



Food and Agriculture  
Organization of the  
United Nations

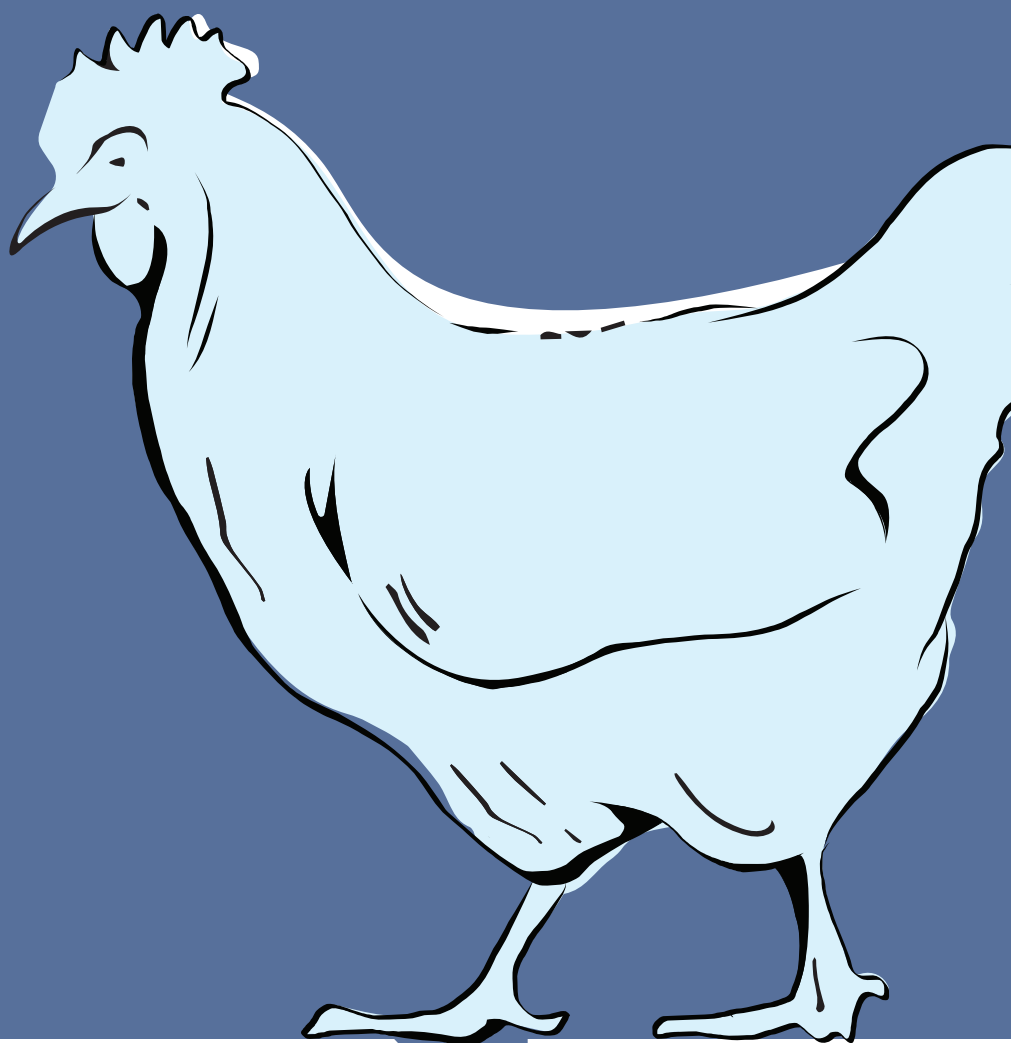
AFRICA  
SUSTAINABLE  
LIVESTOCK  
2050



*Public-private engagement at  
local level to support One Health  
policy implementation*

A stepwise approach based  
on experiences from the poultry  
value chain in

# UGANDA



**USAID**  
FROM THE AMERICAN PEOPLE

Financial support provided by the United States  
Agency for International Development (USAID)

**ASL  
2050**

Required citation:

FAO. 2023. *Public-private engagement at local level to support One Health policy implementation – A stepwise approach based on experiences from the poultry value chain in Uganda*. Africa Sustainable Livestock 2050. Rome. <https://doi.org/10.4060/cc3242en>

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

ISBN 978-92-5-137339-2

© FAO, 2023



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original English edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

**Third-party materials.** Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**Sales, rights and licensing.** FAO information products are available on the FAO website ([www.fao.org/publications](http://www.fao.org/publications)) and can be purchased through [publications-sales@fao.org](mailto:publications-sales@fao.org). Requests for commercial use should be submitted via: [www.fao.org/contact-us/licence-request](http://www.fao.org/contact-us/licence-request). Queries regarding rights and licensing should be submitted to: [copyright@fao.org](mailto:copyright@fao.org).

*This brief is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of FAO and do not necessarily reflect the views of USAID or the United States of America Government.*

## Background

Uganda's human population is expected to more than double from currently 45 million to 106 million by 2050, when about 44 percent of the population will live in cities and towns (FAO, 2020a). This population growth, in combination with an expected increase in per capita GDP from about USD 700 to USD 1 900 by 2050, is predicted to raise the demand for poultry products by over 300 percent (FAO, 2018). While this development provides major business opportunities for the poultry sector, it also raises several public health concerns.

### *Poultry-associated public health concerns in Uganda*

Highly pathogenic avian influenza is among the most cited public health threats and has raised attention in Uganda during the outbreak of H5N8 in wild birds and domestic poultry in 2016 (Nantima *et al.*, 2019). Of concern are also those pathogens that rarely show any symptoms in poultry but can cause serious disease when passed to people, such as *Salmonella* spp., pathogenic *Escherichia coli* or *Campylobacter* spp. These bacteria are commonly associated with unsafe food and have been confirmed in poultry and slaughtered raw poultry products in Uganda (Kakooza *et al.*, 2021; Wanyenya, Muyanja and Nasinyama, 2004). A two-year retrospective study using records from poultry diseases diagnosed at the Central Diagnostic Laboratory in Uganda has found a variety of other bacteria, viruses, protozoa, helminths and fungi (Byaruhanga *et al.*, 2017): coccidiosis, colibacillosis, Newcastle disease, infectious bursal disease and avian helminthiasis were among the most prevalent diseases. While most of these are exclusive to poultry and pose no or little direct threat to humans, they can severally lower a birds' immune status making them more susceptible to opportunistic infections such as *Salmonella* spp. They can also lower the nutritional value of poultry products and thus impact food security and human nutrition (Cavanagh and Gelb, 2008; Mahamat *et al.*, 2015). Poultry diseases can also impact health systems indirectly by other means such as requiring workforce capacity for diagnostics or outbreak investigations that may be needed for other public health events. Moreover, most poultry diseases are commonly treated with antimicrobials, which can drive cross-resistance and the emergence of new, potentially pathogenic threats to humans. Indeed, multiple antimicrobial drug resistant genes have been found in Ugandan poultry (Ball *et al.*, 2020) as well as in humans that cared for them (Weil *et al.*, 2020). There are increasing reports of failing treatments in poultry production (Kakooza *et al.*, 2021), and a study found that, already today, resistance genes extend to antimicrobials used in human medicine (Odoch *et al.*, 2018). Public health threats from poultry are not limited to those in direct contact with them or consuming poultry meat or eggs. Studies found that pathogens can also be leached within the soil to underground drinking water systems (Burkholder *et al.*, 2007), such as through the application of raw chicken litter to wetlands, which is a common practice of vegetable growers in Uganda (Kyakuwaire *et al.*, 2019). In addition, also non-living components such as heavy metals, pesticides, antimicrobial resistant genes or growth hormones, such as egg and meat boosters, pose public health risks. Overall, the public health threats associated with poultry are complex and go beyond zoonoses, which underlines the need for a One Health approach where animal and human health are only two sides of the same coin.

