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PEDDLING CHICKENS TO BREAK POVERTY
Lessons learned at the BOP in Burkina Faso: a case for the replication and scaling of poultry innovation?

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Abstract

This paper examines the Poulet de Faso (PdF) project. Initiated in 2016 with the aim to innovate the poultry sector of Burkina Faso, it targeted small scale farmers which in this project can be considered a part of the bottom of the pyramid (BOP) market. This paper aims to contribute to the research field of strategy and operations at the BOP within Animal Health, and will present *Lessons learned at the BOP in Burkina Faso: a case for the replication and scaling of poultry innovation?*

Firstly, the importance of this project will be outlined, not only from an animal health perspective but within the context of social development. An introduction to the case is then given, explaining the main value chain and identifying key players of the model. This is put into context by giving an overview of the key market conditions and challenges at the BOP in Western Africa. Following this a review of the relevant literature is conducted, introducing key authors such as Prahalad and Karnani. Research will use qualitative methods to identify the key challenges and learnings of the case. This includes, but is not limited to, primary data collected from semi-structured interviews with the main stakeholders involved.

It is found that there are four key categories: sensitisation, partnerships, infrastructure, and financial sustainability from which learnings can be drawn. These are discussed openly, allowing for the development of a conceptual model which provides a framework for strategy and operations at the BOP within Animal Health. Overall, the PdF project provides a strong use case for the replication and scaling of poultry innovation within Animal Health at the BOP.

Key words: Animal Health, Bottom of the Pyramid, Multinational Corporations, Sustainable Business Models, Sustainable Development, Poultry Innovation

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1 Introduction

"There's no investment that has a return percentage anything like being able to breed chickens"

Bill Gates explains why he is excited about the poverty-fighting power of poultry (Malo, 2016). Indeed, for those that live below the poverty line, animal husbandry can provide assets and cashflow which not only improve their quality of life, but also lift them above the line (Alders and Pym, 2009). This is especially true of poultry, which requires minimal investment for rapid production cycles. Raising chickens produces a vital source of protein (eggs and meat) that can fight against malnourishment, and a liquid asset that allows for financial freedom, that is especially empowering for women (ibid.). However, raising productive chickens in developing countries where there is limited veterinary infrastructure and services poses a challenge.

This paper will be examining the Poulet de Faso (PdF) project initiated in 2016 by Ceva Santé Animale (Ceva), a French multinational animal health company, with the aim to innovate the poultry sector of Burkina Faso. The project targeted small scale farmers which in this case can be considered a part of the bottom of the pyramid (BOP) market. The BOP is a market made up of 2.7 billion people globally earning less than $2.50 USD a day (Malik, 2014). The vast majority (90%) of Burkina's 35 million chickens are local breeds kept by small-scale farmers in small flocks within traditional free-ranging systems in villages and around towns (FAO, 2014; 2018). However, compared to improved breeds kept in more intensive systems, local hens have a much higher mortality rate and slower growth rate. Indeed, there is an 80% recorded difference in the weight between local birds and improved breeds at 12 weeks of age (Ceva, 2021a). Fast growing broilers, such as the Cornish Cross, can reach 2.25kg in 6 weeks (Yang & Jiang, 2005). Furthermore, it is these smaller holder farmers that do not have the means to vaccinate their animals, consequently leaving the welfare and productivity of the animal (population) at risk to disease, most notably for poultry, Newcastle disease (Harrison and Alders, 2010).

Therefore, from a business perspective, the multinational corporations (MNCs) working on this project could serve a potentially lucrative BOP market. In Sub-Sharan and North Africa, agriculture accounts for 17.5% and 11.7 % of GDP, with livestock representing the most valuable sector (FAO & Palladium Group, 2019). For example, in the next 35 years, Burkina Faso's' overall consumption of livestock products is set to increase 216% (ibid.).

Nonetheless, there is limited research into BOP strategy and operations within Animal Health, which acts as potential barrier to entry for the replication and scaling of BOP projects. Therefore, more qualitative, and quantitative research is required to understand the intricacies of these projects.

1.1 Research context

The examination of the PdF project (the subject) aims to contribute to the research field of strategy and operations at the BOP (the object) within Animal Health, and will present:

Lessons learned at the BOP in Burkina Faso: a case for the replication and scaling of poultry innovation?

The findings from the case will be presented. Qualitative methods will be used to identify the key challenges and learnings of case. This includes but is not limited to primary data collected from semi-structured interviews with the main stakeholders involved. It is hoped that this original paper will act as a business case for others within Animal Health, providing evidence and an initial framework to build out offerings to the BOP.

This is important from a macro perspective as the health of all animals is inextricably linked to the health and wealth of humans, as laid out by the United Nations 'One Health' initiative (FAO, 2021a). Indeed, the emergence of COVID-19 acts a sobering reminder of the gravity zoonoses can have, causing a global impact never felt with SARS, H1N1 or Ebola. Since the beginning of the global pandemic, this zoonotic coronavirus has killed nearly 5 million people and caused a 4.3% contraction in the global economy, equivalent to $3.6 trillion USD (WHO, 2021; The World Bank, 2021).

1.2 The key players of the Poulet de Faso case

The below gives a brief overview of the main stakeholders from the case before moving onto the case description.

Anipole Faso (Anipole): a local company born out of the project and formed by the Poulet du Faso ambassadors in 2019. These individuals are technical-commercial agents (TCAs) tasked with operational responsibilities, as well as the role of market education and sensitisation. The company has a distribution network serving clients in 10 different regions of Burkina Faso, where they provide day old chicks (DOC), select grandparent chickens, on top of feed and other inputs (vaccines, equipment) through either 'Anipole shops' or TCAs. Anipole works with and unites three different business units, Le coq du Faso, le centre de Sélection Coq du Faso and Le poulet du Faso.

Ceva Santé Animale (Ceva): a French multinational Animal Health company specialising in research, development, production and marketing of pharmaceutical products, as well as vaccines for livestock and companion animals. It is based in 56 countries and working across more than 110 (Ceva, 2021b). Ceva has for 20 years innovated vaccines for hatchery administration, making it a world leader in the field of poultry (Ceva, 2021c). It is also well versed in the African market operating throughout the continent since the 1970's.

Sasso Poultry (Sasso): a part of Hendrix Genetics, Sasso is a global multi species breeding company from France, that has been specialising in slow genetics for poultry since the 1950's. They have innovated within the African market by creating dual purpose (either meet or eggs) breeds which are low cost, more resistant to disease and more efficient (eggs per hen/time to slaughter weight) (Sasso Poultry, 2021).

1.3 Peddling Chicken to make a difference: The Poulet de Faso case

The PdF project was brought to life after having received an initial grant of $550,000 USD, to fund the creation of the first ever genetic selection centre in Africa, from Bill and Melinda Gates Foundation (BMFG), who wanted to support innovation within Burkina Faso's traditional poultry sector. The goal was to improve the genetics of local chickens, control the main

infectious diseases, all while safeguarding the characteristics of local breads, the poulet bicylette. Ceva's solution was to partner with Sasso to import exotic hens (Sasso SA51), which would then be bred with selected local cocks called 'Coq du Faso' (CdF) to produce crossbreds, known as 'Poulet de Faso' (Annex 1 & 2). This model is the cornerstone of the project, without which Ceva would have not been able to tackle the socio-technical challenges of Burkina Faso. Innovation need not be interpreted in the strict sense, but rather a methodology with the goal to create rather than serve markets (Hart and Prahalad, 1999). This is often achieved through ensuring affordability, availability, and access (Prahalad, 2012). Innovation was achieved in the PdF project through the creation of an entirely new value chain which includes:

The Boussé selection centre (genetic selection)

The selection centre is the start of the chain, where the best performing (growth & laying rates) local poulet bicyclette are selected to form the grandparent flock. The core of the selection centre business model relies on selling the most performant local cocks (Coq du Faso) as breeders to multiplication farms, where they are crossed with Sasso hens. Operational sustainability is achieved through renewing the pedigree flock regularly, with the offspring of the high performing chickens being pre-selected to be reared up to 20 weeks old.

Hatcheries/ breeding farms (genetic enhancement & health management)

PdF DOCs are produced through the crossing process and receive Ceva vaccines, Vectormune® ND for Newcastle disease and Cevac® Vitabron 120 L against infectious Bronchitis. PdF are then tagged to ensure the traceability & quality of the bird throughout the supply chain.

Mother units, Peri-Urban farmers (welfare & productivity management)

DOCs are then supplied to Mother Units (MU) or Peri Urban farmers (PU), where they are reared either to 40 days or market weight (1.1kg) under optimal conditions, ensuring monitoring and biosecurity measures (Annex 6). At 40 days they are supplied to **finishing units** (FU) who take birds to market weight in 50-70 days. At this point they can be reared in scavenging systems, which represents a good investment for women and traditional farmers who do not have the capital to invest in buildings for batch rearing.

Technical commercial agents

Initially ambassadors, Anipole TCAs form the last mile distribution and customer service. They are trained to give advice on poultry health and management, to help small holder farmers optimise their productivity. Moreover, they are also trained to become a Vacinateurs Volontaires Villageois (VVV), which enables them to administer vaccines in compliance with Burkinabe law. All of which has contributed to not only sensitising farmers to become MUs and PUs, but also the low mortality rate of PdF (5%) through weekly monitoring (Ceva, 2021a).

The implementation of this value chain is considerable if we consider the market conditions. As acknowledged by Ceva there is limited technical input in production, significant resources are required to vaccinate few birds, and maintaining a cold supply chain for vaccines in rural areas is challenging (Ceva, 2021a).

Further details on the case can be found in Annex 3.

1.4 Market conditions & challenges at the BOP in Western Africa

The United Nations Development program outlines 4 key areas which contribute to the challenging conditions of the BOP market within areas of Sub-Saharan Africa, such as Burkina Faso (UNDP, 2013).

Information- There is still a lack of knowledge around market opportunities and characteristics; therefore, the collection and contextualisation of data is required more broadly. An inability to access specific regional data within African countries deters market entry, as it poses a risk of failure due to lack of knowledge (ECI-Africa, 2021). The Uppsala model suggests that progressive commitment to the market would combat this, yet this neglects that that not all market entry can be so linear. Moreover, from an animal health company perspective, protection of intellectual property is a significant issue, with inadequate or inconsistent enforcement of existing policies and legislation (ibid.). This leads to fraudulent or counterfeit products, which are not only uneconomical (low efficiency) but also dangerous to

farmers and animals. Indeed, a study conducted on trypanocidal drugs in West Africa, found Burkina Faso to have a 43% rate of non-compliance with official standards (Bengaly et al. 2018). This overall diminishes **incentives** to enter the country, as there are high associated costs within these low income and informal markets, as well as little reward or encouragement for the positive externalities associated with business.

Moreover, a significant lack of **investment** into infrastructure has consequently led supply chains to be inadequate for warehousing and transporting drugs at their required temperature (ECI-Africa, 2021). This in turn exacerbates local affordability and availability challenges at the last mile, especially considering the rural locations of livestock farmers. The inadequate and irregular funding to public vaccination programs, or strategic direction for the development of livestock has ultimately stagnated state infrastructure towards animal health in Western Africa (ibid.).

Thus, the realisation of sustainable business models at the BOP becomes costly particularly when there is a lack of **implementation support**. This is brought about by insufficient cooperation between the public and private sector (ibid.). In the private sector there appears to be malicious competition between service and input suppliers. Whereas on the public side of operations, the overlapping roles of agencies lead to decision paralysis and inadequate information sharing (ibid.). Nevertheless, there remains great opportunity for Animal Health in Africa. The population of the continent is set to double to 2.5 billion people by 2050, and with 1 in 5 (282 million) currently facing undernourishment, a secure and nourishing source of protein is needed (The Economist, 2020; FAO, 2021b). Poultry offers this security, as aforementioned, it has a high return on investment, but is also resilient in the face of a varied African environment and everchanging global climate.

2 Literature review

2.1 The BOP market

The development of literature in the BOP market has come a long way since the initial article by Hart and Prahalad in 1999. Indeed, the market has diminished from the 4 billion individuals Prahalad outlined to roughly 2.7 billion earning less than $2.50 USD a day (Malik, 2014). Which gives this segment of the pyramid an estimated market value of $5 trillion USD, with significant differences in how to approach it (Rahman, Mannan & Amir, 2018). It is important to note that the BOP can be segmented into low income, subsistence and extreme poverty, which have differing needs, meaning that the methods which you use to target these different subgroups should be adjusted accordingly (Rangan et al. 2011). There are many misconceptions around the BOP, it is not homogeneous, nor should it be associated with developing countries (Annex 4 & 5). Indeed, Prahalad (2004) addresses these misconceptions, advocating that the poor are still consumers that have significant purchasing power, and by selling to them you can make profit as well as contribute to eradicating poverty.

