



Highlights

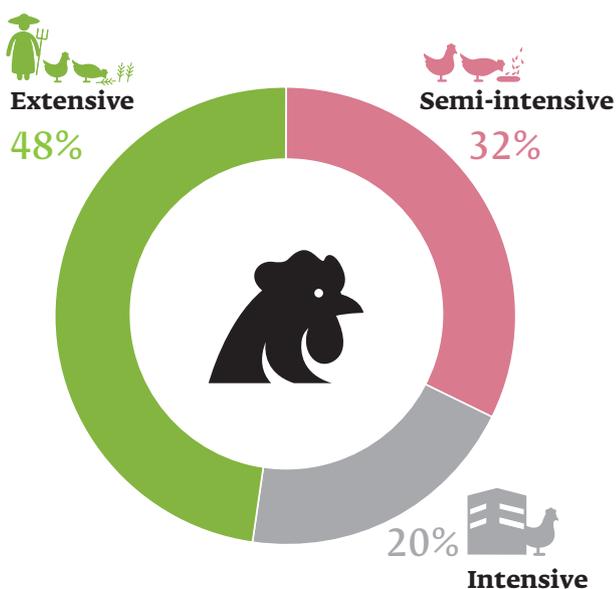
- Commercial small and medium-scale poultry value chains are mushrooming in and around Kenyan cities to satisfy the demand for food of a growing population.
- These poultry value chains usually have low biosecurity levels, which creates public health risks.
- Slaughtering is commonly performed in non-licensed areas, on farm or at live-bird markets.
- Most poultry meat is not inspected before human consumption and current practices do not comply with existing legislation.
- A dialogue has been initiated with relevant stakeholders to co-create solutions and improve both biosecurity and business on the ground.



A mushrooming poultry sector

The Kenya poultry sector will undergo a rapid transformation in the coming decades driven by the anticipated population and economic growth, which will result in increased demand of animal source foods (FAO, 2018a). In 2019, the Kenyan poultry sector produced 89 thousand tonnes of poultry meat and nearly 2 billion eggs (FAO, 2021). The anticipated growth in demand continues to fuel production and is illustrated by a projected increase in the poultry population from 61 million birds in 2020 to 158 million birds in 2050, representing a 159 percent increase (FAO, 2018b). The majority of poultry are indigenous dual-purpose breeds kept in extensive backyard (48 percent) or semi-intensive (32 percent) production systems, with intensive production systems contributing 20 percent to the total country flock (Figure 1) (FAO, 2019). The intensive poultry systems are market-oriented and often located in urban and peri-urban areas such as around Nairobi, Mombasa, Nakuru and Kisumu.

FIGURE 1: Chicken (meat) production systems in Kenya



Public health risks along the urban and peri-urban value chains

Urban and peri-urban livestock keeping is common in many developing cities and plays an important role in food security and livelihoods, but can also pose a significant threat to the environment and health of people (Alarcon et al., 2017; FAO, 2019; Latino et al., 2020). While large commercial farms often have qualified trained health managers and other resources to adhere to legal requirements for healthy and safe poultry production, biosecurity is low among small to medium-scale poultry producers (Box 1). Unlike small family-owned flocks kept for home consumption and local sales, these producers sell poultry products into food chains that supply urban markets on a much larger scale.

Box 1: Small to medium-scale poultry meat producers

Small and medium-scale poultry farms in this sector keep between 300-3 000 broilers for commercial purposes usually based on an all-in/all-out management system and reared on deep litter floors. Producers commonly source day old chicks, feed and drugs from local hatcheries, feed companies and “agrovets”. The birds are slaughtered at farm, live bird markets or at home. Sometimes, a government meat inspector may inspect the animals and issue a certificate and movement permit for distribution. Carcasses are then packed and transported to the market. Some farmers also freeze the carcasses or purchase carcasses from neighboring farms to sell at a later stage and increase profit margins.

