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The Role of Information Networks Along the Poultry Value Chain

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Key Findings

- Ultimately, the government is responsible for accurate and effective communication with the public when managing the risk of HPAI.
- There must be a routine flow of information between the government and the key actors in the value chain to make informed decisions.
- The actors in the poultry sector receive most of their information from the media, which often exaggerate the facts and cause unnecessary demand and supply shocks.

Mapping the flow of information along the poultry value chain is crucial for the identification of the actors to whom HPAI risks should be communicated. Each actor in the poultry sector, whether private and public, or formal or informal, has particular roles in the risk-communication process. Network mapping exercises help to identify the different actors involved in the poultry value chain, and to understand their roles, linkages, and influence in communicating disease risk information. Consequently, network mapping exercises were conducted with participants of multistakeholder workshops held in Ethiopia, Ghana, Kenya, and Nigeria.

The following questions were discussed:

- What formal and informal actors, private/public, are involved in the live poultry value chain?
- What are the flows of goods between various actors?
- How does communication on disease information flow in the value chain?
- Who in the value chain is influential in the communication of information about HPAI?
- What should be improved to make the value chain more resilient against the effects of AI and AI scare?
- Where and how can project findings help inform decisionmaking in the value chain?

This brief highlights and summarizes the main findings of these network maps (Net-Maps). The Net-Maps were drawn based on the participants' expert opinions as well as their experience with past interventions.

Actors and Critical Communication Points in the Value Chain

Ghana

The participants in the network mapping exercise identified the following value-chain actors as important entry points for HPAI risk-communication endeavors:

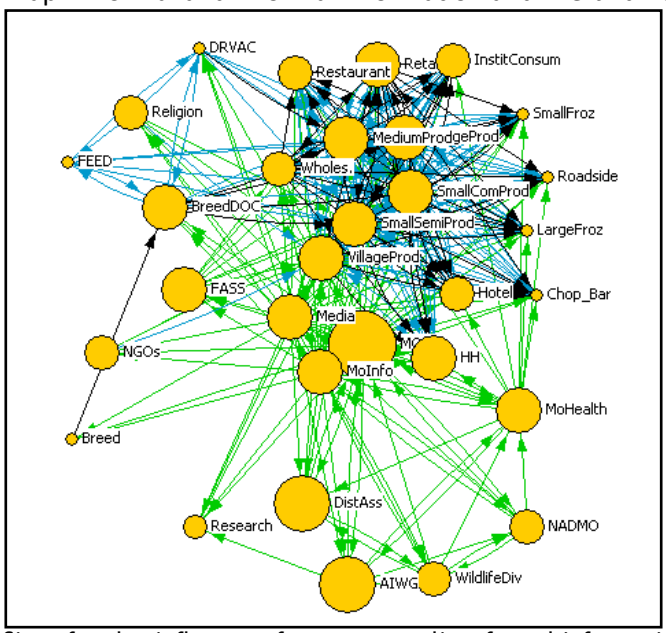
- Input and service providers
- Poultry producers of all sizes
- Formal and informal transporters
- Wholesalers, retailers, distributors of all sizes, fowl sellers, and processors
- Different types of consumers.

Actors who were identified as important sources of information were:

- Various ministries such as the Ministry of Agriculture (MOFA), Ministry of Information (MOI), Ministry of Health (MOH), National Disaster Management Organization (NADMO), and the Avian Influenza Working Group (AIWG)
- Farmers' associations
- Media
- NGO's and international and national research institutions.

Three types of links were identified in the value-chain network. These are the flow of live birds, the flow of formal information, and the flow of informal information on HPAI disease risk. The participants indicated that producers, wholesalers, and retailers are at the center of live bird flow, surrounded by input suppliers and consumers. The Net-Map revealed that small-scale commercial and semi-commercial producers are crucial in the flow of live birds. This group of actors, if infected, may serve as an epicenter of HPAI risk spread. Therefore, they should be the first entry point of surveillance for HPAI.

Map 1. Formal and informal information and live bird flow



Size of node= influence of actor; green line=formal information;
blue line= informal information; black line= live bird.

The participants suggested that MOFA, MOI, and the media are the most influential actors in the formal information-dissemination network, followed by poultry producers of all sizes as well as other public authorities such as AIWG, NADMO, and MOH. In the case of informal information, poultry producers of all sizes were identified as the main source of information dissemination. The main bottlenecks in the formal communication network were identified to be twofold. First, participants indicated that there was a very high level of bureaucracy, which caused delays in the flow of information. They suggested that the formal communication network should be more bottom up and streamlined. Second, the media were found to cause a lot of unjustified public panic, and hence, actions to better control the media were suggested. In the informal communication network, the main bottleneck was the unwillingness of poultry producers to reveal the truth, which participants suggested could be tackled through appropriate incentive mechanisms such as compensation.

