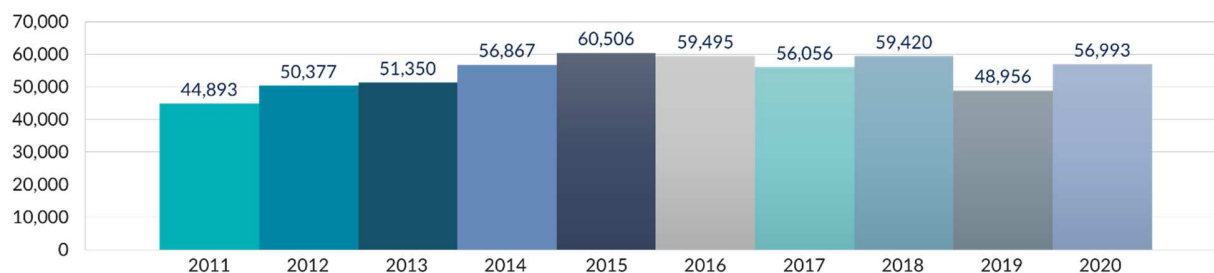
²² Opportunity to invest in a compound animal feed ..., ATA, 2016

²³ *Id.*

²⁴ FAO Stat, 2022

²⁵ Agricultural Sample Survey, Ethiopian Central Statistics Agency, 2021

Figure 3: Chicken population in Ethiopia, 2011 – 2020 (in 1,000 heads)



The poultry sector in Ethiopia is largely dominated by backyard production systems, which accounts for 89 per cent of total chicken population²⁶. Although indigenous breeds are dominant, constituting around 79 per cent of the chicken population, the number of exotic and hybrid chickens is rising—increasing from 3 per cent in 2016 to 12 per cent in 2021²⁷. The Oromia and Amhara regions account for 70 per cent of the poultry population in Ethiopia.

Poultry production in Ethiopia is dominated by layer breeds (35 per cent of the total poultry population). Farmers—including small, medium, and commercial—perceive the poultry meat market as uncertain and risky, hence, rear low stock of broilers. During interviews the ILO conducted, producers have indicated that the market for eggs is more stable compared to poultry meat. Further, because eggs have longer shelf life and do not need refrigeration, investing in layers is considered economically viable than broilers.

Bovans and Lohmann Brown are the most preferred layer chickens for commercial use while Kobb 500, Ross 308 and Hubbard are preferred for broiler production. Sasso, a hybrid breed, is also popular among farms that are looking for dual-purposed chickens. In fact, due to their higher survival rate and less dependency on commercial feed, the Sasso are the dominant exotic breeds in the rural community. However, the productivity of Sasso is lower compared to other exotic breeds.

Over the past decade, production of poultry meat has remained relatively constant in Ethiopia. Production peaked in 2015 when it reached 73,272 tons and dipped in 2019 with production volume of 58,477 tons²⁸. The low-level growth is an indication of the poor poultry meat consumption culture in the country that has prevailed during the period. In addition, several challenges hindering the growth of poultry meat production have remained unresolved, limiting growth of production. To complement the limited local supply, chicken meat is imported in Ethiopia—although the value is not significant²⁹.

²⁶ Empowering Smallholder Poultry Production, Precise Consult, 2022

²⁷ Agricultural Sample Survey, Ethiopian Central Statistics Agency, 2021

²⁸ FAO Stat, 2022

²⁹ Between 2015 and 2020, the total value of imported chicken meat was just over USD 2 million. However, if FOREX was available, import of poultry meat would have likely increased.

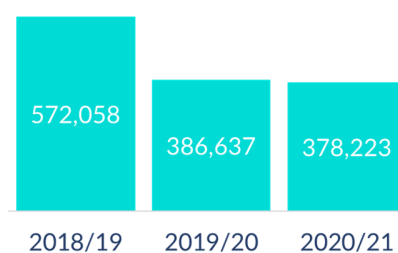
Table 1: Production of poultry meat and eggs in Ethiopia, 2011 – 2020³⁰

Year	Poultry Meat Production (Tones)	Egg Production (1,000 pieces)
2011	53,920	900,000
2012	60,480	909,000
2013	61,840	932,000
2014	68,809	967,000
2015	73,272	1,208,000
2016	71,931	1,187,000
2017	67,498	1,196,000
2018	71,261	1,130,650
2019	58,477	1,179,957
2020	67,803	1,105,978

Although growth is slow, the volume of production of eggs has shown progress over the past decade. In 2020, production reached 1.1 billion pieces of eggs³¹, which compared to 2011, is 20 per cent higher³². However, the average year-on-year growth was insignificant, except for a 25 per cent jump in 2016.

One of the challenges in the Ethiopian poultry sector is lack of parent stocks. Because there is no grandparent multiplication centre in Ethiopia, commercial farms depend on periodically imported parent stocks. In the past three years alone, 1.3 million DOCs were imported³³. However, the trend shows that imports of parent stocks have declined due to lack of FOREX and disruption of flights from Europe following the spread of the COVID-19 pandemic. Discussions with commercial farms have revealed that during the pandemic, some were forced to discard DOCs due to reduced demand for poultry products in the hospitality sector.

Figure 4: Import of DOCs in Ethiopia



The poultry sector has several challenges—each having significant disrupting power. Lack of FOREX is one of such challenges. Supply of machinery, premix and parent stocks rely on imports. As a result, when FOREX is scarce, supply of poultry feed, DOCs and medicines is affected. Shortage of imported premix, combined with increasing cost of other feed inputs (e.g., maize, soya, etc.) increases cost of feed production, which is ultimately transferred to poultry farmers. In addition, brokers in the market distort prices as well as buy and forward-sell feed and DOCs at higher prices to farmers. There are also other financial barriers to improve eggs production including access to finance to increase layer and broiler stock. The combined negative effect of these challenges is huge, and in some instances have led poultry farms into bankruptcy. For example, in February 2022, it was reported that 15 to 20

³⁰ FAO Stat, 2022

³¹ Other resources such as the Ethiopian Ministry of Agriculture indicate eggs production is double the amount indicated by FAO.