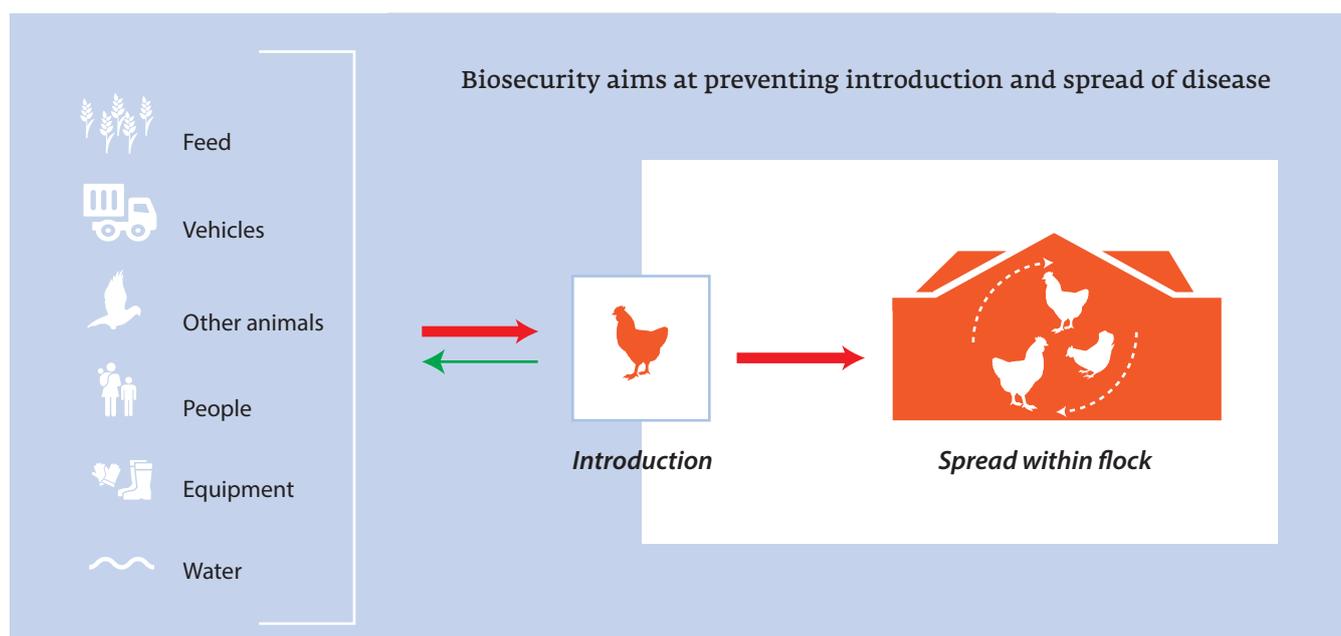
The policy framework

The Kenya government is committed to develop a sustainable livestock sector and an appropriate legal and policy framework is in place (FAO, 2020). This includes the overarching National Livestock Policy (2020), Veterinary Policy (draft, 2020), National Policy on Prevention and Containment of Antimicrobial Resistance (2017), National Environment Policy (2013) and Kenya Health Policy (2014 to 2030). Relevant primary legislations that provide mechanisms for regulating health and related food safety practices for animal products include the Animal diseases Act CAP 364 (Revised 2012) and the Environmental Management and Coordination (Amendment) Act (2015). Regarding slaughter operations, the Meat Control Regulations (2010) are important and selected excerpts are referenced in Box 2.

The challenge: policy implementation

Although the relevant policy and legal frameworks exist, enforcement is still piecemeal. There is the need to create an enabling environment where public authorities and private sector stakeholders, such as producers, traders, slaughterers, transport and market actors, collaborate and complement more effectively. This would ensure that private actors get sufficient incentives to comply with the legislation and adopt biosecurity practices that are good for both businesses and public health.

FIGURE 2: Why is biosecurity important?