However, Karnani (2007) would argue that the poor do not have sufficient purchasing power for firms to make sustainable profits, thus putting profit at odds with social objectives. He emphasises that it is a ‘mirage’ that we continue to view the poor as consumers, suggesting that they should be viewed as producers from which the rest of the pyramid can consume. Nevertheless, what is certain is that in either approach there are tensions and challenges that exist, these have been well documented by Sharma and Jaiswal (2018). They follow on from those that identified tensions at the BOP, such as cognitive frames (Hahn et al. 2014), decision-making horizons (Slawinski and Bansal, 2015), organizational practices (Battilana and Dorado 2010) as well as roles and motivations (Harjula, 2007). The reality is that there is no one way to approach the BOP, as market conditions and challenges are shaped by country level institutional factors and so vary significantly regionally (Lepoutre et al. 2013). Thus, what will

aid BOP projects in overcoming these challenges is further research delineation into their characterisation on a regional and industry basis.

2.2 Animal Health and the BOP

Multinationals Animal Health companies were first encouraged to enter the BOP market through the likes of public/private partnerships around 20 years ago (Perry, 2002). The Ceva SOS project is a relevant example of such a collaboration, it brought together the University of Edinburgh, the University of Makerere, IKARE and the Government of Uganda in 2006. As a result of this project, more than 2.7 million cattle were treated and an estimated $400 million USD in human health care costs was saved (BBC News, 2105; Stamp out Sleeping Sickness, 2015). Although this was of value, it was philanthropic in nature, meaning pharmaceutical products were simply donated as it was regarded a worthy social cause.

Nowadays BOP projects tend to be about creating shared value, which addresses societal needs and challenges through business models, which many MNCs have failed to do (Porter and Kramer, 2019). This is an important shift in approach as it suggests that profits and societal progress are not mutually exclusive (Rangan, 2015). Porter and Kramer suggest there are 3 methods to create shared value, 1) reconceiving needs, products, and customers, 2) redefining productivity in the value chain, 3) enabling local cluster development. The first two points allude to disruptive innovation, first put forward by Christensen and Bower (1995). This type of innovation does not meet existing customers' needs or current products and services, but rather offers them an alternative which is more convenient, simple, and less expensive.

This has been developed on further with Catalytic innovation, a subset of disruptive innovation (Christensen et al. 2006). A theory that is relevant for projects and MNCs wishing to tackle the BOP market. This subset has 5 main qualities, 1) social change is achieved through scaling and replication, 2) It meets overserved needs (where the offering is too complicated) or underserved needs, 3) Good and services offered are simpler and less expensive (which may be perceived to have lower performance) 4) It generates resources initially unattractive to incumbents (grants,

intellectual capital), 5) It serves a market which is ignored for its unattractive or unprofitable business model (ibid.).

Christensen makes the delineation between traditional disruptive and catalytic, stating that social change caused by disruptive innovation is often an unintended by product, whereas the primary objective of catalytic innovation is social change at scale. However, this may be limited as many organisations have dual goals of not only social progress but also financial performance (Rangan, 2015).

Indeed, success has been found in animal health by viewing this market through the producer lens, for example EthioChicken. This Ethiopian company was created in 2010, four years later it introduced to the Sasso T451 chicken to the country, a hardy, dual purpose (eggs and meat) breed which thrives among rural smallholder farmers. Through the selling of their day-old chickens (DOC) the company not only grew at a rate of 50% year on year, but created value for their poultry raising farmers, who after three to four years could expect an accumulated net profit of $30,000 USD (Ederer, 2021; EthioChicken 2021). In 2018, the company estimated it created $160 million USD of net benefit for small-scale farming customers, the majority of whom are women (Ederer, 2021). This has profound impacts for society, especially in a country such as Ethiopia where the use of women in the labour force is minimal (Bayeh, 2016). The empowerment and financial independence of women is not only important for economic but sustainable development (ibid.). Thus, companies can achieve significant impact and profitability in the replication of poultry innovation models.

3 Case Research Methodology

3.1 Research context

The PdF case was selected to contribute to the given research field for a couple of reasons. First, this BOP project creates an entirely new value chain. Therefore, it encompasses a broad set of challenges, which could be insightful for the Animal Health industry in the replication and scaling of BOP projects in countries similar to Burkina Faso. Second, the author has deep access

to the inner workings of the project through the stakeholders that ran it. It is their cooperation that allows for the gathering of rich data, as access alone is not sufficient to understand the decisions and perspectives behind closed doors (Wanat, 2008).

3.2 Approach and Design

To achieve further insights on the strategy and operations of the case, a qualitative research design will be used to gather primary data from in-depth interviews, using semi-structured open-ended questions. This is information is analysed alongside secondary sources collected on the case such as PowerPoint slides and reports (Ceva, 2021a). Interviews will take an interactionist approach, refraining from 'pure' or 'unstructured' methods which are more open to criticism in terms of their feasibility and desirability. To quote Silverman (2020:54):

"Qualitative interviews provide us access to social worlds, as evidence of both 'what happens' within them and of how individuals make sense of themselves, their experiences, and their place within these social worlds"

It is a means by which to extend beyond the structured interview and allow for natural conversation progression, without losing the area of focus (ibid.). Thus, the complex nature of BOP projects and the tensions they elicit between business and social objectives, makes this form of interviewing more appropriate for capturing these paradoxes.

The research design will take a general inductive approach. This method allows for conceptual thinking and the building of categories or themes (Thomas, 2006). Similar to Grounded Theory, it uses *"inductive data to construct abstract analytical categories through an iterative process" (*Charmaz, 2014:25). However, it differs in that it limits theory building to the presentation and description of categories (Thomas, 2006). Essentially, it identifies frequent and dominant patterns in data through a process of coding, breaking free from the ties of structured methodologies. The approach and design make for clear links between the research field and the findings derived from case data (Thomas, 2006). Interview questions on the case will be framed around the business model, market conditions, results, and strategy. Due to the

geographic location of this project and the stakeholders involved, some interviews were conducted in French, a summary of the questions can be found in Annex 8.

3.3 Data analysis

To identify dominant and frequent patterns the process of data analysis was based on Thomas' principles (2006).

1) Physical preparation of the raw data- interviews and reports were transcribed into a summary document, highlighting the interviewer/examiner comments and ensuring there were no errors.

2) Processing- the text was read multiple times to understand not only the categories (narratives) being formed, but also the how the data relates to the context of the project.

3) Coding- the text was coded; specific areas of text were organised into potential sections of a category. These sections were then labelled under an overarching category.

4) Analysis- The categories were analysed to reduce crossover and those which were not relevant to the research field. This enabled a primary framework to be developed, which was used to further discussion and theory on the topic.

3.4 Research limitations

Two main limitations were identified in the primary research collection. Firstly, only a limited number of stakeholders from the case could be interviewed and the data collected contains the opinions of interviewees, meaning that it may be bias. For example, similar to the secondary data collected from companies it may contain confirmation bias, as they are trying to present the successes of the project. Secondly, the location of the project being limited to Burkina Faso means that it may not be representative for other BOP projects within Animal Health.

4 Case findings

The key case findings are summarised in Table 1, which highlights the categories that emerged during the interview and document coding. The case findings will be compared with theory to unveil complementary and conflicting characteristics, allowing for conceptual discovery.

Table 1: Themes and categories

Operational	Strategic
Sensitisation	Partnerships
Infrastructure	Financial sustainability

5 Discussion

5.1 Challenges and learnings

This section will focus on highlighting respondents' perspectives as to the main challenges and key learnings (strategic recommendations) of the PdF initiative. It will focus on the four categories identified above, drawing on literature to frame the discussion. The aim is to present the lessons learned from strategic and operational decisions in the case. Following this, a conceptual model will be presented, contributing to the main research field.

5.1.1 Sensitisation

Sensitisation relates to the education of customers and business stakeholders around the benefits of your project, from a product and business model perspective. The Director of Sasso Poultry reiterates that TCAs understanding of such animal health projects are key to being successful at the BOP.

"Success is dependent on these key factors, find the right ambassadors/technical commercial agent with the aim to help mother units commercialise and ensure vaccinations. Once we understood that … the wheel started turning and it worked. It is one of the essential factors, we have had great ambassadors, and others which weren't great. If they do not understand the spirit of the project, it will fail."

These agents play a crucial role in the sensitisation of the downward area of the value chain, from Mother Units to the end consumers, their importance cannot be underestimated (Annex 2). Their involvement forms an essential part of the marketing mix at the BOP, creating the

capacity to consume. Indeed, they ensure 3 main points of the 4 A's, acceptance, awareness, and accessibility, the other being affordability (Kotler & Lee, 2009). The introduction of a new poultry breed into the country, posed significant cultural acceptance challenges. The local poulette bicyclette is held in high regard for its better appearance, taste and texture than imported or broiler chickens (Ceva, 2021a). Therefore, we have a case where TCAs are having to convince smallholder farmers, who often have limited veterinary knowledge, 1) that the PdF and grandparent flock chickens (Coq du Faso) are in fact more productive and 2) end consumers that PdF still has the same genetic qualities as the poulet bicyclette. Annex 7 demonstrates the narrative they were up against.

Fortunately, these TCAs were able to raise the awareness of the benefits and accessibility of the PdF brand through their training and last mile distribution. Innovation was also on their side as the appearance and dark meat of the bird did not differ. Feather colour is a recessive trait in Sasso hens, meaning that the PdF inherit the same colour of plumage as the traditional Burkinabe breeds, yet were more productive, reaching a market weight in 75-90 days, compared to 6 months (Ceva, 2021a). Moreover, the grandparent flock from the selection centre achieved a 15% faster growth rate and double the female laying capacity (ibid.). However, it is not enough to simply state facts to convince your market, affordability is also crucial at the BOP, as there is significant variability in the cashflow of this market (Prahalad, 2004). Therefore, subsidies were offered to certain MUs, with the first batch of 500 chicks being provided for free and vaccines for the first two batches (Annex 3).

In essence what the PdF project is trying to achieve through sensitisation is shift in the desired behaviour of these small holder farmers, it is a case of 'seeing is believing' (Annex 10). A key change in the project was when the TCAs shifted from being ambassadors of PdF to employees and founders of Anipole Faso, representing a move towards a business mindset. Which saw the adoption of a database/planning tool to scale operations, predicting production by hatcheries and matching this with availability of MUs (Ceva, 2021a).

However, sensitisation does not limit itself to the target segments (annex 11) but can also apply to business stakeholders. Nevertheless, contrary to current literature (Angot & Plé, 2015; Sharma & Jaiswal, 2018) the findings show that the complete sensitisation or buy-in from top management, although necessary for the approval of projects, is not essential in determining success. What is necessary is a leader willing to have the courage to adapt and adopt a paradoxical mindset, in essence recognise that serving the BOP from a business perspective means facing contradictory requirements. In short, embracing and accepting challenges, to find comfort in discomfort and achieve temporary working certainties (Miron-Spektor et. al. 2018). For the Director of Public Health at Ceva this meant facing a performing and organising tension, essentially an interplay between means and ends (Smith & Lewis, 2012; Annex 12; Eisenstat et al. 2008). In short term Ceva must commit and innovate to create the necessary market development and ensure demand generation, so that in the longer term it can sell more vaccinations against avian diseases. In essence they are relying on creating goodwill to ensure their leading position in a market that is due to see exponential growth. The Senior Manager of Development Projects and Partnerships at Ceva explains the initial perception of the PdF project.

"*To be honest… there wasn't that much buy in from Ceva. It is only now that we are at the end, and it is a success story… that Ceva is seeing value and is wanting to communicate on what it's done".*

Indeed, without the Director of Public Health at Ceva driving this project forward and proposing 3 different options to the BMFG, this initiative would not have come to fruition. For context, there was a meeting organised by the Gates foundation in July 2014, bringing together the top 10 Animal Health companies of the time, with the objective of unification to tackle animal health issues, similar to the partnerships seen for Human Health (Bourne, Annex 9; Gates Foundation, 2012). However, many lacked the expertise or experience in Africa, asides from Ceva and Merial, and were unwilling to collaborate (Bourne, Annex 9). Thus, the actions taken

by this individual at Ceva are a testament to the strong and committed leadership vision for social impact. Essentially, what literature would describe as the *uncompromising* or *unreasonable* leaders necessary to build highly committed and performance driven initiatives at the BOP (Eisenstat et al. 2008; Elkington & Hartigan, 2008). Therefore, this conceptualises that success may not be dependent on the buy-in of many, but the commitment and determination of one stakeholder or individual that is willing to drive a project forward.

Learning 1: Believe in your project and adopt an integrated marketing approach

The Group Communications Director at Ceva gives colour to how they approached the socio-technical challenges of the market.

"It was important to find the best strategy to implement this solution in Burkinabe context without disturbing the existing market. It involves identifying targets, stakeholders and developing a whole value chain around the flagship production ensure the sustainability of its production and distribution".