³² FAO Stat

³³ Data collected from Ministry of Agriculture, 2022. The majority are believed to be parent stocks imported for production of DOCs.

poultry farms were closed due to increasing cost of inputs³⁴. Political instability, especially in the Northern part of the country, had contributed to price surge of maize and soyabean, which led to huge increase in price of feed.

Figure 5: Growth of import of poultry meat, Ethiopia

Shortage of feed in the market is also leading to importing. The Netherlands and Belgium are the top two countries from which Ethiopia imports feed. Over the past five years (2016 – 2020), an aggregate USD 22 million was spent to import animal feed in Ethiopia³⁵. In 2020, import value reached an all-time high of USD 7.1 million, increasing by 43 per cent from 2019, which indicates the inability of local producers to meet demand—offering import-substitution opportunities for new investors.



2.2.3 Competition

Currently, there is limited competition in the DOC and poultry feed markets in Ethiopia. Existing commercial poultry farms have established a stable distribution channel, as a result, there tends to be little to no competition under normal market conditions³⁶. However, there are instances when supply surpasses demand. These might include when long-queued FOREX is released and commercial farms import long-awaited parent stock, during fasting season or when unexpected factors like COVID-19 affects demand. In such instances, producers get into a price war to offload their DOCs in the market.

Likewise, demand for poultry feed currently exceeds supply, hence, competition is low. Although more than 175 companies are registered in Ethiopia to produce animal feed, only 46 per cent are believed to be operational, and most are producing under capacity. Alema Koudjis PLC, one of the largest commercial poultry feed producers in Ethiopia, widely known for its high-quality feed products, reportedly has the capacity to produce 12,000 tons of poultry feed per year, although attaining that capacity has been difficult due to market instability³⁷. As the poultry market develops, demand from poultry farms will increase and businesses that supply quality feed at affordable prices are poised to benefit.

³⁴ New from Addismaleda, 2022 (<https://addismaleda.com/archives/15812>)

³⁵ ITC data, 2022

³⁶ Invest in the Ethiopian Poultry Sector, ENTAG, 2020

³⁷ The Poultry Market System in Ethiopia: Challenges from COVID-19, Feed the Future, 2020

3. Setting Up a Parent Stock Management and Feed Processing Centre

3.1 The investment proposal

The objective of the investment (“the poultry centre”) is two-fold; 1) establishing a parent stock management centre that produces and distributes commercial day-old chicks for poultry farmers, and 2) setting up a feed processing plant that supplies both to its centre and poultry farmers. Depending on the absorption capacity of the market, the centre might engage in production of poultry eggs and meat for urban and rural markets in the long term to improve demand for poultry products, curtain on imports and save foreign exchange.

Based on the current market conditions, the poultry centre will start with a facility that has the capacity to breed 180,000 parent stocks to produce over 15 million DOCs and 40,000 tons of poultry feed annually. Since there are no grandparent management centres in Ethiopia, the poultry centre will need to import parent stocks from breeding companies from which fertilized eggs can be raised and hatched to produce DOCs of three types: layers, broilers, and duals. The mix of DOCs will be determined based on market demand. To complement its supply of DOCs, the poultry centre will produce and supply starters, rearing, pullet, grower, finisher, and other types of feed to farmers. The product mix for feed will be 75:25 for layer and broiler chickens, although production of broiler feed might increase during holiday seasons.

The total investment cost to establish the centre is estimated to be USD 14.17 million. From the total, about 46 per cent will be spent on constructing an efficient DOCs production and feed processing facility. Machinery and equipment for the poultry centre need to be imported by reputable suppliers. Because importing inputs for production—both parent stock and feed inputs—are dependent on FOREX availability and seasonality of agricultural production, operating the poultry centre will be a cash-intensive endeavour, hence, 12 per cent of the investment will be earmarked for working capital.

Table 2: Investment cost of setting up the poultry centre

Description	Cost (In US Dollars)	Parentage Share
Construction of the Facilities	5,919,540	46
Machinery and Equipment	3,162,180	25
Vehicles	800,000	6
Furniture and Fixtures	1,000,000	8
Pre-operating Costs	500,000	4
Working Capital	1,500,000	12
Sub-total	1,288,172	91
Contingency	1,288,172	9
TOTAL INVESTMENT COST	14,169,892	100

The investment project is expected to be funded 100 per cent by equity capital from potential investors. To de-risk the investment, investors might explore potential debt financing from international financial service providers. However, because securing such debt might take longer time, implementation of the project could be delayed. To avoid such delays, we recommend commencement of the project only after the full funding for the investment is secured.

Various cost elements might show variations due to international and local cost drivers. For example, the working capital need could show significant increase if the price of major inputs continues rising in Ethiopia. As a result, investors are recommended to reserve contingency fund of up to 10 per cent to mitigate this risk.

The investment project could be explored in various forms including bringing an all-new investment to establish the poultry sector, partner with existing feed producers and hatcheries or exploring potential partnerships with cooperatives and unions. A staged approach could also be explored where production could start in phases and would be scaled based on the market adoption.

3.2 Target market

The poultry centre will primarily target the local poultry farms. The number of small-scale poultry farms in Ethiopia is not known, however, they provide the largest share of eggs and meat in the market³⁸. Lack of sufficient DOCs and poultry feed are the two largest bottlenecks for the growth of poultry farms and supply of eggs and chicken meat in Ethiopia. As a result, the domestic market offers an untapped potential to engage in the distribution of DOCs and poultry feed across Ethiopia. The market for the supply of poultry feed alone is estimated to be over USD 160 million³⁹.

Additionally, recent changes on the supply and price of feed in the Ethiopian market show the viability of the local market. Increasing cost of production has created shortage in supply and prices have been rising. In some months, the price has increased four-fold in just a year⁴⁰. According to Ethiopia Poultry Producers and Processors Association (EPPPA), the rising cost of poultry farming have forced fifteen to twenty farms to shut their operation in early 2022. To remedy the situation, the engagement of the private sector is of paramount importance. Producers that can navigate these challenges are positioned to become leading suppliers of both DOCs and poultry feed in the market.