Many factors pose a risk to the health of animals. Biosecurity is a strategic and integrated approach to analyse and manage those risks to prevent pathogens from introduction to and spread within the poultry flock. Given that many pathogens are zoonotic, i.e. shared between animals and humans, this is a two way process where also poultry can infect farmers or other animals as illustrated with the green arrows in the Figure. Disease outbreaks, such as avian influenza in animals or salmonellosis in humans, are signs of inadequate biosecurity

along the food chain. In many cases, simple practices, such as changing boots when entering a farm or washing hands before slaughter, can prevent pathogens from reaching the animals. Biosecurity is an efficient and cost-effective method of disease prevention as it improves animal health, on the one hand, while lowering the cost for medical treatment on the other hand ('prevention is better than cure').

Box 2: [Meat Control Regulations 2010](#) – selected excerpts

- “No slaughterhouse shall be operated unless it is under the supervision of an inspecting officer”
- “A person shall not sell [...] any carcass or meat, unless [it] has been inspected by an inspecting officer and found to be fit for human consumption.”
- A slaughter facility of category C (slaughter slab) shall have “hot water boiler connected to sterilizing equipment” and “a toilet with hand wash facilities” among other things.
- Each slaughterhouse shall have “satisfactory lairage, equipment and assistants for conducting ante-mortem inspection” and a “separate room for the storage, disposal and treatment of inedible and condemned animals, carcass and meat”



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Study design

The FAO initiative [Africa Sustainable Livestock 2050](#) (Box 3) is facilitating a novel approach that generates robust evidence on challenges in policy implementation and brings together public and private sectors to co-create solutions that meet today’s biosecurity challenges along the poultry value chain. From September to October 2020, the FAO, in collaboration with the veterinary service directorates of Kiambu and Nairobi city counties, conducted a survey of private poultry stakeholders in the urban and peri-urban areas of the two counties.

The survey targeted poultry producers (n=100), transporters (20), slaughterers (30) and traders at live bird markets (30). The objective of the survey was to assess stakeholders’ behaviour along the poultry value chain and, in particular, to assess the

extent to which stakeholder practices comply with the existing biosecurity legislation. The current brief focuses on the 30 stakeholders involved in poultry slaughter. The slaughtering node is of particular importance for public health given the prominent role it plays for food and pathogen control before food enters the value chain for human consumption.

Box 3

ASL 2050 is a policy initiative that explores the possible futures of the African livestock sector, with the objective to identify policy actions to take today in order to ensure its sustainable development, from a public health, environmental and social perspective. Read more [here](#).

Key findings and implications

1. POULTRY IS SLAUGHTERED IN NON-LICENSED FACILITIES

Sixty percent of respondents indicated to slaughter at farm while 40 percent slaughter elsewhere, such as in live bird markets, at home or food retail outlets (joints) for direct consumption. Slaughter areas varied from thorough to makeshift structures for slaughter. Interviewees further indicated that slaughter often took place during night time.

IMPLICATION:

This finding suggests that slaughtering is currently not performed in licensed slaughterhouses as prescribed by the Meat Control Regulations (2010), which emphasises on the need for licensed slaughterhouses “under the supervision of an inspecting officer” (see Box 2) to ensure safe operations.



Example of a makeshift structure to stun and pluck birds

2. SANITARY INFRASTRUCTURE IS LARGELY INADEQUATE

Only 27 percent of respondents reported to have separate areas for slaughter processes while 43 percent reported to only have a single slaughtering area. Evisceration primarily took place on wooden benches (50 percent), concrete slabs (37 percent), ‘on the ground’ (10 percent) or other areas (Table 1). Most respondents indicated that slaughter locations had access to water for cleaning (83 percent) and electricity (73 percent). While a majority of respondents are apparently

familiar with the application of disinfectants, 40 percent indicated that they did ‘not use a disinfectant’. Fencing, pest control and waste disposal were lacking in most locations.

IMPLICATION:

Slaughtering facilities do not seem to provide the necessary sanitary infrastructure as per the existing legislation, including specifically a clear separation of clean from unclean areas in order to avoid cross-

contamination of products during the slaughter process. This is particularly important in the case of long hours of meat exposure to open environments and high temperatures and in the absence of cold storage.



Example of a tiled slaughter area to stun and pluck birds

3. HALF OF SLAUGHTERERS HAS NO VALID HEALTH CERTIFICATE

Fifty percent of respondents had a valid health certificate (of less than six months) while 30 percent had an expired one (more than six months) and twenty percent indicated to have “never obtained one”.

