



VIRTUAL LEADERSHIP CONFERENCE

A future-proof poultry industry in and for Sub-Saharan Africa

Analyzing the poultry supply chain
in Kenya's food system
to assess and reduce food losses

Herman Snel – Wageningen center for development innovation - 1st September 2021

- **Using FOOD SYSTEMS Framework TO LOOK AT FOOD LOSSES**



- **DRIVERS and CAUSES OF FOOD LOSS?**

- **CRITICAL LOSS POINTS ?**

- **RELATION FOOD LOSS - FOOD SYSTEM OUTCOMES?**

How can loss reduction positively affect FS outcomes?

How can loss reduction positively affect SDGs

Food loss and waste

LOSS: Food products that have reached full maturity but do not reach end consumer.

WASTE: Food products that have reached end consumer and are not consumed.

Socio-economic drivers



Food system activities



Environmental drivers



Food system outcomes

Socio-economic outcomes



Food security

Food utilisation



Food access



Food availability



Environmental outcomes



Research Methodology

- Literature review
 - Interviews with key informants (Kenya & NL)
 - Group discussions with key stakeholders
 - Validation with stakeholders
- Rapid sector analysis
- Poultry-loss profile
- Critical leverage points



Kenyan Food System

- The agri-food system contributes 34 percent of the total national GDP (World Bank, 2020).
- The agri-food sector is largely informal and generates more than 80 percent of employment opportunities in Kenya (KNBS, 2020).
- Micro and small sized farmers account for the largest proportion of agricultural producers (Benni et al., 2020)
- No National poultry sector strategy
- No national FLW reduction strategy
 - SDG's
 - Malabo declaration
 - National Sustainable Waste Management Policy

Kenyan Food System (cont.)

“Millions of (Kenyan) households depend on agriculture for income and food security, therefore the country’s social stability and economic growth depends on enabling these people to contribute to the economy and offering them better food security. This is the mark of successful inclusive agricultural transformation”

(Agricultural Sector Transformation and Growth Strategy 2019 – 2029)

- Population growth and changing diets
 - Growing demand for (quality / nutritious) food (rural and urban setting)
- Policies in favour of inclusive agricultural sector transformation
 - Focus on production and productivity
 - New focus on value addition and processing
 - Employment and income generation