Beyond the local market, there is an attractive potential to export products. Because the local market may not be able to absorb the full volume of DOCs produced initially, the poultry centre must target export opportunities. In addition, shortage of feed is also apparent in the East and North African markets. The total market of feed in these markets is valued as more than USD 2.9 billion⁴¹. Currently, countries like Egypt, Morocco and Algeria are importing animal feed including poultry from Europe

³⁸ Ethiopia's Livestock Systems: Overview and Areas of Inquiry. Gainesville, FL, USA: Feed the Future Innovation Lab for Livestock Systems, 2021

³⁹ Review on Compound Animal Feed Processing in Ethiopia..., Demissie Negash, 2017 (<https://www.avensonline.org/wp-content/uploads/JNH-2469-4185-03-0030.pdf>)

⁴⁰ News from Addismaleda, 2022, available at <https://addismaleda.com/archives/15812>

⁴¹ Opportunity to invest in a compound animal feed ..., ATA, 2016

to meet local demand. Ethiopia is positioned strategically and has logistical cost-advantages to address these markets and becoming an alternative sourcing destination in Africa.

Ethiopia-based producers can also benefit from preferential trade agreements—improving access to market and providing unique value to investors. Ethiopia is a member of Common Market for Eastern and Southern Africa (COMESA) with preferential access to regional market of 400 million people. In addition, the country has accepted to join African Continental Free Trade Area (AfCFTA), an agreement that will allow free market access in the continent. When the agreement comes into effect, it will open new corridors for Ethiopia-based manufacturers to export their products to African countries.

Participating in trade shows and conferences is considered as the industry's norm to generate leads. Several events to bring together key global and regional players are organized every year. For example, the Ethio Poultry Expo 2019, held in Addis Ababa, had gathered 114 exhibitors from 26 countries. Such events provide the platform to find potential suppliers and buyers for the investment project. As a result, the project needs to allocate sufficient funds to leverage these conferences and build win-win relationships with industry participants.

For feed, the poultry centre can employ two sales strategies 1) directly sell to commercial farms, and 2) distribute products through agents. These strategies have different impacts in the company's sales and profitability. For example, while selling directly to commercial farms improves profit margins, volume of distribution could be limited. On the contrary, using agents will require the poultry centre to offer its products at discounted prices but will increase its sales and value of profit. A mix of these strategies can be utilized to reach both urban and rural markets, and large and small-sized farms.

For DOCs, due to the high-risk of mortality, direct distribution is recommended. Farmers can directly buy from the multiplication centre, or the centre can provide on-farm delivery.

3.3 Technical study

3.3.1 Construction of the poultry centre

When setting up a parent stock multiplication centre, the amount of floor and feeder space is critical for optimal flock welfare and performance. In different countries, stock density might differ based on local legislation, climate and season, type, system and quality of housing and equipment, ventilation, and quality assurance requirements. While that is the case, many parent stock multiplication centres recommend a stock density during rear (10-105 days) to be 3-4 birds/m² for male and 4-8 birds/m² for female. This would mean, for an operation that aims to rear 180,000 birds at a time, there is a need to secure 12-15 hectares of land to construct the parent stock multiplication centre.

Selecting the right areas for the investment project is critically important. The poultry centre must be located as far as possible from other poultry operations and each phase of production should be treated as separate units. The size, relative situation and design of the facility should minimize transmission of pathogens between and within flocks. The facility should be constructed in a way

that allows easy and thorough cleaning and the application of disinfectants. The walls and roofs should contain insulation with a moisture barrier and rodent proof materials and ceiling height should be adequate for proper ventilation. With electrically powered equipment, it is essential to use a reliable source of electric power to operate electrical ventilation, heating, lighting, and feeding equipment. Also, it is essential to install standby generators and an appropriate alarm system in case of power failure.

Controlled or closed environment houses are the most popular form of ventilation system for parent stock due to the ability to provide better control of the internal environment under a range of ambient conditions. DOC breeding farms must follow management programs recommended by the breeding company including stocking size, feeding, hatchery, transportation, biosecurity, etc.

If the feed processing facility were established in the same location, then there is a need to secure additional 5–8 hectares of land to build a separate feed processing site. The facility must construct sufficient storage houses and residential houses.

3.3.2 Machines and equipment

Both product lines of the investment project, i.e., DOCs and poultry feed, require a different set of machinery and equipment. It is vital that the correct equipment is always used. Inferior, substandard, or improvised equipment will always result in variable performances and ultimately large financial loss.

Table 3: List of equipment for parent stock brooding period⁴²

		Floor		Cages	
Age (weeks)		0 - 2	2 - 5	0 - 3	3 - 5
Ventilation	Minimum per hour / kg	0.7 m ²	0.7 m ²	0.7 m ²	0.7 m ²
Stocking density	Birds / m ²	20	12	80	45
	cm ² / bird			125	220
Water supply	Chicks / chick drinker	75		80	
	Birds / drinker	75	75		
	Birds / nipple	10	10	10	10
Feed supply	Birds / starting pan	50			
	cm of chain feeders	4	5	2	4
	Birds / round feeder	38 - 63	38 - 63		

Equipment used in the house should be designed for easy access and removal for clean-out, maintenance, and bio security consideration.

For the poultry feed processing line, several machines, equipment and siloes need to be imported and built. The following table provides an indicative list of machines for the processing plant, although type and units of machines might differ depending on the design and layout of the plant.

⁴² Parent stock management guide, Hendrix Genetics

Table 4: Proposed list of poultry feed processing machines⁴³

Poultry feed processing machines	Capacity (tons/hour)	Purpose
Feed cleaning equipment	15 – 20	Used for cleaning granular and powdery raw materials
Conveying equipment	20	Used to convey powder, small granules and small blocks and other bulk materials
Dust removal and magnetic separation equipment	20	Recover useful materials from the air flow in the production process, purify the dust-containing gas, and protect the environment of the feed factory
Poultry feed grinder machine	18 – 25	Crush the raw materials
Feed mixer machine		Mixing various materials after compounding
Feed pellet machine	15 – 20	Improve the nutrition and edible quality of the feed to varying degrees
Pellet plant cooler	13 – 18	-
Pellet crumbler machine	10 – 20	-
Feed grading machine	15 – 20	-
Feed packaging machine	-	-

3.3.3 Sourcing of inputs for production

The main component for producing DOCs is parent stock. Currently, there is no established grandparent management centre in Ethiopia, hence, the investment project needs to continually import parent stocks—both layers and broilers—from selected grandparent multiplication centres (e.g., Hendrix Genetics, Aviagen, etc.).