IMPLICATION:

Good health and personal hygiene of slaughtering personnel are important elements of biosecurity

for the obvious reason that ill persons are more likely carriers of pathogens than healthy ones, with the risk of disease transmission to the end consumers. The Meat Control Regulations (2010) state that “no person infected with communicable disease should be allowed to the slaughterhouse”.



Evisceration, i.e. removal of the birds’ internal organs, from hanging carcasses and collection of offal in the tiled basin below

TABLE 1: Poultry slaughter statistics for Kiambu and Nairobi city counties

	KIAMBU	NAIROBI	OVERALL
GENDER OF SLAUGHTERER			
Female	2 (11.1%)	2 (16.7%)	4 (13.3%)
Male	16 (88.9%)	10 (83.3%)	26 (86.7%)
TYPE OF SLAUGHTER PRODUCTS SOLD			
Whole chicken carcass	18 (100.0%)	12 (100.0%)	30 (100.0%)
Meat cuts	8 (44.4%)	3 (25.0%)	11 (36.7%)
Feathers	3 (16.7%)	0	3 (10.0%)
Offal	8 (44.4%)	5 (27.8%)	13 (43.3%)
Manure	10 (55.5%)	0	10 (33.3%)
EVICERATION AREAS			
Hanging rails/wire	2 (11.1%)	0	2 (6.7%)
Concrete slabs	9 (50.0%)	2 (16.7%)	11 (36.7%)
Wooden bench/table	7 (38.9%)	8 (66.7%)	15 (50.0%)
On the ground	1 (5.5%)	2 (16.7%)	3 (10.0%)
Others	0	1 (8.3%)	1 (3.3%)

4. MEAT INSPECTION BY RELEVANT AUTHORITIES IS PARTIALLY IMPLEMENTED

The slaughtering was performed on a daily (50 percent) or weekly (48 percent) basis by contracted slaughterers or the farmers or sellers themselves. However, despite this frequency, only half of the respondents indicated that veterinary inspectors performed meat inspection daily or at least once a week, with noticeable differences across the two counties (67 percent in Nairobi and 33 percent in

Kiambu respectively). The other half reported that veterinary inspectors ‘never’ or only ‘rarely’ perform meat inspection.

IMPLICATION:

Meat inspection is a cornerstone of public health as it ensures only animal products fit for human consumption enter downstream processing, retailing and consumption. The slaughterhouse is therefore a

critical point to identify unfit animal products and ensure that unsafe food products do not leave the facility (biocontainment). The Meat Control Regulations (2010) accordingly state that animal products should not leave the slaughterhouse “unless the carcass or meat has been inspected by an inspecting officer”, but this regulation is apparently not fully complied with.

5. SICK BIRDS ARE OCCASIONALLY SLAUGHTERED FOR HUMAN CONSUMPTION

Twenty percent of respondents indicated that, sometimes, they decline slaughter of birds because they were underweight or sick. While the majority of respondents (82 percent) agreed that poorly practiced poultry slaughter can negatively impact human health, almost one in five (20 percent) admitted to slaughtering sick birds either for personal consumption or sale to customers.

IMPLICATION:

A number of diseases in poultry can spread to humans including salmonellosis, campylobacteriosis or avian influenza. During and after slaughter, sick animals present a potential source of cross-contamination and pose as such a risk to public health. Indeed, the Kenya Animal Diseases Act CAP 364 (revised 2012) prescribes that carcasses of sick animals should be disposed

according to instructions issued by a veterinary officer or an inspector. Moreover, the Kenya Food, Drugs and Chemical Substances Act (2013) considers guilty of an offence any person selling food that is unwholesome or unfit for human consumption. Poultry slaughterers apparently fail to comply fully with both Acts.