It is evident that the marketing (sensitisation) approach within the PdF project was aligned with the business strategy. However, most crucially it did not dismiss the heterogeneities that exist within Africa, the contextualisation of the Burkinabe market and that of the value chain was a key success factor. Indeed, the segmentation and characterisation of key players involved in the project, allowed them to identify their strengths and weaknesses, adapting communication and marketing accordingly through TCAs to sensitise customers (Annex 10 & 11). Therefore, it would seem logical that the below questions are considered from a marketing perspective when approach a BOP project within Animal health:

- Do you have conviction in your offering, is there a key driver of the project vision?
- Is there a need to consolidate the local genetic?
- Do the project goals allow to meet the identified needs? (consumption/farming habits)
- Is there an existing market? (Size, Evolution, product/service disruption or synergy)
- Is the marketing strategy adapted to the targets?

- Are there by-products? Are they valued?

5.1.2 Partnerships

The successful implementation and sensitisation of the PdF project was brought about by the partnerships Ceva formed. A recurring message throughout the interviews was the importance of objective and value alignment with major partners, as well as the need for local business involvement. Literature supports this argument, Prahalad and Hart (1999) put forward the importance of forming alliances with local business, local and international NGOs, and finally government. From a business partnership perspective, Ceva and Sasso contributed equally to bringing the PdF project to life and were aligned on Poultry's potential for positive socioeconomic impact at the BOP market. Nevertheless, there was clearly strategic self-awareness from Ceva, the Director of Public Health advocates that you must:

"Try and manage your incompetence, it's exactly why we are working with Sasso, in terms of genetics, it is a world of competency we don't have… we have to be humble."

Indeed, from the findings a pattern emerged to create 3 key partnership rules, 1) Ensure you have the relevant experience between you, 2) manage your weaknesses and 3) only one partner should lead. Interestingly, this 3rd point differs from what we usually see in practice, and advocates that a partnership of equals is not necessary, someone must take the lead and ensure the direction of the project, in this case it was Ceva. This contributes to the narrative that it is important to operate as a business when serving the BOP, the Senior Manager of Development Projects and Partnerships at Ceva elaborates:

"I think it made it a lot more streamlined, for me who came from these huge EU projects with 15 partners where everything had to be decided at the level of the consortium. It was such a heavy structure in terms of governance that we couldn't get anything done"

The Director of Public Health at Ceva adds:

"If you are dependent on decisions to 10 or 5 other people, you are lost, especially in Africa where it could be quite complicated sometimes, or hazardous, or unforeseeable. You have to be free to take your own risk in managing it"

Therefore, it appears that it is necessary to be lean on the decision and partnership structure, as the business environment demands it. One must take the lead for overall direction, presenting the business model and objectives to each partner. The key is that all partners must understand the strategy and play an active role in achieving their defined gaols, communicating, and asking for help when required. However, this is not to say that Ceva adopted a stakeholder model that puts the firm at the centre of thinking, declaring itself most valued stakholder. Contrarily Ceva was self-aware, it appears a decentred stakeholder network model has been adopted, taking a system-centred approach to stakeholder relationships, especially important in a multicultural setting (Calton et al. 2013). This type of model allows for recognition of the roles key stakeholder play within the value chain, for example, TCAs in last mile distribution and sensitisation.

Nonetheless, this was not without challenges, collaboration with Fadima Farm (Fadima), initially the largest and only breeding farm of PdF, saw a breakdown in relations. The farm often prioritised selling to DOC chicks to larger PUs, which negates the smaller MUs and so limits the potential societal impacts of the project (Ducrotroy, Annex 9). Moreover, Fadima treated the relationship formally, acting not as a valued stakeholder of the system but someone who is contractually bound (ibid.). This meant information was only shared when requested, or in emergencies where the project could be at jeopardy (Ceva, 2021a). This represents a key relationship management challenge, as Fadima have significant influence within the local community. Without the ability to recognise and manage the importance of this relationship with Fadima Farm, Ceva may have struggled to diversify production without damaging the reputation and sustainability of the project, which now has 5 breeder/hatching farmers around Burkina Faso (Annex 3).

A potential downfall of project from a stakeholder management and partnership perspective, was the lack of involvement of government. Responses from interviewees are at odds with Prahalad's advocation for partnerships with government, at least at the beginning of market entry. This may be because partnerships with public bodies in Animal Health have had varied success within the African continent (ECI-Africa, 2021). Indeed, Ceva had challenges with The Ministry for Agriculture and Wildlife in Burkina Faso.

"They wrote us a letter accusing us of genetic erosion, of the local poulet bicyclette genetics… because we weren't having meetings with them or benefiting financially… and they tried to well..not sabotage but slow down the progress" (Manager of Development Projects and Partnerships at Ceva)

Although this did not impede the success of the PdF, the lack of acknowledgement of government importance in their network model puts the project at risk (Calton et al. 2013). Interestingly, this alludes to a clash of world views, that puts the BOP business model at odds with the socioeconomic realities of developing countries (Hahn & Gold, 2014). Large multinationals, primarily coming from free market economies are unlikely to share the same visions as government, who cite these projects as a form of US-led Eurocentric developmentalism in disguise (Faria & Hemais, 2017). Thus, significant tensions arise between collaboration and operational efficiency, with some choosing to limit bureaucratic governmental procedures and involvement, in order to have the greatest impact as well as return on investment (Poulton & Macartney, 2012). Indeed, as put by the Director of Public Health at Ceva:

"The main problem is in these developing countries (in the context of Animal health), the public sector specifically, they have trouble evolving their mission. They are in charge of everything, the vaccination…the regulation…the enforcement of the regulation…the deployment of the vaccination… the distribution of the drugs and so on. They are suffocating the private sector, so they don't want to collaborate."

One may describe this as a performing and belonging tension, where there is a clash between identification and goals with actors negotiating social demands (Smith & Lewis, 2011). The extent to which projects and organisations may experience this depends on the alignment to economic governance.

Learning 2: Find or create a cooperative business partner with complementary and shared objectives

It would appear the intricacies of the African market require an experienced and often local business partner, as the relationships with the local population and government can be complex. The key to the PdF project success was not only the partnership between Ceva and Sasso but also the stakeholder network model, which allowed for thoughtful relationship management with local businesses. The following questions may help when identifying and assessing the effectiveness of partnerships in such projects:

- Do the necessary local partners exist, is there opportunity for cluster development?
- Are the chosen partners essential for the success of the project?
- Do partners agree on the strategy, the objectives, the milestones of the project
- Is there a good communication between partners? (Quick resolutions to problems)
- Who are the main stakeholders involved in the target sector (production/public sector)? Are you taking a system centred approach to stakeholder relationships?

5.1.3 Infrastructure and Financial Sustainability

One of the most crucial elements of the PdF project was that it laid out an infrastructure which allowed it to be approached with the same business mentality as a start-up. Although there may have been a significant grant from the BMFG, the aim was for the project to be self-sustaining, like any normal business model. This is the key concept behind creating shared value, which is an architectural innovation, that should not be considered on the margins of a project or company

but interwoven into their very DNA and external environment (Porter & Kramer, 2019). Indeed, as mentioned by the Director of Public Health at Ceva:

"I sold the project to the BMFG because we were going to manage the project, as we manage business. Everyone working for us had objectives, milestones and KPIs".

Nevertheless, it should be acknowledged that this project would not have taken place if wasn't for the de-risking of the initial investment into the selection centre (Ducrotoy, Annex 9). This allowed the project to build a solid foundation from which to ensure financially sustainability at each stage of the value chain. It is estimated that $1.50 USD net profit margin is generated for each PdF sold to market (Annex 2). If one examines where value is created and profits generated the main beneficiaries are the farmers (MU, PU, FU), who make 70-80% of the net profit margin (Annex 2). Hatcheries and breeding farms make up a significantly lower percentage at around 15-25%, yet the scalability they can achieve still makes them profitable (Annex 2). It is projected that by 2025, the five current hatcheries could produce 3.5 million PdF a year, representing around 10% of all poultry production in Burkina Faso (Ceva, 2021a; FAO, 2018). Anipole Faso makes up roughly 4% of the profit margin (Annex 2). The weak link of the chain is the selection centre, which accounts for roughly 1% or less of the $1.50 USD profit margin. Nevertheless, local infrastructure innovation, through the introduction of a unique tagging system for PdF allowed the selection centre to diversify their income.

This infrastructure also contributed to the marketing effort and allowed the business to create brand awareness amongst end consumers. At events that allow for 'taste testing' such as the Festigrill in Ouagadougou (Annex 13), customers can identify PdF by their unique tags, which allows sensory information to be linked to the chicken, contributing to brand recall. Similar to the 'Label rouge' model in France which establishes premium, free-range chickens, it creates visibility throughout the supply chain, creating a mark of authenticity and assuring customers that this a quality chicken, vaccinated against all major diseases (Saveur, 1997). Moreover, this infrastructure holds the PdF project accountable, which helps the diffusion of mistrust, an

important factor and common challenge when trying to build social capital in BOP operations (Ansari, Munir & Gregg, 2012). Indeed, the director of Anapole Faso states that:

"Like any new product, the Poulet du Faso has experienced a period of mistrust among stakeholders and consumers, but its quality, which meets the various technological and environmental criteria, has boosted its reputation"

De-risking certain farmers at the downward area of the supply chain was also a key determinant in ensuring the financial sustainability and impact of this project (Annex 11). Although the PdF can be kept in traditional scavenging systems, without adequate feed they cannot achieve their full genetic potential. Thus, feed supply represents a challenge to the PdF project, as it has the potential to impact laying and growth rates, as well as create significant issues along the entire value chain. Therefore, the project recognises the start-up costs, and will act as an 'investor' for the first batch of chickens and vaccinations, on the condition that farmers reinvest a proportion of their initial cashflow into securing the feed supply (Annex 3). Indeed, feed costs can represent anywhere from 60-70% of production costs in poultry production (Thirumalaisamy et al. 2016). Thus, this de-risking is critical for creating the correct conditions for entrepreneurship and innovation within developing markets, where loans are not readily available and traditional business practices to acquire new business are risky (Roy & Wheeler, 2006). It allows farmers to shift from a passive to proactive mindset. Therefore, the PdF project recognised that it is not only about your product but the ability to create an ecosystem that enables the new business system to function (Prahalad, 2012).

Learning 3: Adopt a business approach to all aspect of the value chain from the onset

- Does the project have a reliable source of funding?
- Is there a clear business plan with profitability objectives to reach?
- Does the team meet the expected goals?

Learning 4: Secure critical inputs

- What are the vital inputs and competences to meet the project goals? who can provide them?
- Has the project secured the access to all necessary inputs and competences? (internal & external) Is there a need to de-risk some of these elements along the value chain?

6 Conclusion

From the discussion emerges a conceptual model (Annex 14), contributing to the main research field by providing a framework for strategy and operations within Animal Health at the BOP. It is designed to be used as iterative tool, where main questions are scored out of 5, any less than 3 suggests there are issues, or your model is not aligned to your objectives. More than 3 suggests the central question will soon be achieved and will not hinder the success or impact of the project, however it should be revaluated regularly for improvements.

Overall, the PdF project provides a strong use case for the replication and scaling of poultry innovation within Animal Health at the BOP. It has undoubtedly achieved success, in 2022 the profit margin is set to reach 5 million USD, with 70% of this going towards farmers, 90% of which are small holders and predominantly women (Ceva, 2021a). Nevertheless, what remains to be seen is whether the model can be replicated in other countries. It would appear it requires specific criteria for the model to be successful. For example, the country should provide adequate protection against dumping practices (genetic selection requires large capital investments) which could see products priced out the market. Moreover, this model would not be suited to countries where the poultry sector is dominated by intensive farming, as it would not be able to compete and is not aligned to its BOP focus.

Therefore, to further add to the research field it would be interesting to conduct a market entry strategy analysis for the PdF model, to determine how it could be scaled up and replicated to bring the most impact to society and business. As put by Muhammed Yunus (2011),

"a charity dollar only has one life; a social business dollar can be invested over and over again".

7 Bibliography

Alders, R.G. & Pym, R.A.E., (2009). Village poultry: still important to millions, eight thousand years after domestication. Worlds Poult. Sci. J. 65, 181.

Angot, J., & Plé, L. (2015). Serving poor people in rich countries: the bottom-of-the-pyramid business model solution. Journal of Business Strategy.

Ansari, S., Munir, K., & Gregg, T. (2012). Impact at the 'bottom of the pyramid': The role of social capital in capability development and community empowerment. Journal of Management Studies, 49(4), 813-842.

Bardosh, K. L. (2016). Deadly flies, poor profits, and veterinary pharmaceuticals: sustaining the control of sleeping sickness in Uganda. Medical anthropology, 35(4), 338-352.

Battilana, J., & Dorado, S. (2010). Building sustainable hybrid organizations: The case of a commercial microfinance organization. Academy of Management Journal, 53(6), 1419–1440.