Production of feed requires composition of various inputs. An input mix that provides the desired level of crude energy and protein content needs to be formulated. The Ministry of Agriculture in Ethiopia has set out a guideline to ensure that feed producers include the minimum level of standard in their production⁴⁴. There is a practice of using feed formulation software (e.g., feed win) with small-scale feed processors in Ethiopia. To avoid irregularities, the poultry centre should install feed processing equipment that has its own computerized system to regulate mixture and maintain standard and quality of productions.

Per the industry practice, maize is the major ingredient in poultry feed production, constituting 40-50 per cent of the mix. Ethiopia is the second highest producers of maize in Sub-Saharan Africa, producing 8,600 thousand tons of maize in 2020. Since the 1970s, production of maize has increased by an average 7.64 per cent ⁴⁵. However, demand is higher than supply, hence, there is frequently shortage in the market. Especially, because maize is used for households' consumption as a staple

⁴³ List of machines sourced from a Chinese supplier

⁴⁴ The Agricultural Transformation Agency (ATA) has also developed a formulation manual for feed production

⁴⁵ World Data Atlas, 2022

food, poultry producers need to compete with humans to find supply of maize for processing. In the short-term, the poultry centre needs to source maize from aggregators/traders/brokers in the Oromia (e.g., Wollega, Nekemte, Illubabur, Ziway etc.), Amhara (e.g., Gojam) and the SNNPR regions. As a result, prices could be expected to be volatile, as it would be affected by brokers' margin. For example, at the time this report was under review, price of maize was around USD 470 per ton—which was double what it used to be a year before⁴⁶.

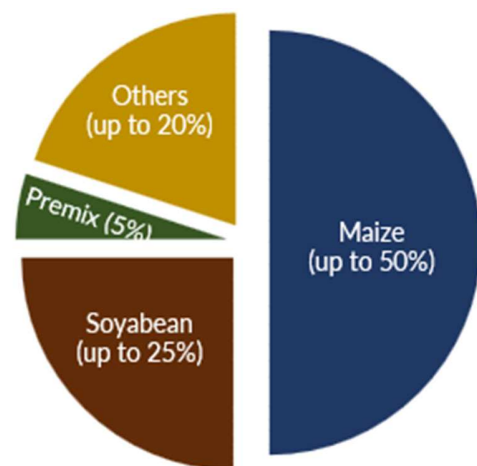
The other key input for feed production is soyabean, which might constitute 18-30 per cent of the mix. Although it accounts for only 4 per cent of pulses produced in Ethiopia, soyabean production has increased by an average 12 per cent from 2015 to 2020⁴⁷. The country has produced 125,623 tons of soyabean in 2020 and productivity has been improving, reaching 23.03 quintals/hectare. However, because soyabean is an export commodity (up to 95 per cent exported), supply is in shortage for local processing. Since 2019, soyabean is exclusively being traded at the Ethiopian Commodities Exchange (ECX), and processors can source soyabean only through this platform. Like maize, the price of soyabean has increased recently, trading at over USD 880/ton in March 2022.

Oilseed cakes (e.g., nug, peanut, sunflower, soya, etc.) are used as source of protein in the production of poultry feed and are sourced from oilseed processors/millers or traders. If available, oilseed cakes can replace the need to process soyabean to extract fat. Currently, Ethiopia relies on imports to supply edible oil. However, significant efforts are underway to substitute imports with local production. Large scale oilseed processors are under formation—with an estimated combined 1,000,000+ tons of production capacity⁴⁸. When these come into effect, the supply of oilseed cakes in the local market is expected to improve. Even then, processors might opt for exporting oilseed cakes to generate FOREX, so the poultry centre will need to compete aggressively.

Premixes add vitamins and other important mineral to poultry feed, making up 3-5 per cent of the mix. Because premix is not currently produced in Ethiopia, the poultry centre would need access to FOREX to import. Other inputs used in the production of poultry feed include wheat bran, limestone, salt, etc., and are sourced from local factories.

In the long-term, it needs to establish direct relationship with farmers and engage in contract farming or explore potential backward integration into maize and soyabean production. Several factors including drought, political stability and other competing crops are currently affecting the production volume of maize and soyabean. As a result, agro-processors have started to integrate

Figure 6: Potential composition of feed ingredients (Percentage)



⁴⁶ An interview with a poultry feed producer

⁴⁷ Agriculture Survey Report, Central Statistics Agency, 2020

⁴⁸ Oilseed processors under formation include PhiBela Edible Oil (500,000 MT), Shemu Group (285,000 MT), MIDROC Group (219,000 MT), WA Oil Factory (36,000 MT), Richland and Nirvana Processing.

their factories with agriculture development. To ensure sustainability, the poultry centre needs to supplement raw materials sourcing from traders with its own portion of production (e.g., 25-50 per cent of maize could be grown). Alternatively, it would be dependent on applicable policies, maize and/or soyabean could be imported.

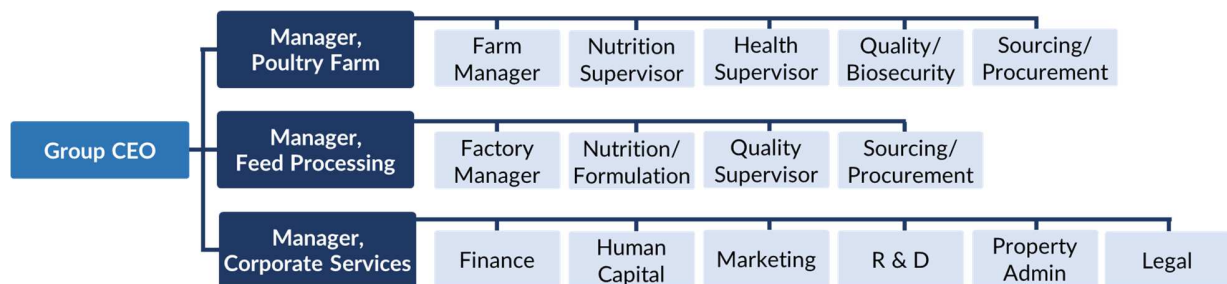
As indicated above, exploring the export market will allow the poultry centre to generate its own FOREX. As much as the FOREX retention law in Ethiopia allows, this resource could be used to import inputs without the need to apply for FOREX with local banks. Investors can also import inputs using *franco valuta*⁴⁹.