### *While policies are there, implementation remains a challenge*

Uganda does have a relatively comprehensive policy and regulatory framework to prevent, detect and respond to outbreaks of zoonotic diseases and AMR along the livestock value chain (Table 1). Its full implementation, however, remains a challenge. One of the reasons is that there is little systematic information on the challenges and constraints policy implementers face on the ground, and hence the designed policies and legislations are often difficult, if not impossible to implement at local level with existing capacities. At the same time, there is no standard approach to implement existing policies and legislation, and hence little guidance exists for the local administrations that are at the forefront of executing policies and enforcing legislations. It is mandatory by law for example that a bird to slaughter for public consumption, like any other meat, ought to be inspected by a frontline AHO or “public veterinarian” (Government of Uganda, 2006). Yet, more than 18 million birds (FAO, 2022b) are slaughtered every year and reach consumers without ever being inspected. Another example includes the farmers’ obligation to obtain a movement permit from a frontline animal health officer (AHO) prior to transporting broilers to the market. As frontline AHOs hardly ever receive any transport allowance for travelling to farms, such permits are rarely issued. These examples illustrate the blatant gap between aspiration and reality that policymakers and development agencies face. How should governments ensure that compliance with legislation and related best practices increase? Upon which tools can they rely to implement livestock sector policy and legislation? This brief aims to provide some hints to answer those questions based on a stepwise approach.

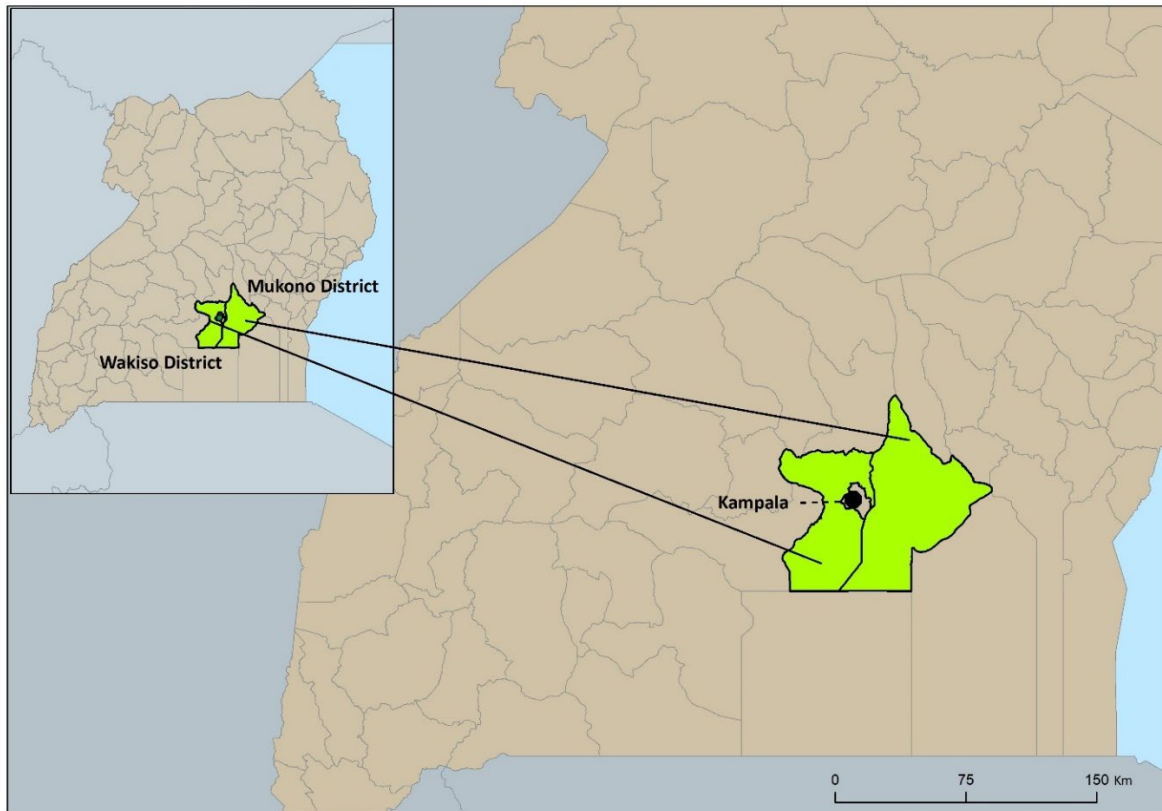
### *Partnership with local communities is key*

FAO, through the Africa Sustainable Livestock 2050 Project, have joined forces with the government of Uganda and the district governments of Mukono and Wakiso and other stakeholders to support the implementation of the existing policy and regulatory framework along the poultry value chain. Mukono and Wakiso districts, shown in Figure 1, are among the most populated areas of Uganda and have thriving poultry sectors, which are likely to change rapidly in response to the anticipated expansion of the capital city (FAO, 2020). In such dynamic contexts, the enforcement of the existing policy and regulatory framework is essential to ensure a sustainable growth and transformation of the poultry sector. The stepwise approach in this brief will provide a summary of the efforts made over the past two years in close collaboration with private and public stakeholders. These include poultry stakeholders as well as the local District Veterinary Officers (DVO) in Mukono and Wakiso, representatives from the Ministry of Agriculture Animal Industry and Fisheries (MAAIF), the Ministry of Water and Environment and the Ministry of Health as well as the Makerere University Business School (MUBS).

The brief is structured around the six key steps we followed to support the implementation of the existing policy and regulatory framework (Figure 2). For each step we provide a summary structured into four sections: background, methodology, key findings and conclusions. It is important to note that the proposed approach takes a value chain perspective in the initial steps but gradually zooms into the small- to medium-sized poultry slaughter operations following their prioritization during stakeholder consultations. This prioritization was primarily based on the fact that slaughterers have shown low compliance with existing legislation, which presumably poses greater public health risks for society. We are aware that compliance data only represents a part of the information needed to determine risks. Yet, even with incomplete information, decisions have to be taken and can be revisited, as additional information becomes available (e.g. with better data from microbiological sampling, outbreak reporting, etc.).

We hope that this brief not only provides insights into risk–reduction and a sustainable transformation of the poultry sector in Uganda but will also inspire livestock professionals with a practical approach to improve implementation of veterinary public health (VPH) policies through participatory engagement of public and private stakeholders at local level.

**Figure 1:** Selected districts of Mukono and Wakiso neighbouring the capital of Uganda



Source: United Nations Geospatial. 2020. Map of the World. United Nations. Cited 22 August 2022. [www.un.org/geospatial/file/3420/download?token=TUP4yDmF](http://www.un.org/geospatial/file/3420/download?token=TUP4yDmF) modified with GLIMS data.

**Figure 2:** Stepwise approach to engage public and private stakeholders to improve One Health policy implementation (own illustration)



## Step 1: Legislative review

**Background:** Laws and regulations provide the foundation upon which frontline AHOs can act and operate. A legislative review, therefore, is a first step to identify the VPH and biosecurity practices that stakeholders, including both public (e.g. frontline AHOs) and private stakeholders (e.g. slaughterers), are expected to comply with. Given the cross-cutting nature of public health threats along the poultry value chain (Box 1), we took a One Health approach to examining the relevant legislation covering laws and regulations governing behaviour at the entire human–animal–environment interface (FAO, 2020b).