Conclusions

In Kiambu and Nairobi City Counties, poultry slaughter is commonly performed on farm or in non-licensed slaughter areas elsewhere. Biosecurity compliance is low or insufficient as farms or slaughter facilities lack the necessary infrastructure to adhere to the existing legislation. Similarly, slaughter at live bird markets is conducted without adherence to adequate biosecurity measures and designated slaughter areas are usually lacking or absent. Results suggest that the existing legal framework on biosecurity, while comprehensive, is not fully implemented at the slaughtering node of the poultry value chain.

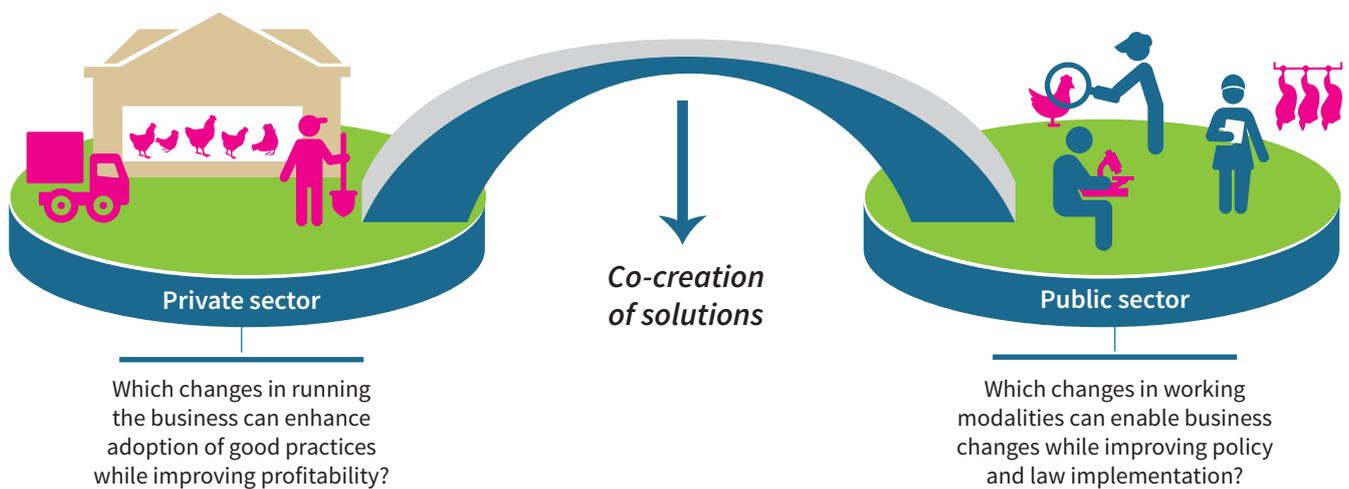


Next steps

Results of this survey will be used to kick-start a dialogue between public and private sectors in Kiambu and Nairobi City counties to first identify behavioural and business changes poultry slaughterers could adopt in order to both increase profitability and improve the adoption of good biosecurity practices, as recommended by the prevailing legislation. Then, the dialogue will tackle the question of how frontline public animal health officers can modify and enhance their working procedures to support the identified changes in slaughtering practices. These changes will ultimately improve compliance with existing law, reduce public health risks along the poultry value chain and will be potentially scalable to the national level.

Such dialogue will assist stakeholders in co-creating solutions that will both improve the profitability and sustainability of the slaughter businesses while ensuring compliance with the existing legislation on biosecurity. Indeed, available evidence suggests that consumers in Kenya value biosecurity: Relative to the price of chicken meat at the time of study, consumers in Nairobi were willing to pay a price premium of 30 percent for use of certified transport, 72 percent for animal welfare labelling, 135 percent for humane slaughter, 236 percent for non-use of growth hormones in poultry and 40 percent less for chicken reared in confined systems (Otieno & Ogutu, 2019). A public-private sector dialogue on biosecurity, therefore, could definitely result in win-win solutions for both public health authorities and poultry businesses as illustrated in Figure 3.

FIGURE 3: Improving biosecurity through better dialogue between private and public sectors.



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Focus group discussion between study team and stakeholders to gather information on the poultry business models



Dialogue with public animal health (ANHE) officers to discuss changes in their working procedures



Dialogue with private poultry actors at the slaughtering node to discuss the adoption of biosecurity practices



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