Ethiopia

In Ethiopia, the value-chain actors identified were generally similar to those in Ghana, but also included:

- Multiplication centers—these are government-owned farms that distribute DOCs, pullets, and cockerels to rural backyard farms to help alleviate poverty in the rural areas.
- Other input suppliers: National Veterinary Institute (NVI), which supplies vaccines, as well as feed processors and exporters of DOCs
  Public and private cooperatives, which provide microcredit to small-scale poultry farmers.

The participants indicated that large-scale farms provide information and advice to small-scale and backyard farmers. Large-scale farms significantly contribute to disease spread through their use of imported equipment, which may not have been disinfected, and via the importation of DOCs, which may not have been vaccinated. Large-scale farms were also identified as one of the most influential actors in terms of movement of HPAI disease risk. Similarly, the multiplication farms were also identified as high-risk actors because of the quantity of unvaccinated DOCs they supply to rural backyard farms. It might be important to note that large-scale farms may have less influence in the movement of HPAI than multiplication farms because large-scale farms directly supply live birds to their consumers while multiplication farms distribute DOCs to backyard farms, which comprise 80 percent of the poultry sector in Ethiopia. The network mapping exercise also showed that other influential actors/institutions in the spread of disease were small-scale farms, assemblers, retailers, transport facilities; followed by traders and feed processors through the exchange of infected containers of feed; and wholesalers, hotels and restaurants, and processors through the improper disposal of wastes.

In terms of communication of information, it was indicated that all poultry farmers (large, small, and backyard) receive information from the Veterinary Institute and the Faculty of Veterinary Medicine. There were also information exchanges between universities and research institutions (national or regional), and the Ministry of Agriculture and Rural Development (MoARD). Further, national and regional research institutions also provide advice and information to poultry producers' association, all poultry farmers, and NGOs.

The Net-Map showed that there were some hierarchical structures among the different institutions involved, with the most influential among them being the MoARD. It plays a very important role in disseminating information about HPAI disease risk and mitigation. It provides information to all poultry farmers (large, small, and backyard) and to poultry producers' associations. The short-term

goal of the MoARD is to prevent the introduction of HPAI in potential areas. The Chief Veterinary Officer (CVO) provides information and support to MoARD.

Kenya

In Kenya, the participants identified the following value-chain actors:

- Input suppliers (breeders, hatcheries, importers of equipment and ingredients, importers of day-old-chicks, feed millers, drug companies, agro-vet shops)
- Producers of all sizes, including integrated industrial poultry farms (with hatcheries and slaughterhouses) with high level of biosecurity; hatcheries where poultry is hatched and bred for commercial purposes; commercial poultry farms; and medium- and small-scale producers
- Collectors/traders of poultry (primary collectors, local traders, border traders, illegal traders, and retailers)
- Butcheries and slaughterhouse where live chickens are slaughtered and dressed
- Transporters who transport live birds, fresh poultry meat, and necessary inputs
- Consumers (rural and urban, supermarkets, hotels and restaurants).

The participants in the network mapping exercise identified important sources of information to be:

- Department of Veterinary Services (DVS) and its extension officers
- Local authorities—town councilors
- Media
- Poultry farmers' associations
- Poultry input providers (agro-vet shops; animal health providers)
- International research institutions/donors.

Throughout the discussion, the participants agreed that disease spread occurs mainly through direct close contact with infected birds and their by-products, feces, formites, and other means of mechanical transmission. Thus, in terms of disease spread, the group identified several critical points in the poultry supply chain where HPAI infection can occur. These critical points are mainly backyard/village level producers and live markets, followed by slaughterhouses; the most influential actors or those that significantly contribute to the spread of HPAI were identified to be primary collectors, transporters, and border and illegal traders.

In terms of the flow of information about HPAI risk, the group perceived that the most influential actor is the Department of Veterinary Services (DVS). It has the ability to reach the network without going through intermediaries. DVS is followed by the different associations such as KEPOFA, breeders associations, feed millers associations, veterinary associations, the public administration chief, local authorities, agro-vet shops, and the media. These groups of actors can serve as entry points for information dissemination about preventive measures to mitigate risk of HPAI.

Nigeria

The participants in the network mapping exercise identified the following value-chain actors as important targets for HPAI communication:

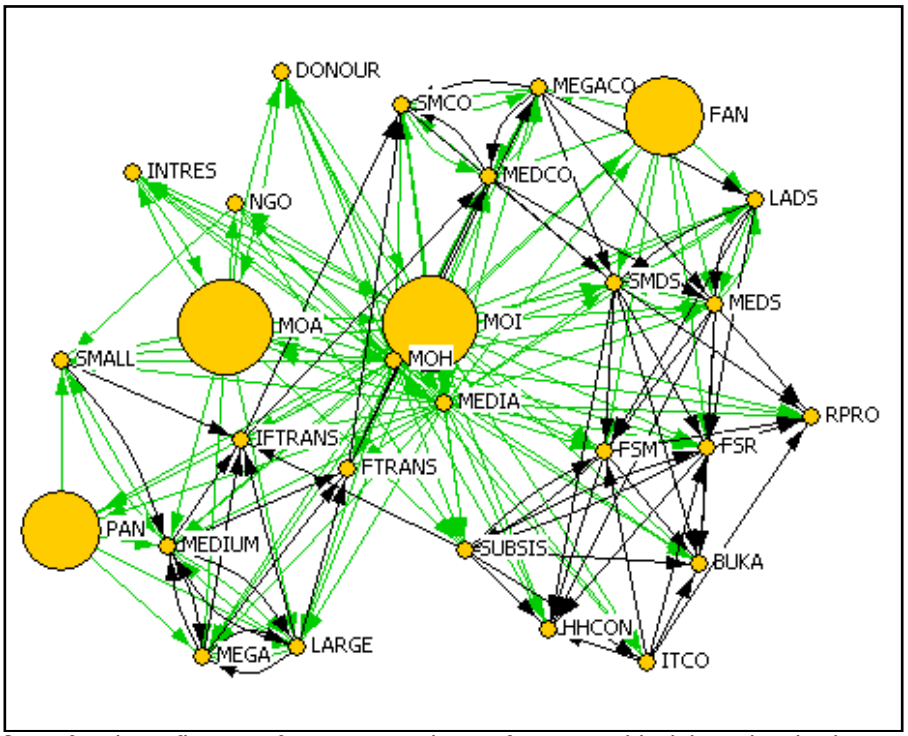
- Producers of broilers and layers, breeders, and hatcheries—of all sizes
- Formal and informal transporters
- Large, medium, and small collectors
- Distributors of all sizes, fowl sellers, processors, and different types of consumers.

The participants identified the following actors as important sources of information:

- Ministry of Agriculture (MOA), Ministry of Information, Ministry of Health
- Poultry Association of Nigeria (PAN), Fowl Sellers Association of Nigeria (FAN)
- NGOs, international donors, and international research institutions.

Two links were identified in the value-chain network: the flow of live birds and the flow of information on HPAI disease risk. For the flow of live bird markets, small- and medium-scale distributors, fowl sellers and small scale backyard subsistence/village extensive poultry keepers were found to have the most links with other actors, and hence they constitute the first entry point of surveillance for diseases such as HPAI. As for the information network, it was found that the information is generated from actors outside the value chain, mainly from the MOA and PAN, who communicate directly with the poultry producers. PAN reaches out to its members, which consists of mega, large, medium-scale producers and small-scale commercial/backyard producers; whereas MOA communicates with all poultry producers. There is some informal exchange of information between mega, large, medium-scale producers and small-scale commercial/backyard producers, but in general communication between all the other actors and the small-scale backyard subsistence/village extensive poultry keepers is very weak. FAN communicates with its members, who constitute collectors, distributors and fowl sellers. The Ministries of Information and of Health, as well as the mass media, communicate HPAI-related information to the public. Finally, MOA, MOH, international donors, and researchers communicate between each other and inform the mass media and NGOs. Overall, the most influential actors in communicating information HPAI risks were identified to be MOA and MOI, followed by PAN and FAN.

Map 2. Information flow and live bird flow



Size of node= influence of actor; green line=information; black line= live bird.

The Net-Map analysis further revealed that all actors were connected in the formal information network, revealing that if some of the actors did not communicate the information, remaining actors could still get their information from other actors in the network. Further, the media, MOI, and MOH were identified to be the actors that were closest to the others in terms of the dissemination of information, followed by MOA and FAN. Therefore, the media, MOI, MOH, MOA, and FAN were identified as the most efficient and effective actors for disseminating information.

Channels for Communicating Research Findings

According to the Net-Map participants in Ghana, Nigeria, Ethiopia, and Kenya, research findings should be communicated as follows:

- In Ghana, all research should go to MOFA first, and should be presented in the form of comprehensive written reports and briefs. MOFA is then responsible for the broad distribution of information in the form of posters, fliers, letters (formal communication) to stakeholders, and for conveying findings to other public institutions such as MOH and research organizations. District Assemblies (as well as local governments) should also be informed, as they disseminate information widely and communicate with MOFA. Farmers' associations should also be informed.
- In Nigeria, all research should go to MOFA and the MOI first, and should be presented in the form of comprehensive reports as well as short briefs. These institutions are responsible for the broad distribution of information in the form of posters, fliers, and letters to relevant stakeholders. Multistakeholder workshops should be organized to share findings with the stakeholders.
- In Kenya, research findings should be channeled first through the DVS, and then to different associations and farmers.
- In Ethiopia, research findings should be channeled through the MoARD through its regional, provincial, and *wereda* extension officers. Research documents should concentrate on results and policy implications. Multistakeholder workshops should be organized every six months to provide updates on research and findings and disseminate information to stakeholders and farmers' associations.

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