**Methods:** We used a skeleton livestock value chain structure – including imports, production, marketing, processing, retailing and consumption – to identify the major actors, at each node (i.e. location or stage) of the livestock value chain (e.g. production, slaughter or retail), whose behaviour plays a key role in preventing, detecting and controlling potential public health threats. In consultation with the Veterinary Regulation and Enforcement Division and the Policy Division of MAAIF, the Ministry of Health and the Ministry of Water and Environment, we identified existing policy and legislative databases and gathered the major legal texts including government’s laws and regulations expected to guide the adoption of good practices.

**Key findings:** We found several laws and regulations relevant from a One Health perspective. Table 1 provides examples of VPH and biosecurity practices supported by the identified legislation grouped by value chain actor.

**Table 1:** Examples of good practices and their respective legislation

Good practice	Legislation
<i>Poultry producers</i>	
Separate sick birds and report to an official	Uganda Animal Diseases Act, Chapter 38, Part II, 2.
Use veterinary medicine as recommended by animal health professional	Uganda National Drug Policy and Authority Act, Part IX, Section 13
Report dead birds to an official	Uganda Animal Disease Rules (S.I. 38–4), 17.
Safe disposal of dead birds	Uganda Animal Diseases Act, Part III, 7.
Do not sell sick or dead birds	Uganda Food and Drugs Act, Part II, 3 (1) Section 6 (1)
<i>Poultry transporters/traders</i>	
Obtain movement permit	Uganda Animal Disease Rules (S.I. 38–4), 9.
	Uganda Public Health (Meat) Rules, Section 14. (1)
Transport poultry separately from other species or products	Uganda Public Health (Meat) Rules, Section 14. (3) (b)
Clean vehicle after each transport	Uganda Public Health (Meat) Rules, Section 14. (3) (a)
<i>Poultry slaughterers/processors</i>	
Slaughter in a licensed facility	Uganda Public Health (Meat) Rules, Section 4.
Ensure a public veterinarian performs ante- and post-mortem inspection	Uganda Public Health (Meat) Rules, Section 9. (4)
Clean and disinfect after each slaughter	Uganda: only provision available under Animal Diseases Act, 1958 Section 21, G
Have a valid food handler’s certificate	Uganda Public Health Act (Meat) Rules, Section 24.
<i>Poultry marketers/retailers</i>	
Do not sell sick or dead birds	Uganda Food and Drugs Act (Ch. 278) 1959, Section 6 (1)
Separate sick birds and report to an official	Uganda Animal Disease Act, Chapter 38, Part II, 2.

Source: FAO. 2021a. Africa Sustainable Livestock, 2050: Laws and flaws, implementation gaps in biosecurity-related legislation in the poultry sector. Rome, FAO. <http://www.fao.org/documents/card/en/c/cb8048en>

**Conclusions:** The current legal and regulatory framework largely supports and prescribes the application of good practices that contribute to risk–mitigation in the poultry sector (FAO, 2022b). However, it is noticeable that most legislations date back to decades ago, such as the National Drug Policy and Authority Act (1993) and the Public Health Act (1935). The legislative review also highlighted some gaps: Whereas many laws and regulations focus on poultry production and marketing, we found less on processing and consumption nodes. The same applies to antimicrobial use: While the import, manufacturing and marketing of antimicrobials is regulated, their use at farm level and surveillance is not covered.

## Step 2: Compliance with the legal framework

**Background:** The extent to which poultry–associated threats pose risks to public health is influenced by the stakeholders' behaviour as they perform various functions along the different nodes of the livestock value chain. To that end, we assessed the level of compliance among poultry value chain actors with those practices that are supported by the prevailing legislation (step 1). It is worth noting that there may have been additional good practices to consider but we focused on those supported by the existing legal and regulatory framework since we consider the leverage there highest to drive policy change. This is based on the assumptions that existing legal and regulatory frameworks are indeed addressing the most pressing issues and that the public sector has a genuine interest and efficient mandate in implementing those.

**Methodology:** Similar to step 1, we used a skeleton livestock value chain structure – including production, trade/transport, retail/marketing, and slaughter nodes – to examine compliance with the legislated good practices based on a snowball sampling approach with stakeholders (n=398). We took a participatory approach to design the survey: the questionnaires for key informant interviews and focus group discussions (FGDs) were jointly developed and validated with local stakeholders. The key informant interviews were conducted by trained animal health staff nominated by the DVO, while the FGDs were implemented by representatives from MAAIF, the Ministry of Water and Environment, Ministry of Health and FAO.

**Key findings:** Selected examples of compliance with good practises at each node of the value chain are presented in Table 2. For example, more than half of transporters did not have or use movement permits although this is specifically required by the law. At the retail node of the value chain, treatment of poultry with antibiotics immediately after delivery is a common practice, which increases risks of antimicrobial residues in poultry meat for consumers. At the slaughter node, slaughterers are commonly contracted by farms, retailers, hotels, families, or street vendors. However, many slaughterers did not have a valid food handler's certificate and operated in non–gazetted facilities that were neither licensed nor inspected by a veterinary authority. There was no proper disposal of waste products during the slaughter process (e.g. waste water and blood runoff into the environment).

**Table 2:** Stakeholders’ reported compliance with selected veterinary public health and biosecurity practices (FAO, 2021a).

<b>Criteria</b>	<b>Yes</b>
<i>Poultry producers (n=214)</i>	
When a bird is sick, I immediately separate it from the rest of the flock	74%
When a bird is sick, I give it medicine I have at home	43%
When a bird is sick, I always or sometimes use human medicine	18%
When a bird dies, I report it to an official	25%
When a bird dies, I give it to the dogs	47%
<i>Poultry transporters/traders (n=41)</i>	
I regularly clean and disinfect vehicles for transport	68%
I do not possess or use movement permits	56%
I have never been asked to present a movement permit	22%
<i>Poultry slaughterers/processors (n=55)</i>	
I regularly clean and disinfect the area for slaughter	86%
When I receive a sick bird, I report it to an official	27%
<i>Poultry marketers/retailers (n=99)</i>	
I have a fixed stall to keep the poultry at the market	79%
When a bird is sick, I isolate and treat them with antimicrobials	41%
When a bird dies, I sell it at a lower price for human consumption	11%

Source: FAO. 2021a. Africa Sustainable Livestock, 2050: Laws and flaws, implementation gaps in biosecurity-related legislation in the poultry sector. Rome, FAO. <http://www.fao.org/documents/card/en/c/cb8048en>

### **Conclusions:**

Although the legislative framework supports the adoption of a variety of VPH and biosecurity practices, only few of them are adopted by stakeholders in the poultry value chain (FAO, 2022b). Evidence shows that this can be partly explained by a lack of financial and human resources allocated to animal health services at the central and local levels (FAO, 2022a). However, there is also limited knowledge and awareness among private poultry value chain actors about basic hygiene, sanitation and public health (e.g. FAO, 2022b).

Slaughterers who move frequently across farms to offer their services pose a particular risk as they are not compliant with many basic practices, such as regular cleaning and disinfection. The findings also indicate limited enforcement by the public sector as, for example, many private stakeholders indicate to have never been even asked to present movement permits or health certificates. Also, slaughterers and marketers seem to be able to pursue their work without much interruption or caution in informal and non-gazetted facilities.