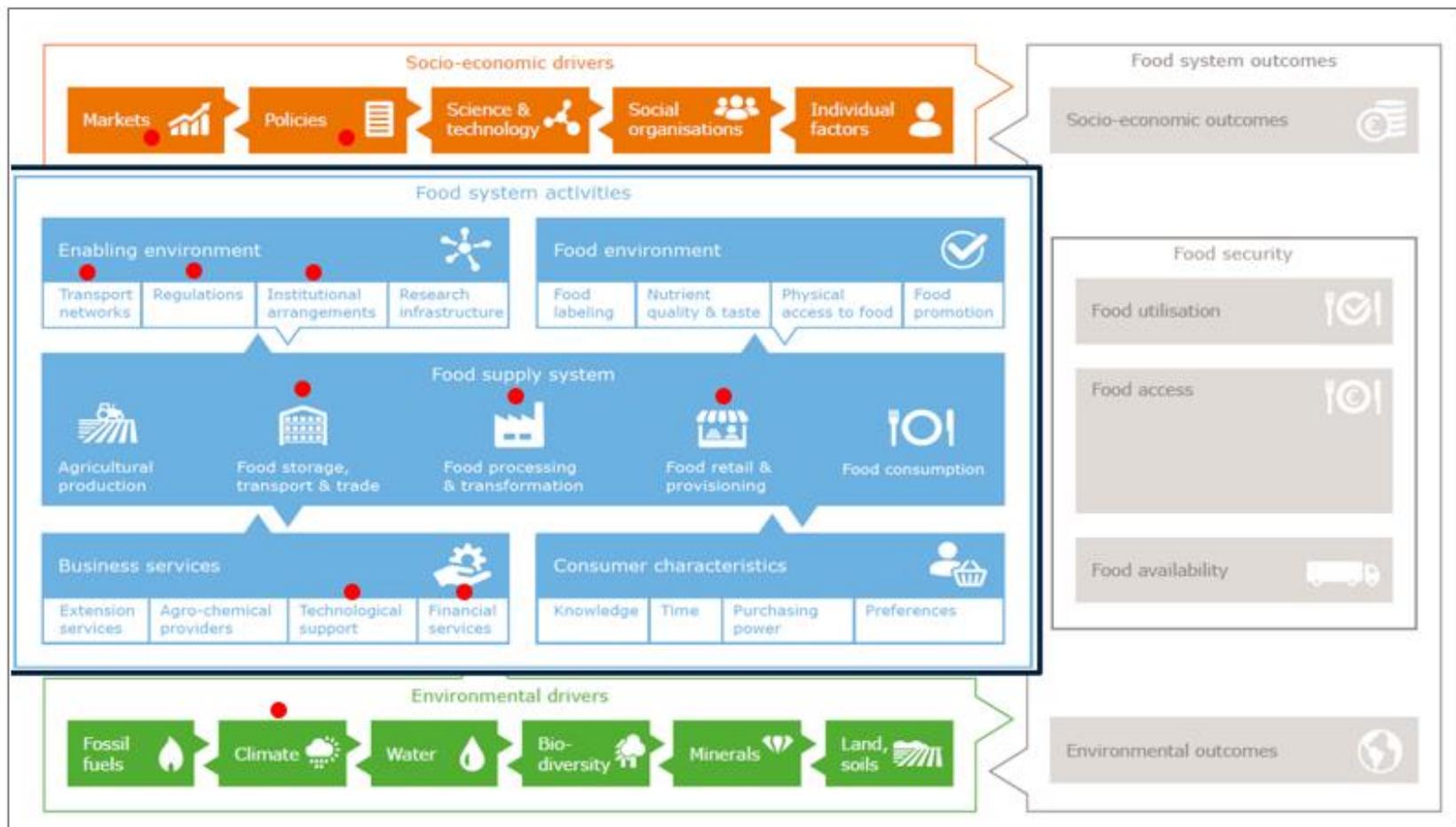
Two distinct food systems typologies

Rural traditional informal and expanding food supply systems

- Most common
- involving largest numbers of people
- Producing largest volumes of food products
- Incurring the largest volumes of loss
- Supplying domestic market

Emerging and diversifying food supply systems

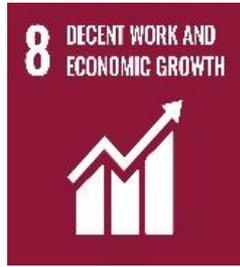
- Growing in numbers
- Involves less people
- Producing smaller volumes higher quality food products
- Invest in loss reducing measures
- Supplying export market and high-end domestic consumers



Food losses and food system outcomes

- Income and livelihoods of producers and supply chain stakeholders reduced
- Availability, Affordability and safety of nutrition-dense foods in domestic market reduced
- Inefficient utilization of resources (land, water, labour, investments inputs)

- opportunity for service provision, processing and generation of employment and income
- Improve availability, affordability and safety of nutrition-dense foods for domestic consumer
- Improve resource use efficiency (land, water, labour, investments inputs)



Loss reduction can positively affect FS outcomes!
Loss reduction can positively affect SDGs!

Food Supply Systems

- Informal supply system → domestic market
Larger volumes
Medium quality

- Formal supply system → high-end market
Smaller volumes
High quality

Poultry supply system → domestic market

Indigenous backyard → Larger volumes, live animals for informal wet market

Broilers → small volumes, slaughtered for food industry, supermarkets

Insights into the Kenyan poultry sector

- 65 percent of Kenyan households raise poultry. The majority are backyard indigenous chicken producers
- there are approximately 39 million poultry units in Kenya;
- 20.6 million Kenyans live in households that keep free-range poultry, 3.4 million people live in households who are involved with semi-intensive poultry farming and less than 100.000 people in households that are involved with intensive broiler production (FAO, 2018)
- Approximately 85 percent of the Kenyan poultry flock are sold live at domestic markets (urban and rural). 10-15 percent of birds are sold slaughtered

Insights into the Kenyan poultry sector (cont.)

- There is a general absence of market information, transparency, biosecurity, veterinary controls and traceability in the informal poultry sector.
- Only a small number of poultry farmers are formally organized into producer organizations and have contractual arrangements with industrial processors, marketing agents and buyers.
- Producers market their birds through marketing agents who aggregate and transport to sale points
- Only a handful of large-scale industrial companies
- Growing numbers of “critical consumers”, supermarkets and fast-food chains will increase the demand for safe, traceable, processed and packaged chicken meat products