Bayeh, E. (2016). The role of empowering women and achieving gender equality to the sustainable development of Ethiopia. Pacific Science Review B: Humanities and Social Sciences, 2(1), 37-42.

BBC News. (2015). Sleeping sickness study claims success. [online] Available at: <https://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-34767184> [Accessed 31 October 2021].

Bengaly, Z., Vitouley, S. H., Somda, M. B., Zongo, A., Têko-Agbo, A., Cecchi, G., & Delespaux, V. (2018). Drug quality analysis of isometamidium chloride hydrochloride and diminazene diaceturate used for the treatment of African animal trypanosomosis in West Africa. BMC veterinary research, 14(1), 1-8.

Bessell, P. R., Kushwaha, P., Mosha, R., Woolley, R., Al-Riyami, L., & Gammon, N. (2017). Assessing the impact of a novel strategy for delivering animal health interventions to smallholder farmers. Preventive veterinary medicine, 147, 108-116.

Bower, J. L., & Christensen, C. M. (1995). Disruptive technologies: catching the wave.

Calton, J. M., Werhane, P. H., Hartman, L. P., & Bevan, D. (2013). Building partnerships to create social and economic value at the base of the global development pyramid. Journal of business ethics, 117(4), 721-733.

Ceva. (2021a). Poulet du Faso report V1 [Confidential document].

Ceva. (2021b). Who are we?. [online] Available at: <https://www.ceva.com/en/Who-are-we> [Accessed 13 November 2021].

Ceva. (2021c). Products|Poultry. [online] Available at: <https://www.ceva.com/en/Products/Poultry> [Accessed 13 November 2021].

Charmaz, K. (2014). Constructing grounded theory. sage.

Christensen, C. M., Baumann, H., Ruggles, R., & Sadtler, T. M. (2006). Disruptive innovation for social change. Harvard business review, 84(12), 94.

Davidson, K. (2009). Ethical concerns at the bottom of the pyramid: Where CSR meets BOP. Journal of International Business Ethics, 2(1).

ECI-Africa, (2021). Establishment of Animal Health Industry Associations (Ahia) In Sub Saharan Africa. [online] GALVmed. Available at: <http://galvdox.galvmed.org/view_one.php?kp_doc=167> [Accessed 5 November 2021].

Ederer, P. (2021). EthioChicken and Yalelo Superior Value Creation in Africa. [online] Global Food and Agribusiness Network. Available at: <https://drive.google.com/file/d/1cQKuXAZ2lCZtPoOjkIYpVXesuJp_7K0c/view?usp=sharing> [Accessed 12 November 2021].

Eisenstat, R. A., Beer, M., Foote, N., Fredberg, T., & Norrgren, F. (2008). The uncompromising leader. Harvard Business Review, 86(7-8), 50-7.

Elkington, J., & Hartigan, P. (2008). The power of unreasonable people: How social entrepreneurs create markets that change the world. Harvard Business Press.

EthioChicken. (2021). Who are we. [online] Available at: <https://www.ethiochicken.com/about/whoweare> [Accessed 12 November 2021].

FAO, (2014). Socio-Economic Context and Role of Agriculture: Burkina Faso. Rome, Italy

FAO, (2018). Livestock production systems spotlight Burkina Faso. Africa Sustainable Livestock 2050. [online] Food and Agriculture Organisation of the United Nations. Available at: <https://www.fao.org/3/I8492EN/i8492en.pdf> [Accessed 5 November 2021].

FAO. (2021a). One Health. [online] Available at: < https://www.fao.org/one-health/en/ [Accessed 12 November 2021].

FAO. (2021b). 2.1.1 Prevalence of undernourishment | Sustainable Development Goals. [online] Available at: <https://www.fao.org/sustainable-development-goals/indicators/211/en/> [Accessed 12 November 2021].

FAO & Palladium Group. (2019). Livestock growth, public health and the environment in Burkina Faso – A quantitative assessment. Rome.

Faria, A., & Hemais, M. (2017). Rethinking the bottom of the pyramid: A critical perspective from an emerging economy. Marketing Theory, 17(3), 271-287.

Gates Foundation. (2012). Private and Public Partners Unite to Combat 10 Neglected Tropical Diseases by 2020. [online] Available at: <https://www.gatesfoundation.org/ideas/media-center/press-releases/2012/01/private-and-public-partners-unite-to-combat-10-neglected-tropical-diseases-by-2020> [Accessed 21 November 2021].

Hahn, R., & Gold, S. (2014). Resources and governance in "base of the pyramid"-partnerships: Assessing collaborations between businesses and non-business actors. Journal of Business Research, 67(7), 1321-1333.

Hahn, T., Preuss, L., Pinkse, J., & Figge, F. (2014). Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. Academy of Management Review, 39(4), 463–487.

Harjula, L. (2007). Tensions between venture capitalists' and business-social entrepreneurs' goals: Will bottom-of-the-pyramid strategies offer a solution? Greener Management International, 51, 79–88.

Harrison, J. L., & Alders, R. G. (2010). An assessment of chicken husbandry including Newcastle disease control in rural areas of Chibuto, Mozambique. Tropical animal health and production, 42(4), 729-736.

Karnani, A. (2007). The mirage of marketing to the bottom of the pyramid: how the private sector can help alleviate poverty, California Management Review, Summer, 49 (4), 90-111.

Kotler, P. T., & Lee, N. R. (2009). Up and out of poverty: The social marketing solution. Pearson Prentice Hall.

Lepoutre, J., Justo, R., Terjesen, S. & Bosma, N. (2013). Designing a global standardised methodology for measuring social entrepreneurship activity: the Global Entrepreneurship Monitor social entrepreneurship study. Small Business Economics, 40, 693–714.

Malik, K. (2014). Human development report 2014: Sustaining human progress: Reducing vulnerabilities and building resilience. United Nations Development Programme, New York.

Malo, S., (2016). Could chickens help to end global poverty? Bill Gates thinks so. [online] World Economic Forum. Available at: <https://www.weforum.org/agenda/2016/06/could-chickens-help-to-end-global-poverty-bill-gates-thinks-so> [Accessed 15 December 2021].

Miron-Spektor, E., Ingram, A., Keller, J., Smith, W.K. and Lewis, M.W. (2018). Microfoundations of organizational paradox: The problem is how we think about the problem. Academy of Management Journal, 61(1), pp.26-45.

Nagy, M., Bennett, D. and Graham, C. (2020), Why include the BOP in your international marketing strategy, International Marketing Review, 37(1), pp. 76-97.

Perry, B. D. (2002). Investing in animal health research to alleviate poverty. ILRI (aka ILCA and ILRAD).

Porter, M. E., & Kramer, M. R. (2019). Creating shared value. In Managing sustainable business, 323-346. Springer, Dordrecht.

Poulton, C., & Macartney, J. (2012). Can public–private partnerships leverage private investment in agricultural value chains in Africa? A preliminary review. *World Development*, *40*(1), 96-109.

Prahalad, C. K. (2004). The fortune at the base of the pyramid. Upper Saddle River: Wharton School Publishing.

Prahalad, C. K. (2012). Bottom of the Pyramid as a Source of Breakthrough Innovations. Journal of product innovation management, 29(1), 6-12.

Prahalad, C. K., & Fruehauf, H. C. (2005). The Fortune at the Bottom of the Pyramid. Wharton School Pub.

Prahalad, C. K., & Hammond, A. (2002). Serving the world's poor, profitably. Harvard business review, 80(9), 48-59.

Prahalad, C. K., & Hart, S. L. (1999). Strategies for the bottom of the pyramid: creating sustainable development. Ann Arbor, 1001, 48109.

Rahman, M. S., Mannan, M., & Amir, R. (2018). The rise of mobile Internet: the adoption process at the bottom of the pyramid. Digital Policy, Regulation and Governance.

Rangan, S. ed. (2015). Performance and progress: Essays on capitalism, business, and society. OUP Oxford.

Rangan, V. K., Appleby, S., & Moon, L. (2011). The promise of impact investing. Harvard Business School, Background Note, (512- 045).

Rannaleet, A. (2015). Why Venture Philanthropy? & Stamping out Sleeping Sickness [Video]. Available at: <https://www.youtube.com/watch?v=wAF-Pjlk8iA> [Accessed 13 November 2021].

Reficco, E., & Gutiérrez, R. (2016). Organizational Ambidexterity and the Elusive Quest for Successful Implementation of BoP Ventures. Organization & Environment.

Roy, M. A., & Wheeler, D. (2006). A survey of micro-enterprise in urban West Africa: drivers shaping the sector. Development in Practice, 16(5), 452-464.

Sasso Poultry. (2021). The African Poultry Situation. [online] Available at: <https://africa.sasso-poultry.com/en/concepts/sappsa-and-dual-purpose-chickens/> [Accessed 13 November 2021].

Sauveur, B. (1997). Les critères et facteurs de la qualité des poulets Label Rouge.

Sharma, G., & Jaiswal, A. K. (2018). Unsustainability of sustainability: Cognitive frames and tensions in bottom of the pyramid projects. Journal of Business Ethics, 148(2), 291-307.

Silverman, D. (Ed.). (2020). Qualitative research. sage.

Slawinski, N., & Bansal, P. (2015). Short on time: Intertemporal tensions in business sustainability. Organization Science, 26(2), 531–549.

Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. Academy of management Review, 36(2), 381-403.

Stamp out Sleeping Sickness. (2015). SOS - BBC reports on the fight against sleeping sickness. [online] Available at:<http://www.stampoutsleepingsickness.com/media/news/broadcasting-the-sos-campaign-.aspx> [Accessed 31 October 2021].

Steinbarth, E., & Bennett, S. (2018). Materiality Matters: Targeting the ESG Issues that Impact Performance–The Material ESG Score.

Subrahmanyan, S., & Gomez-Arias, J. T. (2008). Integrated approach to understanding consumer behavior at bottom of pyramid. Journal of Consumer Marketing.

The Economist. (2020). Africa's population will double by 2050. [online] Available at: <https://www.economist.com/special-report/2020/03/26/africas-population-will-double-by-2050> [Accessed 12 November 2021].

The World Bank. (2021). Safeguarding Animal, Human and Ecosystem Health: One Health at the World Bank. [online] Available at: <https://www.worldbank.org/en/topic/agriculture/brief/safeguarding-animal-human-and-ecosystem-health-one-health-at-the-world-bank> [Accessed 3 October 2021].

Thirumalaisamy, G., Muralidharan, J., Senthilkumar, S., Hema Sayee, R., & Priyadharsini, M. (2016). Cost-effective feeding of poultry. International Journal of Science, Environment and Technology, 5(6), 3997-4005.

Thomas R. D. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data., American Journal of Evaluation, 27(2),237-246

UNDP. (2013). "Realizing Africa's Wealth: Building Inclusive Businesses for Shared Prosperity".United Nations development program: African facility for inclusive markets

von Carlowitz, P. (2020). Success in the Bottom of the Pyramid Market in Africa: The Case of Multinational Pharmaceutical Companies. Springer Nature.

Wanat, C. L. (2008). Getting past the gatekeepers: Differences between access and cooperation in public school research. Field Methods, 20(2), 191–208.

World Bank. (2021). Burkina Faso | Data. [online] Available at: <https://data.worldbank.org/country/burkina-faso> [Accessed 5 November 2021].

World Health Organisation. (2021). WHO Coronavirus (COVID-19) Dashboard. [online] Available at: <https://covid19.who.int/> [Accessed 3 October 2021].