There is a need to address the lack of linkages in the poultry value chain. Some inputs critical for poultry farming are available in the country, but due to poor linkages, are either wasted or sold at a different market. For example, avocado residues (peel and seed), a byproduct from avocado oil producing enterprises, are rich in proteins that can be used in animal feed. However, the byproduct is currently being wasted because of poor linkages and lack of extraction technologies. Oil cakes, a byproduct from edible oil producers, have a similar effect in improving feed production, but is mostly exported to generate FOREX. There is a need to develop policies to create linkages between agro-processors and the poultry value chain and make these linkages economically viable for sustainable engagements.

3.4 Organizational structure and staffing

The poultry centre will need diverse human power to effectively manage its operation. Although operating from different facilities, corporate services of both the poultry farm and feed production units need will be centralized for effective integration. The following organogram depicts a high-level organizational structure for the poultry centre.

Figure 7: Organizational structure of the poultry centre



Both production units require a specific skillset. For example, the DOC multiplication farm requires people with the following capabilities⁵⁰:

⁴⁹ Franco Valuta is a method of payment in which importing of goods is permitted through bank transfers, without the need to open letter of credits (LCs). Importers need to get a franco valuta permit from the National Bank of Ethiopia to use this method.

⁵⁰ Parent stock management manual, Hendrix Genetics

- Strong knowledge of animal husbandry: sound knowledge of the biology and husbandry of chickens, including how their needs may be best provided for in all circumstances
- Skills in animal husbandry: demonstrable skills in observation, handling care and treatment of chickens and problem detection and resolution
- Personal qualities: affinity and love for chickens, dedication and patience.

Likewise, the feed processing unit must be equipped with staff that have technical knowledge of feed production, sourcing, and distribution. At full capacity, the poultry centre will create jobs for over 400 employees.

3.5 Cost-benefit analysis

Based on conservative estimates, a high-level cost-benefit analysis projects that an investment of USD 14.1 million in establishing the parent stock multiplication and feed processing facility will generate an internal rate of return (IRR) of 31 per cent over seven years. The net present value (NPV) of the investment project at 25 per cent discount rate is estimated to be over USD 15 million—which indicates an attractive value addition on invested capital. It has the capacity to become a USD 100+ million company in ten years and explore forward and backward-integration opportunities.

Table 5: A high-level income statement of the proposed project

Income Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Revenue from the Poultry Farm	15,300,000	18,207,000	21,666,330	25,782,933	30,681,690	36,511,211	43,448,341
Revenue from the Feed Processing	8,651,034	12,868,414	18,376,095	25,512,145	30,359,453	41,288,856	49,133,738
Gross Revenue	23,951,034	31,075,414	40,042,425	51,295,078	61,041,143	77,800,067	92,582,079
COGS at the Poultry Farm	7,750,977	9,196,172	10,919,907	12,976,838	15,432,451	18,365,211	21,869,149
COGS at the Feed Processing	6,055,724	9,007,890	12,863,266	17,858,502	21,251,617	28,902,199	34,393,617
Total Cost of Goods Sold	13,806,701	18,204,062	23,783,173	30,835,340	36,684,068	47,267,410	56,262,766
Gross Profit	10,144,333	12,871,352	16,259,252	20,459,738	24,357,075	30,532,657	36,319,313
Gross Margin	42%	41%	41%	40%	40%	39%	39%
Operating Expenses							
Marketing	500,000	600,000	720,000	864,000	1,036,800	1,244,160	1,492,992
Human Resource	4,008,000	4,809,600	5,771,520	6,925,824	8,310,989	9,973,187	11,967,824
Other Expenses	1,197,552	1,553,771	2,002,121	2,564,754	3,052,057	3,890,003	4,629,104
Total Operating Expenses	5,705,552	6,963,371	8,493,641	10,354,578	12,399,846	15,107,350	18,089,920
	24%	22%	21%	20%	20%	19%	20%
EBITDA	4,438,782	5,907,981	7,765,610	10,105,160	11,957,229	15,425,307	18,229,394
Margin	18.5%	19.0%	19.4%	19.7%	19.6%	19.8%	19.7%
Depreciation	1,338,413	1,338,413	1,338,413	1,338,413	1,400,913	1,599,022	1,599,022
Interest	-	-	-	-	-	-	-
Earnings Before Tax	3,100,369	4,569,568	6,427,197	8,766,747	10,556,316	13,826,285	16,630,371
Taxes	930,111	1,370,870	1,928,159	2,630,024	3,166,895	4,147,886	4,989,111
Net Income	2,170,258	3,198,698	4,499,038	6,136,723	7,389,421	9,678,400	11,641,260

The above calculation is based on limited assumption of the operational aspects of both the parent stock management farm and feed processing facility and should be considered as informative only. Investors looking to explore this investment opportunity are advised to conduct a full feasibility study.

3.6 Assessment of risks

The following table details potential risks and mitigation strategies at different stages of the investment.