### Step 3: Animal health services' capacity

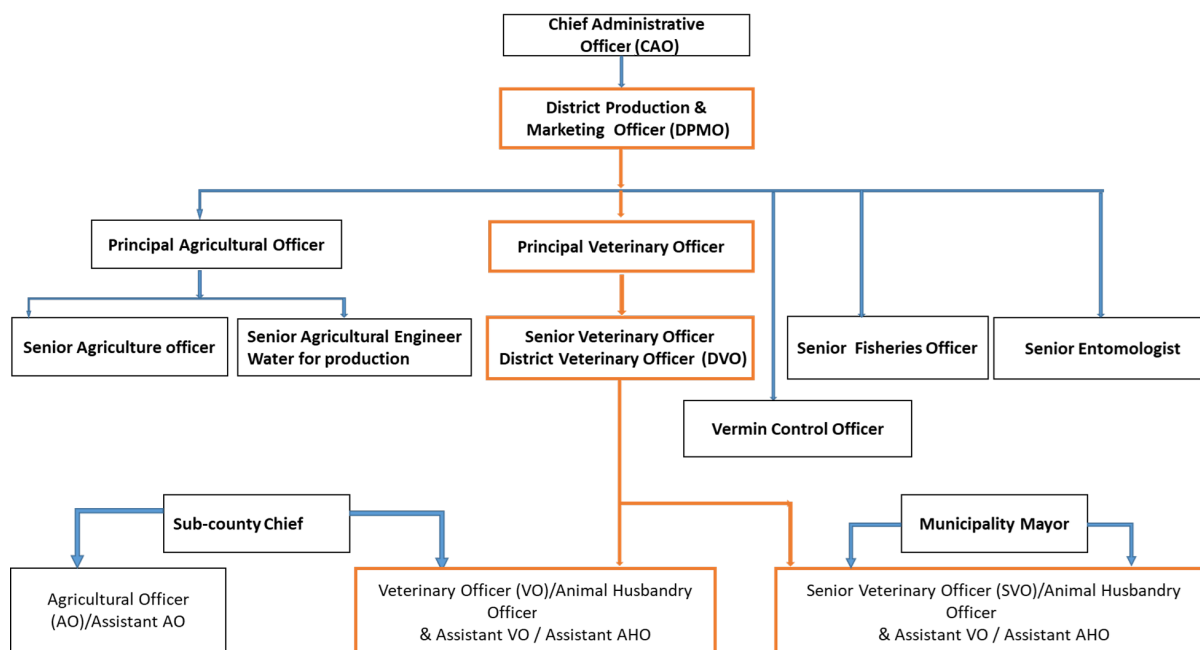
**Background:** Animal health services play a key role in enforcing the existing legal and regulatory framework. Most important however is the capacity of frontline AHOs to cover the relevant poultry value chains actors. Indeed, these officers play a fundamental role as their services, such as inspection or vaccination, ensure the proper functioning of agri-food systems. We therefore gathered information about AHOs on the various constraints and challenges AHOs face when performing their functions. In this section, we present survey results from animal health services in two selected districts, which are mandated to provide animal health services. Results are structured into five areas including: i) institutional setup, ii) financial resources, iii) human resources, iv) the working conditions of frontline AHOs, and v) their level of knowledge of existing animal health policies and legislations.

**Methodology:** To understand how animal health services function, we took a two-pronged approach: First, we gathered and examined government data on the institutional setup, financial and human resources allocated to animal health services in the two districts. Second, we developed and administered a surveyed to all frontline AHOs in both districts (n=51) to investigate their working conditions and their knowledge of existing policies, laws, and the One Health approach.

#### Key findings:

*Institutional setup:* The Policy on the Delivery of Veterinary Services (2001) categorises veterinary services into those of public and private nature. The former includes policy formulation, strategic national planning, technical guidance, setting standards and regulations, inspection, coordination, monitoring and evaluation. The latter includes the provision of clinical services, veterinary drugs and other supplies, tick control, livestock monitoring, artificial insemination, animal disease diagnostics and some aspects of training animal health service providers. A more detailed structure and relationship within the veterinary services at district level is provided in Figure 3.

**Figure 3:** Organogram of veterinary services at district level



Source: FAO. 2021b. Animal health services at work in Uganda: Evidence from Mukono and Wakiso districts. Rome, FAO. <https://doi.org/10.4060/cb7103en>

*Financial resources:* The budget for animal health represented about 0.5 percent of the total agriculture budget allocated to both districts in the fiscal year 2019/2020. A total of US\$ 6 100 000 were allocated to the veterinary services in Wakiso District and US\$ 4 500 000 in Mukono District. This corresponds, on average, to US\$ 2 000 ( $\approx$  USD 0.5) per livestock-keeping household in Wakiso and US\$ 1 300 ( $\approx$  USD 0.3) in Mukono respectively (as per exchange rate of June 2022).

*Human resources:* A review of staffing levels revealed a gap between the authorized posts and the actual employed staff in-post. Whereas there were 97 authorized staff positions (56 in Wakiso and 41 in Mukono), only 54 were filled in-post (27 in both districts). This implies that 43 posts were vacant, which corresponds to a deficit of almost 50 percent. This situation mirrors that of the national government where only 601 posts were filled from a total of 886 authorized positions. When comparing the staffing levels in the district to the respective livestock-keeping households, we estimated that one frontline AHO is supposed to provide services to about 3 000 livestock-keeping households as well to some slaughterhouses, milk collection centres and markets.

*Working conditions:* AHOs spent 40 percent of their time providing services to clients. The remaining time was spent on travelling, administrative duties, formal meetings with colleagues and managing their own business (not necessarily animal health related). One in three frontline animal health officers indicated working more than five days per week and at least nine hours per day. Half of them stated that influential people, such as local executives, often interfere with their work plans by requesting specific services. Only one in six officers indicated that their current monthly salary is commensurate with their level of responsibility and three out of four officers did not plan their weekly activities with their supervisor, that is they work almost alone. Table 3 provides additional details.

**Table 3:** Working conditions of frontline animal health officers (selected examples)

Criteria	Mukono	Wakiso	Overall
Have a computer	35%	64%	49%
Use a government provided computer	22%	31%	28%
Use mobile phone for work	100%	100%	100%
Provision of mobile phone by government	4%	4%	4%
Provision of regular airtime allowance by government	8%	28%	18%
Receive regular transport allowance	36%	33%	35%
Government regularly provides PPE	0%	4%	2%
Collect a levy/fee when providing services	89%	88%	88%
Engagement in other income generating activities	92%	88%	90%

Source: FAO. 2021b. Animal health services at work in Uganda: Evidence from Mukono and Wakiso districts. Rome, FAO. <https://doi.org/10.4060/cb7103en>

*Knowledge:* Frontline AHOs have limited knowledge about existing animal health policies and laws. They frequently named *laws* as *policies* and vice versa. Over sixty percent of them indicated they had some knowledge of livestock sector policies and strategies, but only one in two out of these was able to quote at least one policy or strategy. In terms of training, one in three officers received trainings at least once per year while 15 percent stated to have never received any government training. When asking about knowledge of One Health, only one in three officers was aware of the One Health concept and only one in ten officers regularly communicates with human or environmental health officers.

**Conclusions:** Frontline AHOs face a variety of constraints that prevent them from fully providing their services and supporting the implementation of existing animal health policies and legislation. Because

of limited financial capacity, their services are limited to providing advice, as only a few shillings or cents per year and client were available to purchase vaccines, syringes, and other equipment necessary to offer additional veterinary services. While more resources should be allocated to animal health services, local administrations could make veterinary services more effective by establishing partnerships with private stakeholders and improving their working conditions.

#### Step 4: Private sector's capacity

**Background:** While frontline AHOs primarily carry out control functions, private sector stakeholders, such as poultry producers, slaughterers, or retailers, keep the agri–food systems running on a daily basis. Their behaviour determines if and in what state livestock products reach the consumers. As such, their collaboration with public sectors in policy implementation cannot be overemphasized and has been acknowledged as a key factor in the success of livestock interventions (Morton *et al.*, 2002). To that end, we looked at the business models of livestock stakeholders to specifically appreciate their economic incentives to adopt good practices. As mentioned in the introduction, we focus from here on the slaughtering node of the poultry value chain that was prioritized during stakeholder consultations (Figure 4) and for which data is available.