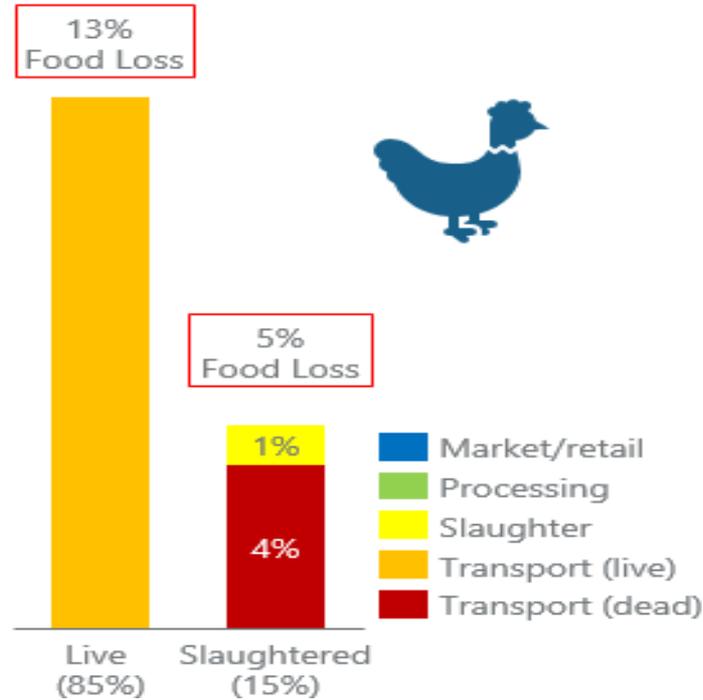
Insights into Kenyan poultry consumption

- Nairobi's consumption is estimated at around 5 million birds per day and continues to grow.
- Kenyan consumers tend to have a preference for indigenous birds.
- The price for indigenous chicken is usually higher.
- There is a large demand for live birds corresponding to the belief that fresh meat is better and healthier than slaughtered meat.
- The current food protein availability in Kenya is estimated at 60g per day per capita (FAOSTAT), of which 25 percent is of animal origin.

Poultry contribution to food system outcomes

- 75 % of rural households keep poultry. In some Kenyan counties, over 96 % of the rural households keep indigenous chicken
- Poultry production is contributor to household income and food security and nutrition
- Poultry producers derive approximately 40-50 % of their income from poultry production
- Rural women play a fundamental role in poultry production providing an interesting opportunity for income generation
- Poultry plays an important role adding valuable protein to rural diets