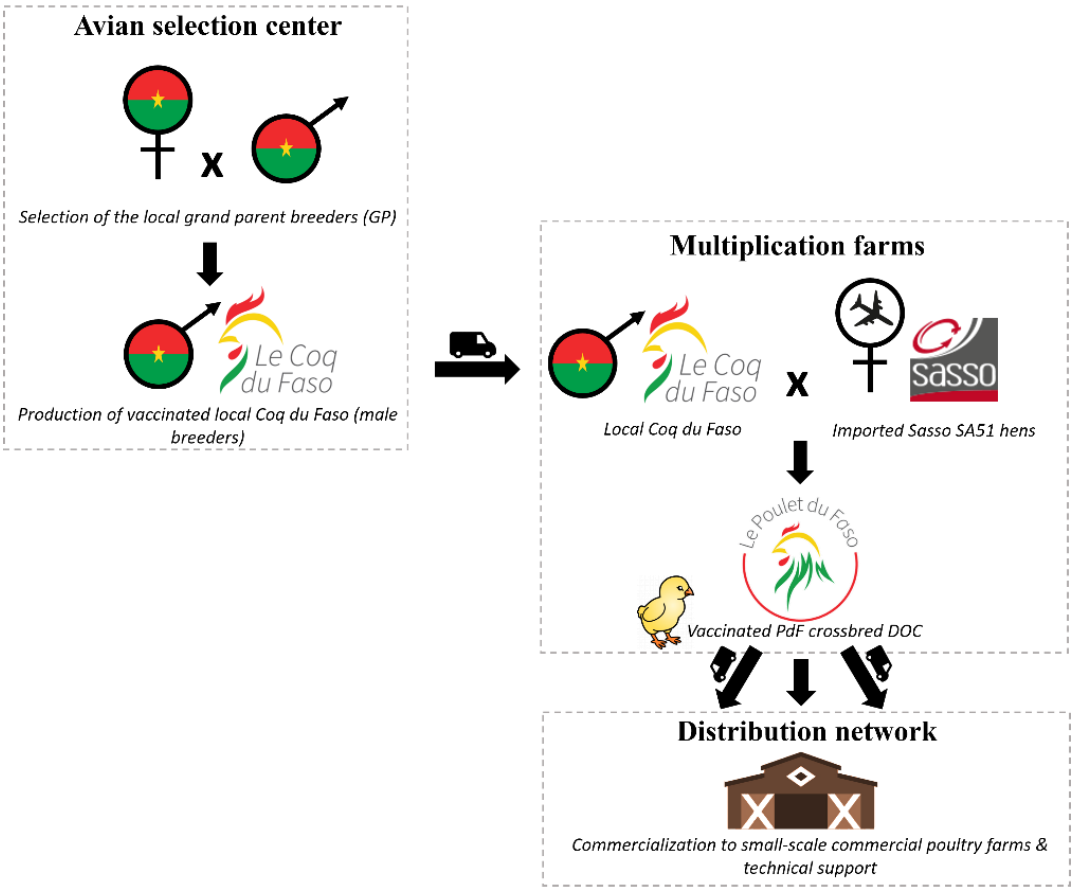
Yang, N., & Jiang, R. S. (2005). Recent advances in breeding for quality chickens. World's Poultry Science Journal, 61(3), 373-381.

Yunus, M. (2010) Building social business: The new kind of capitalism that serves humanity's most pressing needs. Public Affairs

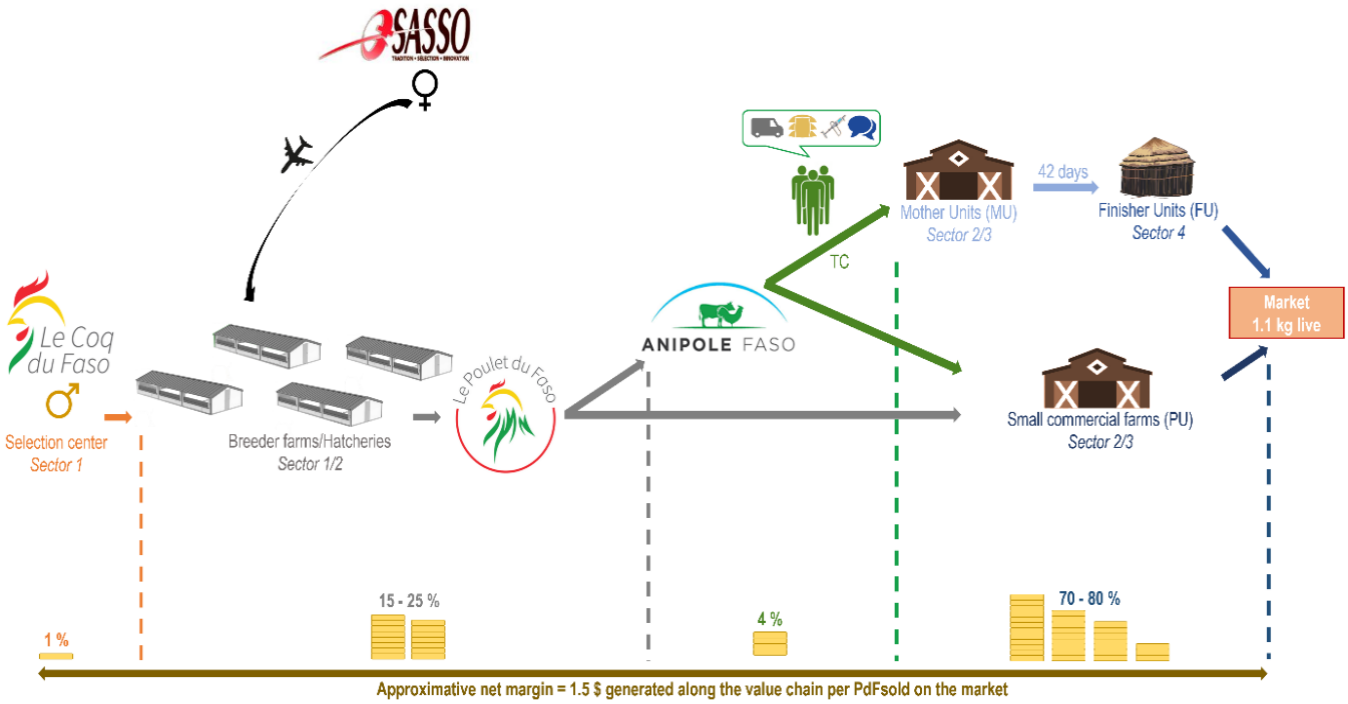
Zeder, M. A. (2012). The domestication of animals. Journal of anthropological research, 68(2), 161-190.

8 Annexes

Annex 1: Concept and key players of the PdF project. Source: (Ceva, 2021a)



Annex 2: Value chain of Poulet de Faso project. Source: (Ceva, 2021a)



USD/EUR	1.15

Mother Unit	CFA	USD
Start nb	1.13	
Genetic unit	600	
Tag	50	
Transport	20	
Feed price	280	
TC	10	
Anipole	10	
Feed Quantity	1.3	
Mortality	6%	
Sanitary unit cost	70	
Total Prod cost	1316	
Total produced	1.06	
Total cos/unit	1239	
Selling unit price	1500	
Unit margin	**261**	**0.46**

Finisher	CFA	USD
Start nb	1.06	
Genetic unit	1500	
Tag	0	
Transport	0	
Feed price	280	
TC	10	
Anipole	10	
Feed Quantity	2	
Mortality	6%	
Sanitary unit cost	20	
Total Prod cost	2264	
Total produced	1.00	
Total cos/unit	2272	
Selling unit price	2700	
Unit margin	**428**	**0.75**

PU Anipole	CFA	USD
Start nb	1.09	
Genetic unit	600	
Tag	50	
Transport	20	
Feed price	280	
TC	0	
Anipole	20	
Feed Quantity	3.7	
Mortality	8%	
Sanitary unit cost	70	
Total Prod cost	2069	
Total produced	1.00	
Total cos/unit	2063	
Selling unit price	2700	
Unit margin	**637**	**1.12**

PU direct	CFA	USD
Start nb	1.09	
Genetic unit	600	
Tag	0	
Transport	20	
Feed price	280	
TC	10	
Anipole	10	
Feed Quantity	3.7	
Mortality	8%	
Sanitary unit cost	70	
Total Prod cost	2014	
Total produced	1.00	
Total cos/unit	2008	
Selling unit price	2700	
Unit margin	**692**	**1.21**

TC	29	0.05		21.48	0.04		18	0.03		42.52	0.07
Anipole	29	0.05		20.64	0.04		94	0.16			
CdF	7.1	0.012		0.0	0.000		7.5	0.013		6	0.01
Hatchery		0.25						0.25			0.25
market breakdown		15%			15%			15%			70%

TOTAL (USD)											
76%	Farmers	1.20		0.07			0.11			0.17			0.85
4%	TC	0.07		0.01			0.01			0.00			0.05
2%	Anipole	0.04		0.01			0.01			0.02			0.00
16%	Hatchery	0.25		0.04			0.00			0.04			0.18
1%	CdF	0.01		0						0.00			0.01
		1.57											

Annex 3: Description of the project

The avian selection center: Le Coq du Faso

The role of the avian selection center is central to the new approach developed within the framework of the project. It consists in producing selected local males Coq du Faso (CdF), which are the elite cockerels bred from the best performance-recorded lineages of local Burkinabe chickens. These local cockerels can then be supplied to multiplication farms to be crossed with Sasso hens and produce PdF DOC, which will look like the traditional breed that local people value so high.

However, there was no facility in Burkina Faso or in its neighboring countries working on the genetic selection of a local breed when the project was launched in 2016. The first step in the implementation of the Poulet du Faso project was therefore to entirely build an avian selection center. To this end, Ceva and Sasso has worked with COFAB, an association of local farmers already supported since 2002 by the French group “Fermiers de Loué” and located in Boussé, a small town about 50 kilometers northwest of Ouagadougou.

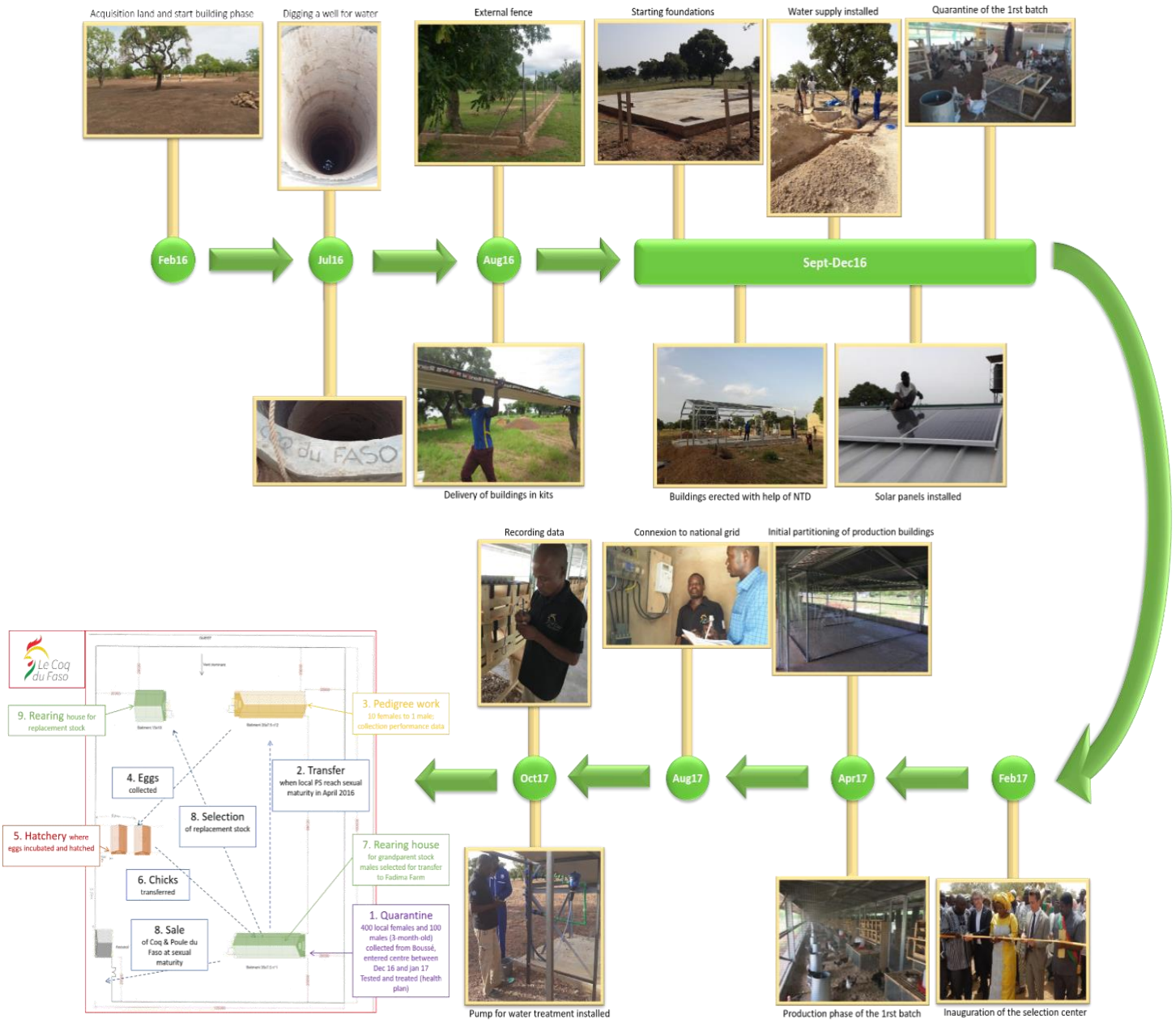
To establish the center and enable it to start operating, the project funded the building work, equipped the facilities, and covered the initial operating costs. Like all components of the Poulet du Faso project, the way the Boussé selection center works has been carefully designed to ensure that the center can continue to operate as a viable business once the time-limited project comes to an end.