**Figure 4:** Consultations with Mukono and Wakiso animal health officers for selection and prioritization of poultry value chain nodes for the final intervention (2022)



© FAO/Frank Mubiru

**Methodology:** To investigate the business models of poultry slaughterers, we gathered data through FGDs and individual interviews on i) their business canvass, that is the key elements of their business from the value proposition through key partners to consumer segments; <sup>1</sup> and ii) the enterprise budget, which allows assessing the profitability of their business and their economic capacity to adopt good practices. All results were analysed and validated in a participatory manner during workshops at the MUBS together with poultry slaughterers, MAAIF and FAO (Figure 5 and 6).

<sup>1</sup> The Business Model Canvas was developed by Osterwalder *et al.* (2010) and includes nine areas to describe a business such as key resources, value addition, customer segments and revenue streams.

**Figure 5:** Results validation workshop for ASL2050 with district and local government animal health officers at Jinja Nile resort Hotel (2022)



© FAO/Frank Mubiru

**Figure 6:** Results validation workshop of the Business Model Canvass analysis with poultry value chain actors at the MUBS Incubation centre (2022)



© FAO/Frank Mubiru

**Key findings:** The majority of slaughterers did not own slaughter facilities or market stalls but commonly pay a fee for usage to a landlord. Those slaughterers usually bought live birds in advance and sold them to retailers after slaughter. Only a minority of slaughterers owned the facility and some of those even prepared ready-to-eat foods (e.g. roasted poultry with salad). Slaughter relied mainly on make-shift structures, manual slaughtering techniques and basic processing equipment (e.g. knives, buckets, drums, etc.). The results from the business model canvas are illustrated in Figure 7. Live birds were supplied mainly by transporters, although some slaughterers source live birds directly from markets and producers. They usually slaughtered birds manually and early in the morning to supply customers early in the day in order to take advantage of lower temperatures for cooling. None of the slaughterers kept health or financial records. About half of the respondents slaughtered ten or fewer birds per day and more than 80 percent operated as sole proprietorship and informally. Access

to financial support was informal, for slaughters as well as other stakeholders in the poultry value chain. Overall, slaughterers have shown low-profit margins compared to the other nodes of the poultry value chain. Additional details in the slaughter process and enterprise budgets can be found in FAO (2022c).

**Figure 7:** Business model canvas of poultry slaughterers

Key partners	Key activities	Value propositions	Customer relationships	Customer segments
Marketers Transporters Community/district leaders and regulatory authorities  Halaal bureau Lending groups/individuals Market leaders	Co-ordinating with marketers and transporters  Dressing chicken Roasting chicken	Supply dressed and/ or processed chicken to a wide customer base  Complementary salads for those that roast	Constant and active communication with brokers/ transporters and processors.  <b>Channels</b> Telephone contacts Market contacts Public address system	Walk-in or roadside consumers  Transporters and customers  Nearby market restaurants, eatery and hotels
<b>Key resources</b>				
	Slaughterhouse Employees Grills and ovens Marketer networks			
<b>Cost structure</b>		<b>Revenue streams</b>		
Fixed costs: Stall rent Variable cost: wages, cleaning, ingredients for those that roast  Lean cost structure, focused on premium value proposition		Broilers UGX 14 000 to 20 000 Average sales 30–50 birds a day Chicken by-products (legs, gizzards, heads, etc.) Cash-based payment Sale of poultry meat using a product feature dependent pricing		

Source: FAO. 2022c. *Business models along the poultry value chain in Uganda*. Rome, FAO. <https://doi.org/10.4060/cb8200en>

**Conclusions:** Slaughterers face a number of constraints: while they are technically skilled, they have limited business skills and poor access to financial services. The lack in business skills, starting with bookkeeping, is a key constraint since any investment has naturally to “pay-off” for operators. However, if costs and revenues are neither recorded nor known, potentially good practices remain unknown and are thus unlikely to be adopted by slaughterers. Moreover, bookkeeping is a prerequisite for many financial institutions to provide formal credits: Without it, financial institutions have no means to assess the financial standing of slaughterers and thus reject any loan request by default. Consequently, the business model of slaughterers is relatively weak as illustrated by a net margin ratio of seven percent, which is the lowest in the entire poultry value chain: producers, traders and retailers have net profit margins of 32, 15 and 11 percent, respectively. Moreover, any infrastructural improvements to the slaughter facilities must take into consideration the landlords as most slaughterers did not own the slaughter facilities.

## Step 5: Public and private sector stakeholder workshops

**Background:** Many policies and legislations are not successfully implemented due to a lack of engagement of and ownership by local stakeholders, which has paved the way for the importance of participatory approaches in the livestock sector (Conway and McCracken, 1990). With this in mind, we developed a methodology of not only engaging livestock stakeholders but also including them in the development and decision-making process to design policy instruments or implementation mechanisms. In particular, we coupled common participatory methods with “co-creation”, which is a process to engage local stakeholders as “experts” of their own experiences and to create a value that is context specific and cannot be achieved without internal cooperation (Agger and Lund, 2017).

**Methodology:** We designed separate public and private sector stakeholder workshops (mono-sectoral) first to allow stakeholders to identify sector-specific actions they would consider taking to enhance compliance with existing legislation and improve the uptake of good practices. These workshops included an average of 15–25 participants and lasted for two days. Participants included poultry slaughterers in the case of private sector workshops and frontline AHOs in the case of public sector workshops. Facilitators included representatives from FAO as well as local and central government from the MAAIF, Ministry of Water and Environment and the Ministry of Health. Representatives from MUBS participated in the private sector workshops to ensure participants considered the business dimension of their proposed actions. A mono-sectoral workshop was typically structured in six sessions as described below. The results of each session were presented by the groups themselves and discussed thereafter in plenary.

**Figure 8:** Private stakeholder engagement with slaughterers to identify feasible actions that can support the adoption of selected good practices



© FAO/Gerald Nizeyimana

**Session 1 (introduction):** Aimed at getting to know each other, building trust and developing a sense of common goal. The session included a summary of the information generated in steps 1–4 in order to ensure a common understanding of the point of departure.

**Session 2 (co-analysis):** Aimed at i) examining the gathered information for the selected priority value chain node (slaughter node); ii) prioritizing two legislated VPH and biosecurity practices (identified in step 2) to work on during the workshop; iii) brainstorming on opportunities and challenges related to

the adoption of those good practices. At the end of this session, a brief discussion on the working procedures of frontline AHOs was held to be mindful of potential limitations and ensure alignment of the prioritization with their working realities on the ground.

**Session 3 (co-design):** Aimed at agreeing upon actions stakeholders can take in order to ensure the adoption of the selected good practices, including both public and private sector actions. The focus was particularly on feasible actions where each respective stakeholder group has leverage or a comparative advantage (“what can I do that others can’t”).

**Session 4 (co-evaluation):** Aimed at scoring each action based on a given set of criteria including:

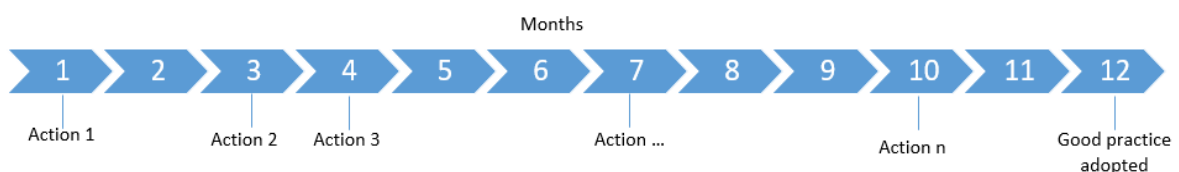
- **Expected impact:** Does this action result in the adoption of the good practice?
- **Robustness:** Does the implementation of this action depend on the existence of other conditions?
- **Initial cost:** Are there any initial financial investments required to implement this action?
- **Recurrent costs:** Are there recurrent financial inputs required to continue implementing this action?
- **Impact on profit:** How does this action impact on profit?
- **Attractiveness:** Are there any incentives to implement this action?
- **Simplicity/compatibility:** Is this action easy to implement and fits into existing practices?

