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## Upgrading Village Chicken Value Chains in Ghana: an Application of Spatial Group Model Building

DOLAPO ENAHORO<sup>1</sup>, CHARLES MENSAH<sup>1</sup>, GREGORY COOPER<sup>2</sup>, KARL MATTHEW RICH<sup>1</sup>

<sup>1</sup>*International Livestock Research Institute (ILRI), Policies, Institutions and Livelihoods, Ghana*

<sup>2</sup>*University of London, Centre for Development, Environment and Policy, United Kingdom*

### Abstract

While village chicken production holds much promise for improved incomes, reduced poverty, and better household nutrition among poor households across Africa, the value chain associated with this poultry sub-sector is hampered by low productivity, the lack of market opportunities, and weak buyer-supplier linkages, among others. These constraints limit the potential for smallholder chicken producers to seize opportunities presented by the growing consumer demand for poultry products in rural and urban areas. Improving the sector and its competitiveness will require approaches that increase production efficiency, reduce retail prices, and maintain good quality of products. Our study investigated the role of aggregation systems for improving efficiency of local chicken value chains and local nutrition, focusing on high chicken-producing areas in Northern Ghana. By consolidating the collection of farm produce at farm-gate, aggregation systems could significantly reduce the marketing costs that farmers would otherwise face in selling products to local markets. Our study applied a systems-thinking approach to investigate whether system characteristics of the village chicken sector are amenable to innovative and nutrition-sensitive marketing programs, identifying potential bottlenecks to uptake. Our method of qualitative system mapping employed innovative adaptations of participatory processes known as group model building to account not only for spatial attributes of the system under investigation, but for challenges associated with in-person focus groups due to Covid-19. A novel, hybrid offline and online approach facilitated interactions with stakeholders in both asynchronous fashion and through targeted, short virtual sessions. A key result emerging from the process was that strong interconnectedness and feedbacks within the system ensure that it may not be possible to improve production quantities and qualities alone (e.g., via the introduction of productivity-enhancing technology), without considering the various constraints imposed by local livelihoods, diseases dynamics (such as Newcastle disease), and marketing processes. As such, policymakers should not expect to be able to simultaneously commercialise the local chicken value chain and improve the availability of produce within local markets without intervening at multiple points within the food system. Our study also gave interesting highlights on facilitating group model building processes in low-resource agricultural systems without the benefit of in-person interactions.

**Keywords:** Ghana, poultry, spatial group model building, system mapping, value chains