The center is designed to provide very high standards of biosecurity and animal welfare, as well as a comfortable and convenient working environment for the staff. The chicken houses, which are fully meshed to keep out wild birds and vermin, are light, airy and spacious, equipped with perches, plenty of feed and water dispensers, as well as with sand boxes to enable birds to have dust baths. Staff shower before entering the buildings, change into freshly laundered protective clothing and follow strict biosecurity protocols. The site has its own water supply and solar panels to generate electricity, in addition to a mains supply to provide enough energy to power-hungry appliances, in the hatchery for instance. Five human resources were recruited to run the center at its opening: a director (veterinary doctor), three technicians and a warden.

To initiate the selection center, 130 male and 400 female chickens, each approximately 2-months-old, were bought from villages around the Boussé area. Birds were chosen to reflect the diversity of feather coloring found in the population, to ensure a diversified initial genetic pool. Each bird was tagged with a unique identification number. They were then transferred to the center and housed in the quarantine building for three months. During this time, birds were vaccinated, given other preventive health treatments, and screened for diseases, especially avian leucosis, mycoplasma and salmonella.

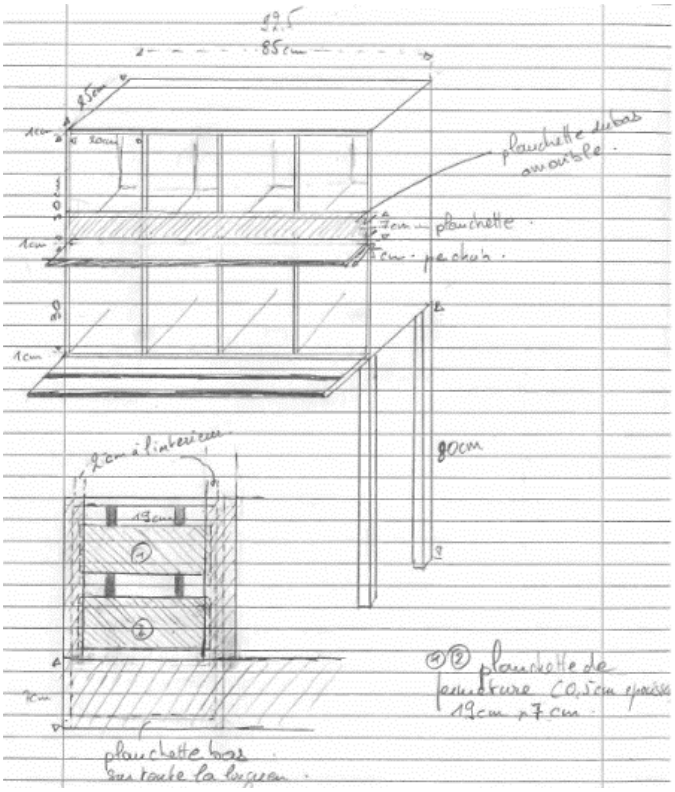
Quarantine phase for GP1 (local birds collected around Boussé)

At the end of the quarantine period, the by now mature and disease-free birds (80 males and 290 females aged 20-weeks-old) were transferred to the pedigree building. After the first batch of local chickens entered the center, it has been run as a closed system following the process detailed below, with no further birds being introduced from outside to minimize disease risk



After few rounds of selection in the pedigree building, the mature birds are allocated for about 45 weeks (production cycle period) to one of the 40 distinct families, each consisting of 1 cockerel and 10 to 13 hens. For the first batch, family groups were chosen based on the geographical origin of the birds, their phenotype (appearance) and age (all registered in a database). The main criterium is now the performances of the mothers, especially their laying rate, but special attention is also given to avoiding inbreeding.

Each family is housed in a pen equipped with trap nest boxes enabling the identification of the hen producing each egg: eggs are collected daily and labelled with the identity of their parents and the laying date. Careful records of many parameters are kept on a bespoke database created by Hendrix at the pedigree building level, such as the date and hour of the egg-laying, the egg production per hen (to calculate the laying rate), the broodiness, diseases, *etc.* The rearing parameters are also monitored, such as the quantity of feed and water consumed, the temperature in the building, *etc.*



When a hen enters a nest box to lay, it triggers a mechanism which traps it inside. It is then possible to write on each egg the identity of the parents for monitoring and traceability.

Trap nest boxes for data recording

After collection, eggs are transferred to a separate building, stored, and then placed every week into an incubator for 18 days, after which they are transferred to the hatcher for 3 more days. Complementary parameters are also followed up at this level, such as the fertility rate, the hatch results or the weight of the eggs, as well as data from the equipment (temperature of storage or incubation, *etc.*).

Storage and incubation in the Boussé avian selection center

On hatching, chicks are vaccinated against the Newcastle disease and infectious Bronchitis, tagged with a unique number, and transferred to the starting unit where they stay for 3 weeks.

Hatching and weighing of DOC in the Boussé avian selection center

Afterwards, they are moved to the production buildings, which are divided into several separate pens. During this phase, birds continue to receive preventive treatment and systematic sampling are collected to screen for diseases. Their growth rate, homogeneity and mortality are also monitored. Depending on the careful performance data analysis carried out by poultry genetic experts, chicks will spend varying periods of time in the production buildings.

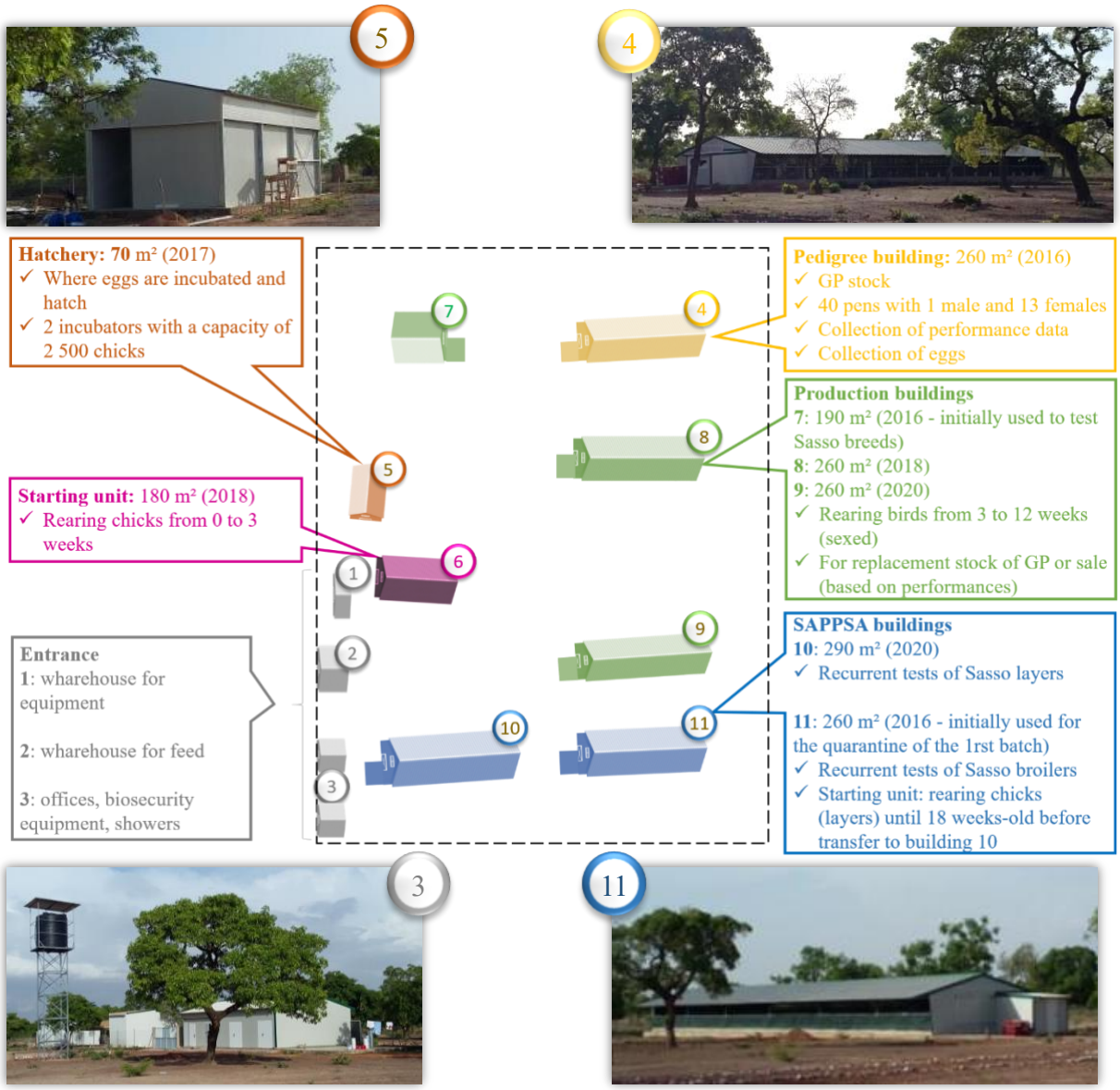
The core of the Boussé avian selection center business model relies on selling the most performant local cocks as breeders to multiplication farms. Therefore, its operational sustainability relies on being able to internally renew its pedigree flock, by selecting, based on the performance data analysis, the best subjects to be the next generation of grandparent breeders. This way, the Boussé avian selection center can continue its selection work and increase the quality of the breeders it sells to its clients. Thus, when pedigree birds reach half of their production cycle (about 40 weeks-old), the offspring of the best performing ones are pre-selected to be reared up to 20-weeks-old, according to a complex genetic analysis carried out by Sasso Hendrix. This selection is assessed based on their growth rate and most of all, on their parents' performances in terms of production of viable eggs: a large variation in performance was observed between individual hens for the first batch, but results standardized afterwards with selection. Subjects are picked from 6 or 7 consecutive batches to ensure a diversified genetic pool. Thanks to the better laying rate obtained through selection, the difference of age among the new pedigree flocks do not exceed 1.5 month (1 week between each batch), allowing females to start laying almost at the same.

Renewing flock rearing phase in the production building

Coq du Faso

For its financial sustainability, the center operates as a grandparent breeding facility whose primary product is elite cockerels, 'Coq du Faso', selected by the genetic experts based on analysis of performance data for transferring to multiplication farms. These CdF are sold at 12-weeks-old, age at which they can be sexed, to be reared until their sexual maturity and mate Sasso hens to produce crossbred PdF DOC. This is the bulk of the selection center's business, generating the highest margin per unit sold.

The multiplication farms (hatcheries and breeding farms)



The second major players in the Poulet du Faso project with the selection center are the hatcheries or breeding farms, whose role is to produce the PdF, by crossing CdF with imported Sasso hens. Once again, only the multiplication farms able to provide the most optimal rearing conditions to their flock (including batch management, biosecurity and other preventive measures, sanitary follow-up, eggs collection, monitoring, *etc*.), can successfully fulfill this role.

The only option at the beginning of the project was to work with Fadima Farm, a privately-owned company created in 2003 with a hatchery funded in 2013 within the framework of a project in partnership with the HG company. Beyond its experience in poultry reproduction, Fadima farm was also well located, in a small town near Koubri which is in the main area of consumption of poultry meat in the country (27 kilometers southeast of Ouagadougou) and which is about 75 km from the Boussé avian selection center. Fadima farm has been the major financial beneficiary of the project which funded the construction of three production buildings and the extension of the hatchery building, each one measuring 6,500 square feet.

At Fadima Farm, CdF from the Boussé selection center are mated with Sasso hens imported from France. The breed 'Sasso SA51' has been developed in France by Sasso, to be hardy, well-suited to free-range production and slower growing than modern broilers to meet the demand for high-quality, tasty chickens amongst more discerning consumers who appreciate a more traditional product. Their laying performances are also far higher than local breeds (about 75% compared to 15% for local breeds).

Day-old Sasso chicks are imported from France and reared alone in the starting unit at Fadima Farm until their 12th week. At this time, 12-weeks-old CdF from the Boussé center are also introduced in the starting unit, being separated from females only by a fence for two weeks. This quarantine period necessary to limit disease outbreaks is also important for limiting birds' stress by letting them time to get accustomed to each other. Then, the fence is removed and Sasso and CdF spend about a month familiarizing with each other before the onset of production.

This starting phase (until sexual maturity) is particularly critical for the breeding farm: the whole sanitary program must be properly conducted to avoid manipulating hens during their laying phase and risking impacting their performances. Beyond recording the usual parameters such as mortality or the feed conversion ratio, monitoring during this period also focuses on measuring hens' growth and weight, which will determine the onset of laying. Therefore, it is very important to verify that they match with the breed standards and that the flock is homogeneous, to anticipate the date when they will start laying and ensure that they all start laying at the same time.

Around their 20th week, when hens are ready to start laying, males and females (ratio of 1 cockerel for 8 hens) are all transferred together in a free-run production building where females have access to laying nests. During this phase, the challenge is to maintain good rearing conditions to limit sources of stress, for instance by controlling social interaction between males and females to avoid peaking or fight, following strict biosecurity processes not to disturb hens during their production cycle, applying a good lighting program, *etc*. The team follows production indicators, such as the mortality rate, the number of eggs laid per week and per hen, the average egg weight, the number of dirty eggs or eggs laid outside nests, *etc.* This way, they may assess if their management practices allow hens to reach their optimal performances or act quickly if productivity deviates from standards.