The final scoring results allowed to rank the actions, which provided better focus and orientation to stakeholders.

**Session 5 (co-planning):** Aimed at encouraging participants to prepare simple work plans based on a concerted implementation of the identified actions. To that end, participants were asked to draw a timeline of the actions resulting in the adoption of the good practice using the back casting method (Figure 9). In this method, participants imagined that, in one year time, they will have adopted the good practice. They then work “backwards” in time to assess whether the actions they have implemented over the twelve-month period would indeed support the adoption of the selected good practice/s. The final sequence of actions served as work plan basis and was openly discussed for compliance with the following five principles:

- ✓ Actions are triggered by the public sector which is in charge of enforcing existing laws and regulations.
- ✓ All public sector actions are implementable with current human and financial resources.
- ✓ Public sector actions have a clear causal relationship or synergy with private sector actions.
- ✓ The private sector has incentives to support the implementation of actions (e.g. increased profitability or other benefits for the enterprise).
- ✓ Actions can be clearly differentiated in one-off actions (investments) and recurrent actions (new procedures) to allow for more realistic resource allocation.

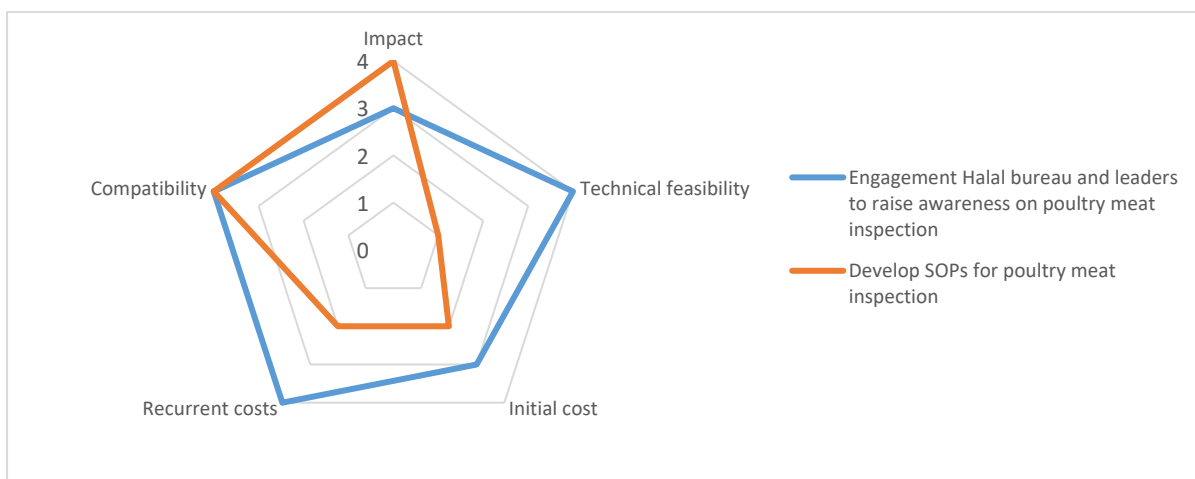
**Figure 9:** Illustration of the back casting method to assess whether actions to be taken over a period of one year support the adoption of a selected good practice



**Session 6 (closing):** For the closing, we relied upon methods such as “positive gossip” and “structured go around”, where participants creatively commented on the workshop to ensure that everyone can contribute their thoughts and comments and that future workshops can continuously be improved. Then the organizers laid out the next steps and the workshop ended with a closing session led by MAAIF and the local government.

**Key findings:** Workshop participants prioritized two good practices to work on: 1) Slaughtering poultry in approved / designated premises and ; 2) Following Standard Operating Procedures (SOPs) during slaughter. Accordingly, private stakeholders identified two priority actions they could implement: i) obtain a slaughter permit from the authority and ii) follow SOPs during slaughter. Similarly, public stakeholders prioritized two actions, notably engaging the Halaal Bureau and developing SOPs for slaughtering. All actions were scored against the predefined criteria as exemplary illustrated in Figure 10. Many additional actions came up during the public and private sector workshops but scored lower and were thus not further considered. These included for example: i) training and employing private veterinarians for poultry meat inspection; ii) supporting the formation of poultry slaughterer associations; iii) awareness–raising among politician about the importance of poultry meat inspection; and iv) the provision of slaughter starter kits with basic equipment to support safe and hygienic use.

**Figure 10:** Examples of two actions with individual scores prioritized by frontline animal health officers to facilitate the uptake of good practices



**Conclusions:** Poultry slaughterers as well as frontline AHOs were actively engaged in the public and private sector workshops, respectively, and identified meaningful actions to improve adoption of VPH and biosecurity practices. Moreover, stakeholders demonstrated a very accurate sense of the feasibility of each proposed action. The action of “Establishing designated slaughter areas”, for example, was scored high in terms of impact and attractiveness. Yet, scores for its cost and robustness were low since it would involve significant investment cost (e.g. for land acquisition) and the engagement of other stakeholders (e.g. financial institutions). The identified actions and their perception by stakeholders can be of great value to policymakers as they are developed and owned by stakeholders and take into consideration local conditions. Moreover, many actions offer creative solutions that may not have been considered before by experts outside the actual conditions on the ground. In any case, the actions indicate the important role of partnership across the public and private sectors. The development of SOPs, for instance, is only sensible if done jointly by private and public sector stakeholders: the former ensures the development of applicable SOPs while the latter will formalize them and support enforcement through training and awareness raising.



## Step 6: Joint public–private stakeholder workshop

**Background:** The final step brings private and public stakeholder together in a joint workshop with the main objective to identify the key elements of an intervention that takes into account the prioritized actions from both the private and public sector workshops. The assumption is that the jointness allows for actions that, if implemented, are likely to increase the compliance with the existing legislation and the wider adoption of VPH and biosecurity practices. In general, the methodology relied upon the aforementioned participatory approaches and co–creation methodologies. Since the workshop involved public and private stakeholders that have never met before, we put more emphasis on building trust and a sense of common goal as a prerequisite to develop a joint intervention. To that end, we used non–conventional approaches that relied upon methods for structuring collaboration.<sup>2</sup> Like the mono–sectoral workshops, the joint public–private stakeholder workshop consisted of six sessions that were slightly modified as explained below.