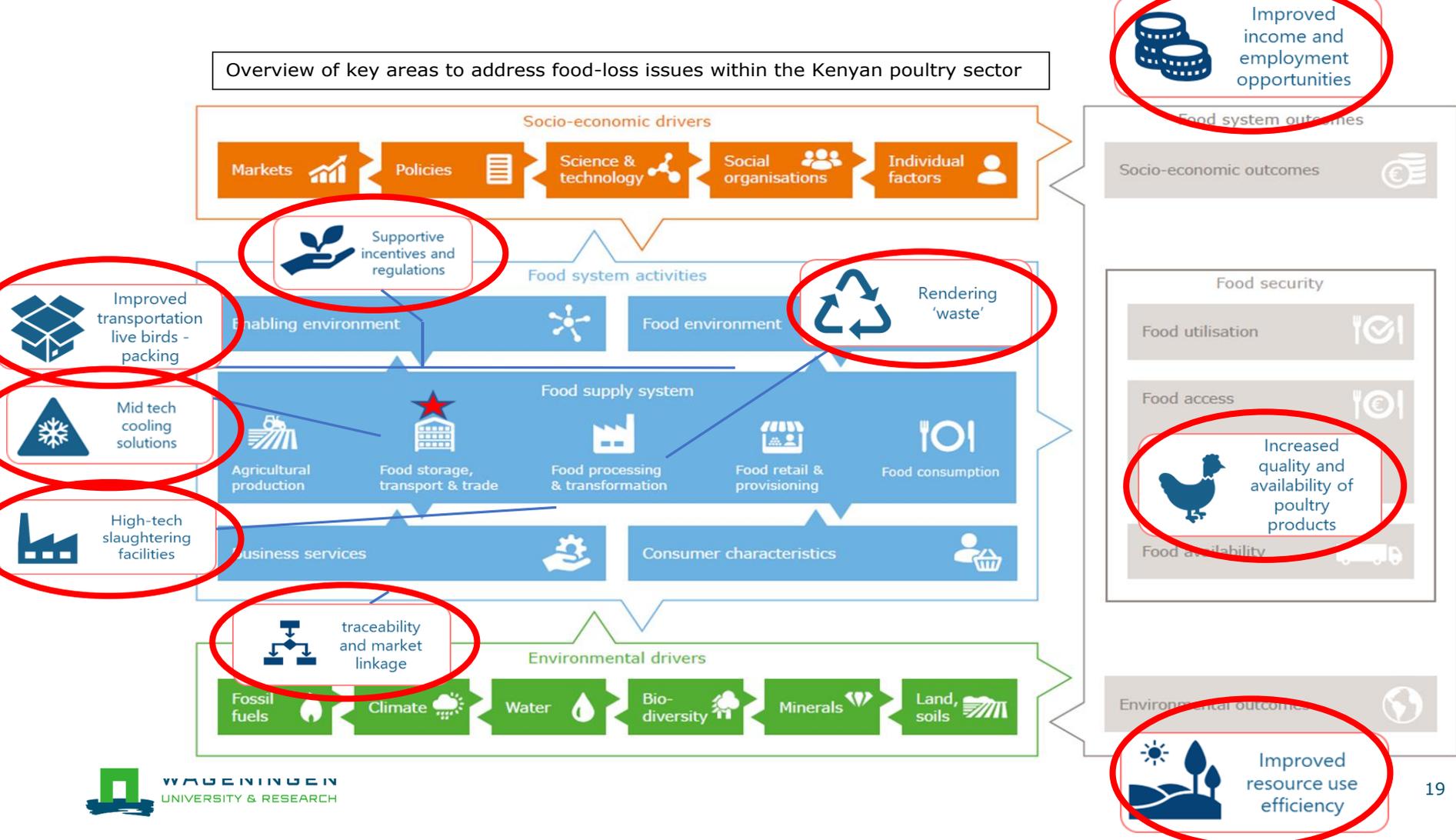
Food losses in Kenyan poultry sector



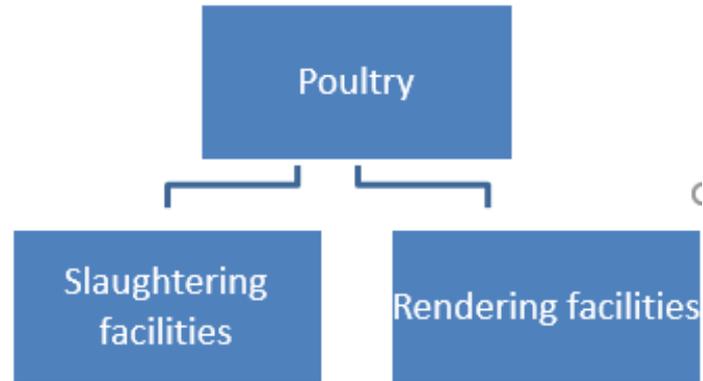
leverage points for loss reduction

- Technologies are there....move beyond production & productivity
- Adjust to context to design applicable and a viable business opportunities
- Integrated Sector Transformation Approach
- **Digital Solutions:** traceability, fair pricing, market information, market access, food safety, agri-finance innovations
- **Gender and Youth**

Overview of key areas to address food-loss issues within the Kenyan poultry sector



Business opportunities to reduce losses



Preconditions for success – Stakeholder collaboration and market integration

- Horizontal integration
- Vertical integration
- Food safety and quality assurance
- Increase in production and productivity – feed/ biosecurity/ etc.
- Digital tools – traceability, aggregation and market access

Poultry – agroprocessing opportunities

Slaughtering	Small-medium scale	Large-scale (Kenyan standards)
Description	Small, mobile slaughtering facility.	Slaughter facility partly automated and partly with manual labour, processing whole chickens, with a small cooling facility and low-end packaging
Volumes	500-1,000 chickens/hour	13,000 chickens/hour
End-market	Domestic market (e.g. restaurants, urban population, supermarkets)	Domestic and regional market (e.g. KFCs in Kenya, Rwanda, Tanzania).

Rendering	Medium-scale	Industrial-scale
Description	Two containers for small quantities	Complete plant
Volumes	5 to 15 MT/day	100 MT/day
End-market	Local or national feed market	National or East-African feed market

Reflections

- losses are highest in the domestic market sector dominated by small-scale farmers and cottage industries. This is not the typical environment in which the predominantly sophisticated large-scale Dutch companies operate. The average Dutch industrial poultry processing line is five times bigger than the biggest Kenyan processor.
 - Technology options are there but they are currently not considered interesting for informal market
 - **Digital innovation as leverage point** → food safety, traceability, market access
- Not considered a business opportunity for local market

Conclusions

- Loss reduction of 50% in informal domestic supply system is possible with improved handling and transportation of live animals
- Integrated sector approach is required with collaboration of private and public partners to jointly build a conducive environment for private sector investments, professionalizing across the entire value chain.
- Potential to explore options for PPP collaborations with large scale Kenyan players, and Agri-finance institutions