Under local condition, the Sasso hens' performances reach an average of 5 eggs each per week and continue laying for 50 weeks. Eggs are collected twice a day, stored and transferred every week to an incubator, where they stay for 18 days. Before being transferred to the hatchery where they will spend 3 more days, they are tested by candling: a ray of light is passed through the eggs to remove the ones without embryo (fertility indicator). At the hatchery PdF DOC are vaccinated with Ceva vaccines: Vectormune® ND to provide lifelong protection against the Newcastle disease and Cevac® Vitabron 120 L against infectious Bronchitis.

All production and hatchery parameters are recorded: such as hen's weight and laying rate, the fertility rate, the hatchability rate, the mortality rate, the temperature in the buildings or in the incubator, the quantity of feed and water consumed, *etc.* As for the selection center, running a breeding farm requires a great deal of precision. All the rearing and performance parameters need to be thoroughly monitored to optimize production, prevent any problems and act very rapidly when one occurs. The main advantage that may have the multiplication farm over the

selection center is that the optimal performances that may reach the Sasso hens are known and that the way to reach them is detailed in the technical specifications provided by Sasso. The main mission of the multiplication, farm is therefore to strictly follow up those recommendations and to rapidly find solutions if results deviate from standards.

After hatching, vaccinated PdF DOC are sold to commercial farmers, either directly if they come take them at the hatchery, or through Anipole Faso which commercializes them across the country.
At 70 weeks of age, Sasso hens and CdF cockerels are culled by when a new batch of hens and cockerels have been reared and are ready to start breeding.The current demand for PdF far outweighs the production by Fadima Farm, which represents less than 4% of the overall poultry meat production of Burkina Faso estimated at 35 million per year. Therefore, the Project has extended production of PdF DOC to four other breeding farms and hatcheries in Burkina Faso:

CAB based in Bobo Dioulasso, which received a first batch of 1,500 Sasso breeder females in August 2020 and a subsequent batch of 1,500 in November 2020 and started producing PdF DOC in August 2020.

SOBUPRA, which received a batch of 1,500 female breeders in November 2020 and started producing PdF DOC in April 2021.

KOUNA hatchery, which received a batch of 1,500 Sasso hens in February 2021 for a PdF production start in August 2021.

TAPSOBA hatchery, which received a batch of 1,500 Sasso hens in July 2021 for a PdF production start in January 2022

SACOFAB hatchery, which will be built within the framework of the Alliance Goût du Faso project (with the Coq du Faso SARL) and should start producing in 2022.

The distribution network

The Poulet du Faso initiative aims to create a network of mutually dependent and interlinked viable and sustainable businesses that will continue to operate long after the project comes to an end.

Ceva's experience in the Burkina Faso poultry sector indicated that there is a low level of technical competences amongst small-scale village and traditional farmers who also have poor access to veterinary and feed services and inputs. To reduce the level of risk for small-scale farmers wishing to produce PdF, the project team developed a segmented model.

Segmented production model: the mother-units (MU) and peri-urban farms (PU)

This entails PdF chicks being reared from day-old to 42 days of age at 'mother units' before the part-grown chicks are sold on to 'finisher units' who rear the birds through to slaughter weight.

The idea is that the mother-units are carefully selected from farmers who can achieve a higher level of management and have better access to services (often in peri-urban areas), thereby

reducing risks of rearing the chicks during this critical stage of their lives when they are most vulnerable. Also, during these first 42 days, the vaccinations not already administered at the hatchery are given in addition to other preventive treatments. It means that 'teen chicks' being supplied to the finishing units are more robust and immune to the most common infectious diseases. Because of their hardy genetics, they can be reared in traditional/scavenging systems. They are a good investment for women and traditional farmers who cannot invest in buildings for batch rearing.

To share the benefits of rearing PdF more widely, the plan was for 50% of the DOC to be supplied to mother-units located in villages (MU), 40% to small-scale commercial farms in peri-urban areas (PU) and the remaining 10% to be available for large-scale commercial poultry enterprises or for export to neighboring countries. At full capacity, 3.5 million DOC could be produced annually, although the current number produced was 1.3 million chicks a year.

Mother-units (MU) correspond to small independent farmers located in the 10 regions covered by the project (radius of 150 km from Ouagadougou). They have been selected by the project for their poultry farming experience, their willingness to start such production and their financial and infrastructure capacity (existing building, cash for feed purchase). They have limited technical background. MU rear batches of 500 birds until 6 weeks of age (after completing vaccination and preventive treatments) and sell them to traditional farmers.
Small-scale commercial farmers are called Peri-Urban (PU) since they are mostly located around the main cities for an easier access to the live bird market. Their average capacity is 1,500 birds (up to 3,000). They usually run other businesses and their technical level is limited, but they follow a feeding program for their batches, which allows the optimization of growth performances in order to reach market weight in a limited amount of time.

To be supplied with their first batch of PdF DOC, the operators of the MU were required to sign a contract and agree to a set of conditions including that they must:

- Have a suitable building to rear at least 500 DOC to 4 weeks of age (after that the chicks can venture outside),
- Have 150 000 CFA (USD 260) available to cover cost of feed for first batch of chicks,
- Undertake vaccinations and treatments prescribed by project,
- Apply biosecurity and follow production guidelines and practices advocated by project,
- Record body weight weekly and mortality as required by the project,
- Sell the PdF at 42 days of age (6 weeks) at the agreed price of 1,500 CFA (USD 2.60)
- Not retain any PdF for breeding,
- Purchase the special PdF tags and attach these to the wings of all birds sold.

To ensure that MU and PU were not only operated by better off farmers, the Poulet du Faso project provided some subsidies. For the MU, the first batch of 500 chicks was provided free-of-charge and the vaccines were provided for the first and second batches. For PU, the first batch of 1,000-2,000 chicks and the vaccines for the first batch only were provided free-of-charge. The idea was that this would allow relatively resource-poor operators to generate the cash needed to reinvest in subsequent batches without having to access credit, which can be hard to obtain in Burkina Faso.

The MU operators are expected to follow a detailed schedule during the 42-day rearing period; the details are laid out in the formal contract which they are required to sign. This includes having vaccines administered by local community-based vaccinators, known as VVV, at specified ages, administering preventive treatments (anticoccidials, nutritional supplements,

dewormers) as well as changing every week the disinfectant footbath kept at the entrance to the building. This package is designed to ensure the PdF are maintained in good health and that effective biosecurity is achieved. In addition, they are required to record the weight of the birds each week and keep records of all expenditure on feed, labor and any treatments, and make these available to the project manager. PU are expected to follow the same recommendations extended to the whole production cycle, until PdF reach the market weight. Each batch of chicks takes 42 days to rear at the MU level, which then undergo a thorough cleaning and disinfecting operation which takes at least 2 weeks.

Finisher a (FU)

When the birds have been reared to 42 days of age at the MU, they are then sold to finisher unit operators, in batches of 25 to 100 birds. Depending on the feed and level of management at the FU, the PdF are market ready from between 75 and 90 days of age, that is an additional 35 to 50 days at the finisher level (in villages and peri-urban areas respectively).
The scale of operation for finishing units varies considerably from very small enterprises rearing just 30 birds per batch to much larger enterprises rearing batches of 1,000 birds or more. Typically, village-based finishers practice free-range production while peri-urban finishers house their birds. An additional variant is for some larger-scale units to combine the mother unit and finisher role, rearing birds from day-old through to market ready at one site.
The target finishing weight is 1.1 kilogram. Market-ready birds are collected by project 'ambassadors' (now Anipole Faso - see below) who transport the birds to selected wholesalers and restaurants. In contrast to the traditional 'poulet bicyclette' which are transported live, tied to the handlebars of bicycles by their feet, PdF are transported in crates in vehicles, which is a much less stressful experience.

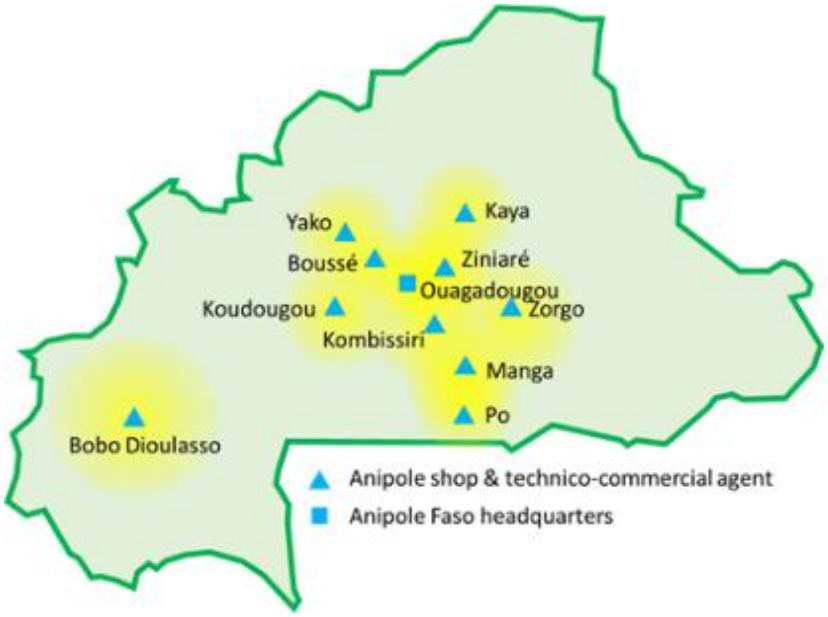
Role of technico-commercial agents

Poulet du Faso ambassadors are important components of the value chain – indeed they can be regarded as the oil that keeps the chain moving. They started to operate in eight different zones within Burkina Faso, selected on the basis of a marketing analysis, each of which is located within 200 kilometers of Ouagadougou. For each zone an ambassador was recruited and received training to help them fulfil their important role. Their responsibilities included:

- Sensitizing local farmers who could become mother unit operators,
- Selecting mother-unit and peri-urban operators,
- Conducting farm visits to technically support farmers,
- Collecting DOC, tags, vaccines and other medicines and delivering them to mother units.

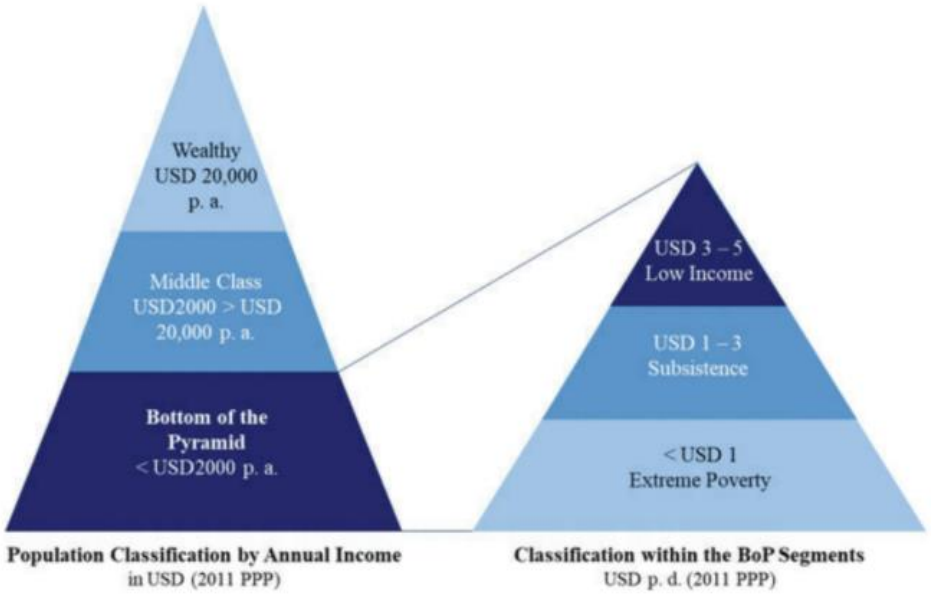
In 2019, the ambassadors created their Limited Liability Company named Anipole Faso.

Location of Anipole shops in Burkina Faso



Source: (Ceva, 2021a)

Annex 4 – World income pyramid and characteristics of the BOP population



Source : von Carlowitz, P. (2020)

Annex 5 – Misconceptions and the reality of the BOP market

Misconception	**Reality**	**Author**
People at the BOP are not concerned with and cannot afford modern products/services.	This is in contradiction of how this market accepted advanced technology, such as wireless devices.	Prahalad (2004)
People at the BOP are required to use their savings to meet basic needs	Current consumption takes precedent rather than saving for the future. Disposable income is used to indulge in disposable income.	Prahalad & Hammond (2002)
People at the BOP are not focused on brands	Brand and value conscious is a necessity at the BOP, to ensure one is getting value for money, good quality at an affordable price is sought by all.	Nagy, Bennet & Graham (2020) Subrahmanyan, & Gomez-Arias (2008).