**Methodology:** Participants comprised 15–25 individuals from Mukono and Wakiso districts’ local governments, MAAIF, Ministry of Water and Environment, Uganda Halal Bureau, Uganda Muslim Supreme Council, slaughterers as well as frontline AHOs. Similar to the public and private sector stakeholder workshops, session 1 (introduction) allowed stakeholder to get to know each other in a playful manner and to develop a sense of common goal through discussing shared values. In session 2 (co–analysis), participants reviewed the prioritized identified good practices and reflected more specifically on the specific practices and related challenges and opportunities through the “Users’ Experience Fishbowl” that primarily aimed at creating an understanding for the specific perspective of private and then of the public sector stakeholders. In session 3 (co–design), participants designed together an intervention, that is a set of complementary and self–reinforcing public and private sector actions that, combined, facilitate the adoption of legislated good practices. The selection of actions was facilitated by the identification and ranking of actions during the above–mentioned mono–sectoral public and private sector stakeholder workshops (step 5). In order to facilitate that discussion, a small group of experts comprised of district authorities, local leaders and FAO had drafted a skeleton intervention and shared it with participant in advance of this session. The outcome of this session was then assessed in session 4 (co–evaluation) by stakeholders with the Gradients of Agreement to ensure consensus and ownership. This method allowed each participant, openly or anonymously, to indicate their agreement with the intervention on a scale from 1 “Whole–hearted Endorsement” to 8 “Veto”. The session 5 co–planning allowed to fine–tune the work plan (activities, when, who, how, expected result) including refining roles and responsibilities for the specific intervention, with the objective to integrate each sector’s respective roles and comparative advantages. Depending on the atmosphere in the room, an evaluation may follow like session 4 to ensure everybody is in agreement. The final session 6 (closing) served to present the final product of the workshop and to create commitment to an agreed timeline for implementation and potential smaller follow–up meetings to discuss details (e.g. budget, champions, additional partners). Otherwise, the session was similar to the aforementioned workshops including a round of feedback, next stops, formal closing, etc.

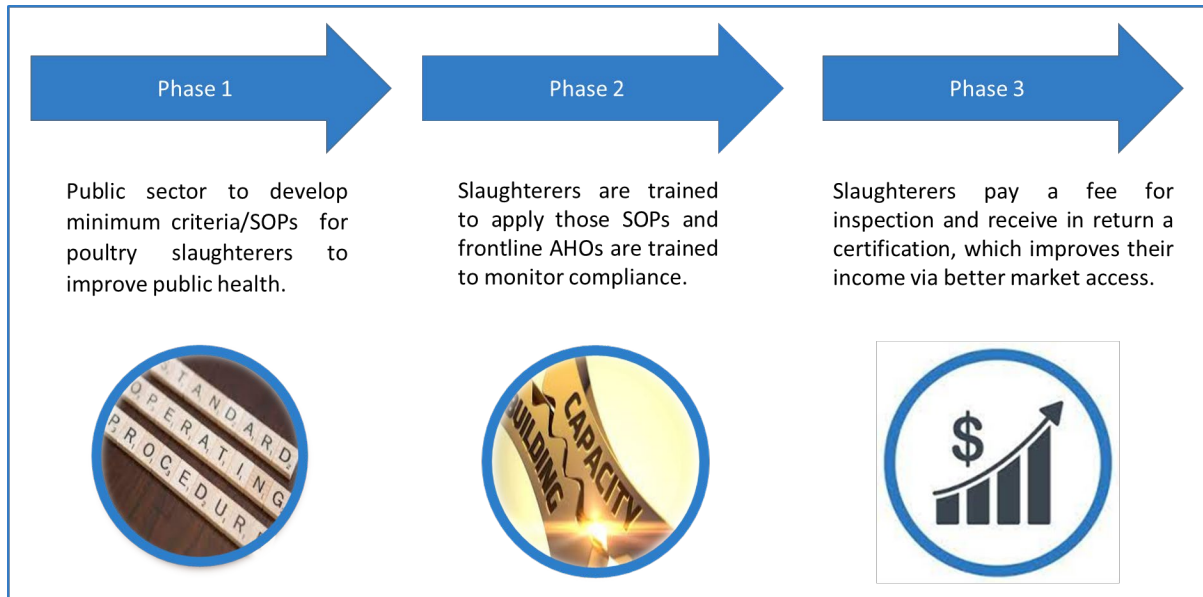
**Key findings:** The main result of the public–private workshop was the development of an intervention that is broadly described in three phases (Figure 11). Each of the intervention phases was further detailed into the elements of the work plan template. Particular attention was given to the plausibility

---

<sup>2</sup> These relied primarily on “liberating structures” (Lipmanowicz *et al.*, 2015) and include methods such as the River of Life, the Theory of Solving Ingenious Problems (TRIZ), the Users Experience Fishbowl, the Gradients of Agreements, Positive Gossip, etc.

of the underlying assumptions, type of necessary investments (continuous or one-off) and the introduction of new working procedures.

**Figure 11:** Main phases of intervention developed during the joint public-private stakeholder workshop (own illustration)



## Conclusions

The joint workshop provided an avenue for the public and private sector to discuss problems and design sensible interventions together. To our knowledge, such a participatory approach aimed at co-creating solutions was novel for the two selected districts. The relationship developed between the private and public sectors during the workshop is expected to grow and will be pivotal in implementing the proposed intervention on the ground. Indeed, participants agreed that there is urgent need to improve collaboration at local level and that small-scale pilots are useful to assess the effectiveness of proposed interventions. Finally, the joint workshop has been a critical avenue to drive a coalition of change that ultimately led some stakeholders or *champions* into making clear commitments of their respective actions.

## Conclusions and way forward

This brief has provided a summary of activities that took place in Uganda from between 2019 and 2022 with the aim to investigate problems and find solutions to improved policy implementation in the poultry value chain. It has shown that, by facilitating a truly evidence-based and participatory approach, national authorities have the potential to effectively implement policies that contribute to One Health. In this process, the engagement of the private sector is crucial, especially in times of dwindling public resources and rapidly changing livestock systems that can be steered on a sustainable development path only through a flexible, adaptive, and practical government. Such path cannot rely on a top-down approach, where policies are developed by high-level executives at central level but should gage low-level officials at local level who are the ones in direct contact with livestock stakeholders. In Uganda, the district government of Mukono and Wakiso have agreed to pilot the intervention presented in this brief in the second half of 2022. Preliminary lessons from this process point out the following principles for improving policy implementation are as follows:

**Local governments taking the lead** – Most countries have a decentralized governance system, with local governments overseeing implementing policies. Local governments, therefore, should lead any policy implementation effort.

**Problem-focused approaches** – Local governments should be humble and target one policy problem at a time, specially limited compliance with a specific law or regulation. Examples of such problems may include slaughterers working in non-gazetted areas; use of antimicrobials in livestock production without prescription, food hygiene at retail level, illegal transport of livestock, etc.

**Co-creation of policy actions** – Local governments should engage field frontline AHOs and private businesses along the livestock value chain – from farmers through processors to retailers – to find consensus on the actions necessary to implement policies, including both public and private sector actions. These stakeholders operate on the ground, have a good understanding of what can and cannot be done and, as such, are in the best position to identify practical policy actions.

**Operationality of policy actions** – Public actions to operationalize policies should be largely implementable with existing human, financial and technical capacity. It is better to go for a second-best option than for a proposal that is not actionable without some external support.

**Consistency with business models** – Public actions to operationalize policies should provide sufficient incentives for livestock stakeholders to change their business models and comply with the legislative framework. Typically, incentives can be in the form of either a reward (e.g. improved profitability) or a penalty (e.g. a fine).

**Experimentation** – Once stakeholders have agreed upon policy actions to enforce a specific law or regulation, local governments should pilot them on a small scale to verify their effectiveness. To this end, a robust monitoring and evaluation system should be put in place.

**Refinement and scaling up** – If the proposed policy actions prove effective, then the local government can easily scale them up at the local level. The national government could then consider scaling the actions up throughout the country, or in selected regions or districts.

## Acknowledgements

This brief has been drafted by Martin Heilmann, Gerald Nizeyimana, Frank Mubiru and Ugo Pica-Ciamarra. Our heartfelt thanks go to the entire National Steering Committee and everybody who helped in planning and carrying out the work behind the scenes. This includes in particular the veterinary services and poultry value chain actors in Mukono and Wakiso – these results would not have been possible without their involvement. Similarly, this work is also based on the efforts of the ASL 2050 team in Egypt, Ethiopia and Kenya including Amira AbdelNabi, Lina Abdalla, Tadele Mirkena, Steven Gykonyo and Joy Kiplamai. We also kindly thank the ECTAD regional socioeconomist Tabitha Kimani and the ECTAD Uganda team leader Willington Bessong for the careful review and support. We would finally like to acknowledge the financial contributions provided by the United States Agency for International Development (USAID).