Table 6: Assessment of potential risk to the investment project

Risk	Nature of Risk	Mitigation Approach
Planning Risk	<ul style="list-style-type: none"> – Poor planning of activities might impact milestones and subsequent steps towards establishment 	<ul style="list-style-type: none"> – Develop detailed plan of action to account for all steps necessary for establishing the venture
Capital raising risk	<ul style="list-style-type: none"> – Investors might not be able to raise the full capital needed to establish the venture 	<ul style="list-style-type: none"> – Leverage other forms of financing (e.g., debt, in-kind investments, etc.) to address the gap
Delays in project implementation	<ul style="list-style-type: none"> – Land, infrastructure, etc. may not be available from the gov. at the expected time – Machinery and equipment suppliers might delay delivery of production lines 	<ul style="list-style-type: none"> – Begin each step of inquiry and application as early as possible and continuously follow up – Leverage networks—government and private—to push through the process
Input sourcing risk	<ul style="list-style-type: none"> – Shortage FOREX to import inputs for production (e.g., parent stock, premix, etc.) – Increasing cost/shortage of locally sourced inputs might affect cost of production 	<ul style="list-style-type: none"> – Explore potential ways to generate FOREX (e.g., export) – Effectively plan for all sourcing and procurement needs, have good buffer – Engage in long-term contracts for key inputs for production
Market risk	<ul style="list-style-type: none"> – Demand for poultry products may not increase as expected despite strong awareness creation campaigns 	<ul style="list-style-type: none"> – Explore the export market as an alternative market destination – Potentially explore forward-integration into chicken meat processing
Operational risk	<ul style="list-style-type: none"> – Diseases might threaten the whole flock and risk loss of investment – Employee turnover could reduce efficiency, knowledge transfer, etc. 	<ul style="list-style-type: none"> – Employ strong biosecurity measures to prevent an outbreak – Continually provide training and development to employees, provide above-industry compensation packages to retain staff
Policy risk	<ul style="list-style-type: none"> – Policy directions might change unexpectedly affecting operation (e.g., FOREX prioritization, FOREX retention, export of live chickens, etc.) 	<ul style="list-style-type: none"> – Work closely with the government to influence policy directions, anticipate potential changes (e.g., lobbying for a law that keeps parent stock management centres in isolation to ensure biosecurity, exempting such venture to import maize/oilseeds and export DOCs and feed, etc.)
Political risk	<ul style="list-style-type: none"> – Political unrest could jeopardize the whole investment 	<ul style="list-style-type: none"> – Closely work with law enforcement to reduce the risk of damages during unrests

3.7 Implementation plan

To implement the centre or investment project and begin operation in Ethiopia, potential investors will need to go through several steps. Though it may vary from sector to sector, the overall process until product launch might take 18 to 36 months. Some of the steps listed below will overlap, hence, could reduce the total estimated time of project delivery. Each of these activities could further be divided into multiple steps.

Table 7: High-level implementation plan

Activities	Months																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Launching discussion with government (including site visits)	■																	
Signing MOU with key partners (e.g., MoA)		■																
Conducting feasibility study to assess viability and determine production capacity			■	■	■	■												
Fund raising to collect investment capital							■	■	■	■	■							
Licensing and registration (inv. permit)									■									
Construction of the facility									■	■	■	■	■	■	■	■		
Sourcing machineries													■	■	■	■		
Installation of machinery and equipment																	■	■
Identifying and hiring human resources																■	■	
Sourcing inputs for production																■	■	
Training of staff																	■	
Test production																	■	
Getting business license																		■
Launch																		■

3.8 Socio-economic impact of the Investment Project

Improving access to productive breeds and poultry feed would have a direct impact on maximizing economic benefits from the poultry sector. Currently, Ethiopia’s poultry sector is dominated by indigenous breeds—about 91 per cent of all chickens are characterized as such—which have low productivity. Investing in a parent stock multiplication centre would increase access to improved breeds, changing the current demography of the chicken population with more productive chicks.

With increasing production of DOCs, prices are expected to decline, which contributes to improving capacity of small-scale poultry farms. This, coupled with access to quality and affordable feed, can

increase the economic value of poultry. Poultry farms that are currently suffering from shortage of feed can be rejuvenated to resume and scale operations. In addition, poultry farming has the potential to improve household income in the rural community, to the extent where it becomes the primary income generating activity. This investment project has the potential to unlock that opportunity. Further, it has the potential to positively impact thousands of maize and soyabean farmers through its direct-buying and contract farming programs.

The investment project will also create direct jobs at the poultry farm and feed processing facilities. A model that includes 1) building capacity of women and youths with the right skillset for poultry farming, 2) availing adequate resource of both DOCs and feed, and 3) creating linkages with the end market could be designed, piloted in selected regions, and then scaled to cover additional regions could be designed. This kind of approach would create job opportunities to at least 10,000 groups and more than 50,000 women and youth (by availing 20 per cent of produced DOCs and feed to this initiative).

In line with Ethiopian government objectives, this investment is also both import-substitution and export-oriented and expands the potential to generate FOREX and become a catalyst of growth in the sector.

3.9 Environmental impact assessment

Appropriate measures must be in place to ensure biosecurity at the poultry centre. Unless safe and knowledge-driven poultry rearing is practiced, diseases could spread to other poultry farms in the country, including the export market. When commercial farms import parent stock, one of the key decision factors in selecting the right supplier is biosecurity of the farm from which they plan to source. Producers usually refuse to import from companies that operate in countries where there are prevalent chicken diseases like influenza scares or new castle breakouts, as these risks might result in mortality of chicken upon arrival or down the line in production.

Unproper waste disposal could also affect the environment. Especially, negligence when disposing of bio-hazardous waste products could transmit viral diseases to other poultry flocks. Poor cleaning practice might lead to the remnant of infectious materials on rearing facilities, which will affect the next flock. The proper handling of waste is essential to ensure an efficient and sustainable poultry farm as chickens, especially exotic breeds, are highly prone to diseases compared to other livestock. To reduce this impact, commercial farms typically burn hazardous waste, including birds affected by a certain disease. Other wastes like chicken manure are used as fertilizers in planting and gardening, hence, are given away or sold at cheap prices. Similarly, waste from feed processing are usually reprocessed into cattle feed production.

Poultry has the lowest CO₂ emissions compared to other meat processing⁵¹. As a result, environmentalists favour chicken meat and is considered by many to be the meat product of the future.

⁵¹ Invest in the Ethiopian Poultry Sector, ENTAG, 2020

4. The Prospect of Setting Up a Grandparent Stock Management Centre

One of the key levers of the poultry sector is having consistent access to parent stocks. However, there is no company in Ethiopia established to manage grandparent stocks from which parent stocks are produced. Currently, hatcheries rely on imported parent stocks from Europe (e.g., Netherlands) and South America (e.g., Brazil). The number of parent stocks in the country in 2021 was estimated to be about 71,000 broiler breeder stock, 7,300 layer breeder stock and 141,700 dual-purpose parent stocks⁵². The stock needs to be replaced with a new flock every 18 months. Compared to demand in the market, the amount of parent stock in the country is very low.