Source: adapted from von Carlowitz, P. (2020)

Annex 6 – Social business model canvas of the Poulet de Faso project

PARTNERS

Partners

- Ceva Santé Animale (Ceva)
- Sasso (Hendrix Genetics); specialist chicken breeding company based in France
- Coq du Faso SARL
- Anipole Faso

Hatcheries and breeding farms

- CAB
- SOBPURA
- KOUNA
- TAPSOBA
- SACOFAB

Local farmers and businesses

- K&K – solar panels for selection centre
- Echlo – masonry for selection centre

KEY ACTIVITIES

Goal improve the genetics of local chickens, control the main infectious diseases, all while safeguarding the main characteristics of local breads and responding to market demands.

Segmented Model – see annex 2

Selection centre (genetic selection)

- Rearing of best young cockerels and hens from village flocks at selection centre under carefully managed conditions
- Constant screening and monitoring for health and productivity; to produce elite grandparent flock, Coq du Faso
- Elite cockerels are supplied to breeding farms and hatcheries

Hatcheries/ breeding farms (genetic enhancement & health management)

- Coq du Faso are crossed with 'Sasso SA51' hens to produce Poulet de Faso day old chicks (DOC) where they receive initial vaccination. PdF are tagged – create 'label rouge' model, traceability & quality.

Mother units/ Peri-Urban farmers (welfare & productivity management) (DOC to 40 days/market weight)

- DOC supplied to network of 'mother units', local small-scale farms where batches of > 500 chicks are reared for 40 days
  or Peri urban farmers, with flocks <1500 who rear them for 40 days/ to market weight.
  Further vaccinations and preventative health treatment at each of these steges

Finishing units

- Take chicks from 40 days in batches of 300-1000 birds until they reach 1kg (takes 50-80 days)
- Finished chicken is collected from farms by wholesalers and delivered to street grillers who sell to customers

KEY RESOURCES

Vaccinations

- Vectormune® ND to provide lifelong protection against the Newcastle disease and Cevac® Vitabron 120 L against infectious Bronchitis.

Feed

- Acccounts for 60-70% of poultry production costs

Boussé Selection Center; fist avian selection centre in Africa

- Land for it was to Poulet du Faso donated by local farmers association
- Team of director (veterinarian), project manager and three technicians

Poulet do Faso Ambassadors

- "oil that keeps the chain moving"
- One ambassador for each of eight zones of operation (located <200 km from capital)

Value proposition – Sell vaccinated crossbred chicks to decrease mortality and time to market rate of poultry in Burkina Faso.

SOCIAL VALUE

- **Feeding the growing population** – develop a crossbred to increase production & hardiness to local environment. Decrease mortality rate & time to market (1.1kg)
- **Local business & job creation to reduce poverty -** Selection centre (8 jobs), Anipole Faso (14 jobs), 1/10 of grant invested to Human resources
- **Woman empowerment –** 90% of farmers are smallholders the majority of which are women
- **Authentic Poulet Bicyclette taste** maintained while producing carcasses that are meatier and more consistent in size and quality

IMPACT MEASUREMENT

- Decrease in chicken **mortality** rate (decrease from 50% to 5%)
- Increase in chicken **productivity** (increased by 100 times); laying capacity (twice as high in 5th generation)
- Increase in chicken **market weight** (the crossbreed reaches market weight (1.2 to 1.4kg) in 75 to 90 days compared to the typical 6 months' rearing required for its local counterpart.)
- **Additional income generation** ($USD 3 million; 70% direct benefit for small-holder farmers)

CUSTOMER RELATIONSHIPS

Important role of **zone ambassador**:

- sensitising local farmers who could become mother unit operators
- developing a shortlist of mother unit operators together with Poulet du Faso project manager
- conducting farm visits and completing questionnaires to guide final selection of mother units
- Providing training/ workshops to farming community
- collecting day-old chicks, tags, vaccines and other medicines and delivering them to mother units
- collecting market-ready birds from finisher units and transporting them to wholesalers and restaurants

CHANNELS

Events

- **Festigrill** – grilled chicken festivals celebrating poulet bicyclette
- National Burkina agricultural show

Technical/commercial agents

Distribution of Anipole shops (annex 3)

CUSTOMER SEGMENTS

Mother Units

Limited technical knowledge
Small flocks >500
Rural location
Mix of feed/scavenger diet + free range

Peri-urban farmers

Partial technical knowledge
Larger Flocks <1500
Urban location – housing in large buildings
Feed Diet

Finisher Units

Limited technical knowledge
Flocks 30-1000
Mix of housing/ free range
Feed diet

COST STRUCTURE

- Selection centre construction and start of operations ; Poulet du Faso project funded the building work, equipped the facility and covered the initial operating costs. Total capital investment, provided as a grant, USD 550,000
- See Annex 2 for Unit costs per segment

SURPLUS

NA

REVENUES

- See Annex 2 for revenue margins per unit

Annex 7 – Comments from an online article about PdF

Your comments
November 2, 2018 at 11:24 pm, by SOME In reply to: Chicken of Faso: A chicken mix in Boulkiemde

Thank you Mr. Journalist for this disguised advertisement! But that is not the problem. (to raise 500 chicks for 40 days, you need at least 18 sheets or 25 m2; to raise 100 chickens from 40 days to 90 days, you need 10 sheets or 14 m2)" These chickens from France, which are raised in these conditions, are the source of the malnutrition in Europe. These chickens raised in these conditions produce too many toxins that cause cancer. This is why Europe is now condemning this type of farming to promote bicycle chicken. Also to avoid that the local breed is lost by crossing everything. Let's preserve our specialities
SOME

6 February 2020 at 19:52, by Abdoulaye OUEDRAOGO In reply to : Chicken of Faso: A chicken mix in Boulkiemde

Good evening Poulet de Faso. I am really happy with you. What are your conditions to have your chicks? I really need your chicks. Thank you in advance. Abdoulaye OUEDRAOGO BP 01 Yako Burkina Faso.

December 18, 2020 at 18:19, by Savadogo In reply to: Chicken of Faso: A chicken mix in Boulkiemde

You are quite right, let's save our breeds!
The truth is that today this so-called opportunity to sell a chicken in 40 days is a trap in which producers and consumers have fallen into.
The flavour of the Noaaga du Faso is incomparable! Especially not with fast growing F1 hybrid chickens. Consumers who claim that this hybrid poultry has the same flavour as the Noaaga du Faso simply do not remember the taste of the local breeds; because we have been eating crossbreds with Dutch blues, goliates, Rhodes Island, leghorns and others for a long time, which are locked up and fattened with over-vitaminated and chemical feed.
Local poultry is raised outdoors in pure, healthy fields full of insects, with the occasional grain and salad. But of course it doesn't take 40 days, it takes 4 months.
However, it is well worth it, a question of health, well-being, culture and taste. Dear producers, resist the lure of gain. Even if we don't know the exact statistics, when we look at the chicken populations in the markets, restaurants and other places in Ouagadougou, we don't even count 5% of pure-bred poultry.
It is paradoxical that a chicken from a truly traditional farm without a fast-growing strain is worth around 50 euros in Europe. And even then! In terms of flavour it doesn't compare with Noaaga Kouanga. So don't be fooled by these fast growing strains, they themselves don't want them, it's just that only the privileged can afford real poultry because they are so rare, and it shouldn't become like that in Burkina Faso.

Translated Source : Le faso. 2018. *Poulet du Faso : Une race métisse promise à un bel avenir*. [online] Available at: <https://lefaso.net/spip.php?article86217> [Accessed 27 November 2021].

Annex 8 – Summary of question from semi-structured interviews

Strategy
What are the triggers for a project like this, are they top down or bottom up?
How do ensure projects like these are backed?
How are they received by Top Management, the board?
How do you build partnerships/a network for the business?
How is strategy determined for the project, who is involved?
How is communication and problem solving achieved?

Business Model
What are the vital inputs for this project?

Distribution network
In a diverse distribution network from urban to rural, how do you ensure operational success?

Financial Stability
How do you go create financial stability throughout the value chain?
Are these types of projects possible without grants?
How do you interpret your role in the business model?

Market Conditions
Mistrust
Was there any perceived mistrust amongst costumers/partners/government?

Education of customers (Market creation)
How do you go about sensitising/marketing your product to your target audience?

Results

What do you consider to be the key success factors in this project?
How do you measure success?
What would you do differently?

French

Stratégie
Quels sont les éléments déclencheurs (moteurs) pour un tel projet, sont-ils descendants ou ascendants ?
Comment assurez-vous que les projets de ce type sont financés ?
Comment sont-ils reçus par la direction générale, le conseil d'administration ?
Comment établissez-vous des partenariats/un réseau pour l'entreprise ?
Comment la stratégie est-elle déterminée pour le projet, qui est impliqué ?
Comment la communication et la résolution des problèmes sont-elles réalisées ?

Modèle d'entreprise
Quels sont les apports essentiels pour ce projet ?

Réseau de distribution
Dans un réseau de distribution si diversifié, allant de l'urbain au rural, comment assurez-vous le succès opérationnel ?

Stabilité financière
Comment créez-vous la stabilité financière tout au long de la chaîne de valeur ?
Ces projets sont-ils possibles sans subventions ?
Comment interprétez-vous votre rôle dans le modèle économique ?

Conditions du marché
Méfiance
Y avait-il une méfiance (perception négative, - élément de convaincrez) perçue parmi les clients/partenaires/gouvernement ?

Éducation des clients (création de marché)
Que faites-vous pour sensibiliser/marketing votre produit à votre public cible ?

Résultats

Quels sont, selon vous, les principaux facteurs de réussite de ce projet ?
Comment mesurez-vous le succès ?
Que feriez-vous différemment ?

Annex 9 – Summary of interviews

Date	Duration	Format	Last name, Title	Company
06-05-2021	48 mins	Microsoft teams	Ducrotoy, Manager of Development Projects and Partnerships	Ceva Santé Animale
17-11-2021	36 mins	Microsoft teams	Perrault, Director	Sasso Poultry
17-11-2021	52 mins	Microsoft teams	Bourne, Director of Public Health	Ceva Santé Animale
17-11-2021	52 mins	Microsoft teams	Ducrotoy, Manager of Development Projects and Partnerships	Ceva Santé Animale
18-11-2021	15 mins	Microsoft teams	Yaya Ba**,** Founder and general manager of Anipole Faso	Anipole Faso
18-11-2021	15 mins	Microsoft teams	Sereme, Marketing manager	Anipole Faso
18-11-2021	15 mins	Microsoft teams	Atikpakpe, Director	Coq du Faso SARL
20-11-2021	55 mins	In person	Mitchell, Global Director of Communications	Ceva Santé Animale

Annex 10 – Desired behaviour of PdF target audience

Type of behaviour	Issue	Desired behaviour
Accept	Farmers resistance to more productive and hardy chicken breed that can increase laying rates/ time to market	Trust the information provided by the TCAs and start with your first batch of PdF
Reject	Any perception of PdF being non-affordable and accessible	Don't avoid Anipole shops or TCA services to discuss the delivery and initial subsidy options
Modify	TCAs mindset from veterinary to business mode	TCAs use their database/planning tool. To predict the DOC production by hatcheries and match this with availability of MUs
Abandon	Non productive rearing methods, health & feed management	Farmers stop not vaccinating, monitoring the health & growth of their flock

Adapted: (Kotler & Lee, 2009).

Annex 11 – Market segmentation

Profile	Marketing & Communication
Mother Units (DOC to 42 days/Market weight) Limited technical knowledge Small flocks >500 Rural location Mix of feed/scavenger diet + free range	De-risking- first batch free (500) + vaccines for batch 1&2 Support to purchase building Training organised along with other farmers Access to knowledge on flock management/health Exclusivity (sign of quality) – PdF tags/traceability
Peri-urban farmers (DOC to 42 days/Market weight) Partial technical knowledge Larger Flocks <1500 Urban location – housing in large buildings Feed Diet	De-risking- first batch free (1000-2000) + vaccines Training organised along with other farmers Access to knowledge on flock management/health Feed management for optimal growth Exclusivity (sign of quality) – PdF tags/traceability
Finisher Units (42 days – Market weight) Limited technical knowledge Flocks 30-1000 Mix of housing/ free range Feed diet	Access to knowledge on flock management/health Feed management for optimal growth Exclusivity (sign of quality) – PdF tags/traceability

Annex 12: Categorisations of organisational tensions (Smith & Lewis, 2012)

Annex 13: PdF at the Festigrill and National Burkina Agricultural Show (Ceva, 2021a)

Annex 14: Key factors for a sustainable business model at the BOP in Animal Health