## References

- Agger, A. & Lund, D.H.** 2017. Collaborative Innovation in the Public Sector – New Perspectives on the Role of Citizens? *Scandinavian Journal of Public Administration*, 21(3): 17–38.
- Ball, T., Monte, D., Aidara-Kane, A., Matheu, J., Ru, H., Thakur, S., Ejobi, F. & Fedorka-Cray, P.** 2020. International lineages of *Salmonella enterica* serovars isolated from chicken farms, Wakiso District, Uganda. *PLOS ONE*, 15(1): e0220484. <https://doi.org/10.1371/journal.pone.0220484>
- Burkholder, J., Libra, B., Weyer, P., Heathcote, S., Kolpin, D., Thorne, P.S. & Wichman, M.** 2007. Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality. *Environmental Health Perspectives*, 115(2): 308–312. <https://doi.org/10.1289/ehp.8839>
- Byaruhanga, J., Tayebwa, D.S., Eneku, W., Afayoa, M., Mutebi, F., Ndyababo, S., Kakooza, S. et al.** 2017. Retrospective study on cattle and poultry diseases in Uganda. *International Journal of Veterinary Science and Medicine*, 5(2): 168–174. <https://doi.org/10.1016/j.ijvsm.2017.07.001>
- Cavanagh, D. & Gelb, J.** 2008. Infectious Bronchitis. In: Y. Saif, et al., A. Fadly & J. Glisson, eds. *Diseases of poultry*. Ames, Iowa, Wiley-Blackwell.
- Conway, G. & McCracken, J.** 1990. Rapid rural appraisal and agroecosystem analysis. In: M.A. Altieri & S.B. Hecht, eds. *Agroecology and small farm development*. Boca Raton, Fla, CRC Press.
- FAO.** 2018. Africa Sustainable Livestock (ASL) 2050 - Transforming livestock sector in Uganda. What do long-term projections say? FAO. Cited 13 October 2021. <https://www.fao.org/3/CA0887EN/ca0887en.pdf>
- FAO.** 2020a. The future of livestock in Uganda. : Emerging public health risks in urban and peri-urban areas. FAO. Cited 26 October 2021. <https://www.fao.org/documents/card/en/c/ca9799en>
- FAO.** 2020b. *The Uganda One Health legal framework: A livestock value chain perspective on emerging zoonotic diseases and antimicrobial resistance*. Rome, Italy, FAO. <https://www.fao.org/documents/card/en/c/ca9489en>
- FAO.** 2021a. Africa Sustainable Livestock, 2050: Laws and flaws, implementation gaps in biosecurity-related legislation in the poultry sector. FAO. Cited 21 February 2023. <http://www.fao.org/documents/card/en/c/cb8048en>
- FAO.** 2021b. *Animal health services at work in Uganda: Evidence from Mukono and Wasiko districts*. Rome, Italy, FAO. <https://doi.org/10.4060/cb7103en>
- FAO.** 2022a. *Africa Sustainable Livestock 2050: Public resources for animal health services in East Africa: Evidence from Ethiopia, Kenya and Uganda*. Rome, Italy, FAO. <https://doi.org/10.4060/cb9980en>
- FAO.** 2022b. *Africa Sustainable Livestock 2050: Biosecurity and public health practices along the poultry value chain in Uganda*. FAO. <https://doi.org/10.4060/cb8181en>
- FAO.** 2022c. *Business models along the poultry value chain in Uganda*. FAO. <https://doi.org/10.4060/cb8200en>
- Government of Uganda.** *Ordinance 9 (Meat) Ordinance by Kampala Capital City Authority based on Public Health (Meat) Rules*, 2006.
- Kakooza, S., Muwonge, A., Nabatta, E., Eneku, W., Ndoboli, D., Wampande, E., Munyirwa, D. et al.** 2021. A retrospective analysis of antimicrobial resistance in pathogenic *Escherichia coli* and *Salmonella* spp. isolates from poultry in Uganda. *International Journal of Veterinary Science and Medicine*, 9(1): 11–21. <https://doi.org/10.1080/23144599.2021.1926056>

- Kyakuwaire, Olupot, Amoding, Nkedi-Kizza, & Basamba.** 2019. How Safe is Chicken Litter for Land Application as an Organic Fertilizer? A Review. *International Journal of Environmental Research and Public Health*, 16(19): 3521. <https://doi.org/10.3390/ijerph16193521>
- Lipmanowicz, H., Singhal, A., McCandless, K. & Wang, H.** 2015. Liberating Structures: Engaging everyone to build a good life together. pp. 233–246
- Mahamat, M.B., Crump, L., Tidjani, A., Jaeger, F., Ibrahim, A. & Bonfoh, B.** 2015. Food security, nutrition and the One Health nexus. In: J. Zinsstag, E. Schelling, D. Waltner-Toews, M. Whittaker & M. Tanner, eds. *One Health: the theory and practice of integrated health approaches*. pp. 272–282. Wallingford, CABI. <https://doi.org/10.1079/9781780643410.0272>
- Morton, J., Adolph, B., Ashley, S. & Romney, D.** 2002. Conceptual, methodological and institutional issues in participatory livestock production research. *International Livestock Research Institute*. <https://www.ilri.org/publications/conceptual-methodological-and-institutional-issues-participatory-livestock-production>
- Nantima, N., Ademun, A.R.O., Sentumbwe, J., Ilukor, J., Kirumira, M.M., Muwanga, E., Nakanjako, M.F. et al.** 2019. Managing the challenges of a highly pathogenic avian influenza H5N8 outbreak in Uganda: a case study: -EN- -FR- La gestion des défis posés par le foyer d'influenza aviaire hautement pathogène dû au virus H5N8 en Ouganda : une étude de cas - ES- Estudio específico de la gestión de las dificultades causadas por el brote de virus H5N8 de la influenza aviar altamente patógena en Uganda. *Revue Scientifique et Technique de l'OIE*, 38(1): 225–237. <https://doi.org/10.20506/rst.38.1.2955>
- Odoch, T., Sekse, C., L'Abée-Lund, T., Høgberg Hansen, H., Kankya, C. & Wasteson, Y.** 2018. Diversity and Antimicrobial Resistance Genotypes in Non-Typhoidal Salmonella Isolates from Poultry Farms in Uganda. *International Journal of Environmental Research and Public Health*, 15(2): 324. <https://doi.org/10.3390/ijerph15020324>
- Osterwalder, A., Pigneur, Y. & Clark, T.** 2010. *Business model generation: a handbook for visionaries, game changers, and challengers*. Hoboken, NJ, Wiley.
- Wanyenya, I., Muyanja, C. & Nasinyama, G.W.** 2004. Kitchen Practices Used in Handling Broiler Chickens and Survival of Campylobacter spp. on Cutting Surfaces in Kampala, Uganda. *Journal of Food Protection*, 67(9): 1957–1960. <https://doi.org/10.4315/0362-028X-67.9.1957>
- Weil, A.A., Debela, M.D., Muyanja, D.M., Kakuhikire, B., Baguma, C., Bangsberg, D.R., Tsai, A.C. & Lai, P.S.** 2020. Gut carriage of antimicrobial resistance genes in women exposed to small-scale poultry farms in rural Uganda: A feasibility study. *PLOS ONE*, 15(6): e0229699. <https://doi.org/10.1371/journal.pone.0229699>