Access to FOREX has been the major bottleneck to consistently import parent stocks. Ethiopia has a negative balance of payment, which reached USD 10 billion in 2020/21 fiscal year⁵³. The scarcity of FOREX limits the number of parent stocks that hatcheries can import to produce DOCs. In addition, hatcheries cannot predict when FOREX could be available—which results in overflow of DOCs when FOREX is released at the same time for queued hatcheries. This has contributed to price volatility in the market and has a negative forward-effect that extends across the whole value chain.

Recognizing this challenge, the Livestock Master Plan (LMP) has identified improving the availability of chicken breeds in Ethiopia as one of the key intervention areas⁵⁴. To resolve this challenge, the LMP had envisioned establishing one national and four regional grandparent multiplication centres in the country. Ultimately, these farms would produce 440 million DOCs per year. The government envisages to engage the private sector in operationalizing such farms through promotion, incentives, business extension services and consumer training⁵⁵. These plans have been carried forward in the current agricultural 10-year development plan.

To realize this goal, it is important to build relationships with genetic companies. There are a limited number of companies in the world that have the genetic material to operate great-grandparent and grandparent multiplication centres. The engagement models of these companies range from country to country—in some they control management of the farm and in others, they receive royalty payments for their supply of pure breeds. One company interviewed has indicated that they have established two grandparent multiplication centres in Africa (in West and Southern Africa). While they are direct equity owners in one company, they receive royalty payment for their breeds in the other market.

Investing in grandparent stock management centre requires large investment and various requirements need to be met. Depending on the size of the farm, the investment might range from the tens of millions of dollars to the hundreds. As a result, commercial farms looking to invest in this

⁵² Invest in the Ethiopian Poultry Sector, ENTAG, 2020

⁵³ Annual Report, National Bank of Ethiopia, 2020/21

⁵⁴ Ethiopia livestock master plan (2015-2020), Ministry of Agriculture, 2015

⁵⁵ Invest in the Ethiopian Poultry Sector, ENTAG, 2020

space consider various factors before engaging—these factors determine whether a country offers a good value proposition and is viable from an investment perspective.

- 1. Market maturity:** Industry experts indicate that producing 600,000 parent stocks annually as the minimum threshold that makes grandparent stock management centre a viable business. The Ethiopian market must be able to absorb at least this amount of production. As indicated in the market assessment, per capita consumption of poultry products in Ethiopia is low. Stakeholders—both public and private—need to work towards developing the market by implementing initiatives that improve nutrition (e.g., school feeding programs) and make eggs and poultry meat part of the normal diet in both rural and urban markets. Multiplication farms might consider the export market, focusing on East Africa, as an additional market destination. However, because regional markets like Kenya and Sudan have already established stable source of parent stock, there is no strong business case for positioning Ethiopia as a regional hub.
- 2. Infrastructure availability:** Parent stock multiplication centres need guaranteed water supply, electric power, communication and internet lines and road access for heavy transport for feed and live poultry. The infrastructure needs to be stable and consistent to ensure smooth operation of the farm (lack of it would be costly for the investment). Additionally, the investment would require 20–30 hectares of virgin land (i.e., that has not been allotted to poultry before) to construct a state-of-the-art facility. The location must allow for managing biosecurity risks (e.g., no poultry farms must be found within 3.2 kilometer radius of the farm)⁵⁶. Finding a location that meets these standards is a daunting task.
- 3. Human resources:** Since parent stock multiplication is labour-intensive and knowledge-based investment, it requires highly skilled and experienced individuals in the field which is currently lacking.
- 4. Policy assurance:** Potential investors would need priority access to FOREX to import breeds, medicines, equipment, etc. Because the investment will be long-term, investors need guaranteed land lease rates. Import and export restrictions on genetics, inputs, etc. might be detrimental to the operation of the parent stock farm. To mitigate these uncertainties, investors need flexibility in the application of policies that are currently operating in Ethiopia (e.g., restrictions on DOCs and feed export, import on importing maize and oilseeds, FOREX retention, etc.). Further, policies must be in place to identify and control disease outbreaks.

In the short-term, the government can start discussions with global genetic companies and potential investors interested in the poultry sector in Ethiopia. While discussions develop, the government, in coordination with potential investors, can explore how the above-listed requirements can be met. With a view of establishing the first grandparent management farm in the foreseeable future (five to ten years), the government can work to lay the foundation work including identifying areas for potential development, availing infrastructure and developing local talent.

⁵⁶ Parent stock handbook, Arbor Acres, 2018

5. Recommendations

Based on the business case assessment including analysis of the market potential and technical requirements of the investment project, few recommendations that are important to improve the investment landscape in the poultry sector, particularly related to improving access to breeds and feed, can be inferred. These recommendations include:

1. **Improve the market potential/create demand through continuous awareness creation campaigns:** one of the major challenges currently affecting the attractiveness of the market is the low per capita consumption of eggs and chicken meat in Ethiopia. There remains limited awareness of the nutritional benefits that poultry consumption offers—in both urban and rural communities. Where lack of awareness drives low consumption, the government must work with the private sector and development partners to create demand. This might be accomplished through behaviour-change and awareness creation campaigns. Education on nutritional benefits of poultry consumption could be delivered in schools, hospitals and other public settings. In addition, mass-media marketing through advertising, radio and television programs could be used as instruments to create demand. These campaigns should include information about diversification of poultry consumption to break the cultural, single-way consumption of chicken meat and showcase how poultry could be integrated in the regular diet of Ethiopians.
2. **Create linkages in the value chain to improve access to inputs for producers and eggs and chicken meat for consumers:** the cost of production for poultry feed as well as poultry farming is currently affected by poor linkages in the value chain. There are several actors operating between producers and end-users, which are adding little value but contributing to increasing of prices—negatively affecting both producers and buyers. Improving linkages in the value chain (e.g., by creating a platform where inputs can be sourced directly from producers) will reduce both uncertainties in the market and price of inputs, thereby increasing the affordability of quality feed and improved breeds. On the other hand, improving market linkages will allow small and medium-scale farms to sell their products with better margins and improve their growth potential. Further, such kind of market linkage will reduce wastage and foster healthy competition among poultry producers.
3. **Creatively work with poultry producers and associations to improve the investment environment and access to inputs:** while incentives are good instruments to attract investors in parent stock multiplication and feed processing, there are several policy interventions needed to improve the investment landscape. For example, because investments in the sector is time-sensitive i.e., the risk of losing all stock due to lack of vaccines or high cost of feed, investors would need preferential access to FOREX. In addition, lack of one type of input (e.g., premix) could halt production and jeopardize the whole operation, adding to the need to have continuous access to FOREX. The demand for FOREX could be partly satisfied by ensuring access to critical inputs locally. For example, oilcakes are currently being exported by oilseeds processors. The government can facilitate buying arrangements between oilseed processors and poultry feed producers and support in

formulating a deal that is attractive to all parties (including buying inputs locally in foreign currencies). Further, the government must provide a guarantee against sudden policy changes that might affect the operation of investments.

4. **With a long-term view, carry out targeted investment promotion to attract parent stock multiplication centres and large-scale global feed processors.** The number of poultry genetics companies in the world are limited. The government, with the support of development partners, need to develop a strong value proposition (including identification of a site with strong biosecurity for parent stock multiplication) and implement a targeted investment promotion strategy to whet the appetite of investors. This includes identifying genetics companies, conducting missions, negotiations, signing Memorandum of Understandings and following up to ensure implementation of the intended investment projects. Partnerships in the form of PPPs must be designed and explored with potential partners if this approach is found to be the most suitable.
5. **Employ a pilot-then-scale model towards investing in grandparent multiplication in Ethiopia.** Currently, the government has a plan to establish five grandparent multiplication centres in Ethiopia. Countries that have higher per capita consumption of eggs and chicken meat in Africa have, in most cases, one or two grandparent multiplication centres. Based on these learnings, there might be a need to revise the ambitious plan, consolidate efforts and start with only one grandparent multiplication centre in the short-term. A pilot program could be implemented first, then based on success, scale it to meet local demand and potential export opportunities. This approach reduces the investment risks and increases the likelihood of success.

Implementing the above recommendations will require a strong coordination between the government, the private sector and development partners.

6. Conclusion

Based on the analysis, establishing a parent stock multiplication and feed processing facility clearly brings positive economic and social benefits to many stakeholders including investors, existing small, medium, and large poultry farms. Moreover, increasing availability and affordability of eggs and chicken meat has the potential to improve nutrition intake in Ethiopia. This business case study provides public and private stakeholders with data-driven insight and a starting point to engage with the right partners and further explore how it could be realized.

Finally, it should be noted that while this business case study endeavoured to provide a comprehensive picture of investing in the poultry sector in Ethiopia, potential investors are advised to strive to conduct an in-depth feasibility assessment before and build upon the information provided in this document. This will help investors fully understand the opportunities, challenges, risks and its impact and adapt the investment strategies accordingly to meet their objectives.

Annex

Annex 1: List of stakeholder consultations informing this report

Semi-structured interview

Ethiopian Ministry of Agriculture - Livestock Sector Development Division

Ethiopian Ministry of Agriculture - Poultry Development Directorate

Ethiopian Ministry of Agriculture – Import/Export

Large-scale feed producer, Addis Ababa

Genetics and parent stock distributor, The Netherlands

Ethiopian Poultry Producers and Processors Association

Ethiopian Investment Commission – Investment Promotion Directorate

International Livestock Research Institute, Livestock Scientist

Amhara Enterprise Development, Bahir Dar

Poultry industry expert, Addis Ababa

Medium-scale feed producer, Oromia

Large-scale DOCs producer, Addis Ababa

Small-scale feed producer, Oromia

Large-scale DOCs producer, Amhara

Medium-scale feed and DOCs producer, Addis Ababa

Smallholder poultry farmer, Oromia Region, Sendafa I

Smallholder poultry farmer, Oromia Region, Sendafa II

Smallholder poultry farmer, Oromia Region, Bishoftu I

Smallholder poultry farmer, Oromia Region, Bishoftu II

Smallholder poultry farmer, SNNPR Region, Hawassa I

Smallholder poultry farmer, SNNPR Region, Hawassa II

Large retailer I, Addis Ababa

Large retailer II, Addis Ababa

Large retailer II, Addis Ababa

Fresh produce distributor, Addis Ababa

Fast-food chain restaurant

Fast-food restaurant focusing on fried chicken

Surveys

150 consumers in different areas of Addis Ababa

Annex 2: List of stakeholders who participated in the validation workshop

MoI	Ayalneh Abawa
MoA	Yohannes Girma
	Tilahun Degefa
	Dejene Takele
EIC	Tariku Getachew
	Fekadu Nigussie
MoLS	Nigist Melaku
	Alemtsehay Dersolegn
CETU	Fisehatsion Biadgilign
EEF	Dawit Moges
CEEF	Worku Tamirat
Ethiopian Poultry Producers and Processors Association	Ato Birhanu Million
African Agribusiness Academy	Serkalem Abebe
Ethio-Chicken	Haile Kassa
Alema Farms	Eyob Eticha
Elfora Agro-Industry	Ali Mohammed
Alema Koudijs Feed	Lema Asfaw
GIZ	Teshome Dega
EDI	Dr Hassen Hussein
	Boru Shaha
Elere Farms	Fanta Terefe
Jacob Farm	Jacob Hendriksen
Tewodros Farm	Tewodros Kassahun
Chicko Meat	Nahom Tadese
ECCSA	Helen Retta
Consultant	Berkessa Behailu
Consultant	Blene T/Betemaream
Sheger Entrepreneurs Association	Alemu Zeleke
ILO	Albert Okal
	Ruchika Bahl
	Ayalu Admass
	Meseret Shiferaw
	Genet G/Mariam
	Mintwab Yemane