



**Theory of change for the
chicken value chain in Tanzania,
developed for the CGIAR Initiative
Sustainable Animal Productivity
for Livelihoods, Nutrition and
Gender Inclusion**

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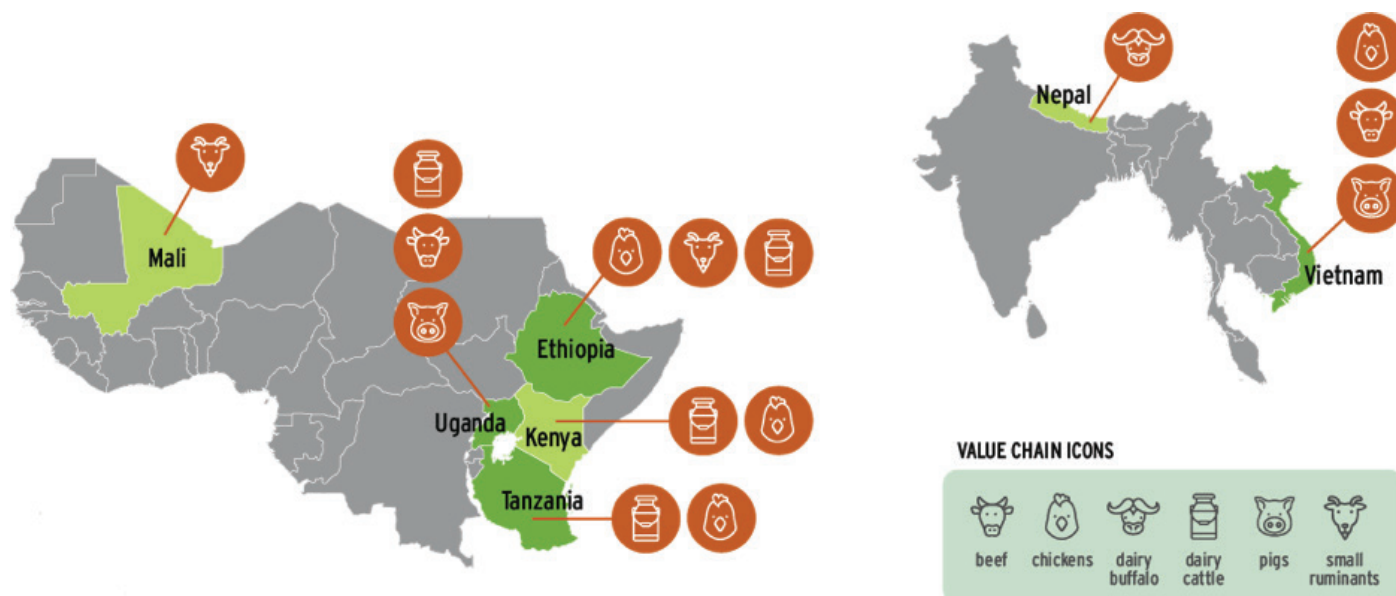
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1 The SAPLING Initiative

The CGIAR Sustainable Animal Productivity for Livelihoods, Nutrition and Gender Inclusion ([SAPLING](#)) is an initiative that focuses on sustainable animal productivity. This initiative aims to contribute to transforming livestock sectors in target countries to make them more productive, resilient, equitable and sustainable (see Box 1 on how this objective will be achieved).

The initiative is working in seven countries located in East Africa (Ethiopia, Kenya, Tanzania, Uganda), West Africa (Mali), Southeast Asia (Vietnam) and South Asia (Nepal) on a total of 15 livestock value chains (Figure 1). Within the One CGIAR, SAPLING is mapped to the action area [Resilient Agrifood Systems](#).

Figure 1: SAPLING focal livestock value-chains, which number 15 in total, across seven countries (Ethiopia, Uganda, Kenya, Tanzania, Mali, Nepal and Vietnam) and six livestock types (beef cattle, chicken, dairy buffalo, dairy cattle, pigs and small ruminants).



From: <https://cgspace.cgiar.org/handle/10568/128150>

Box 1 SAPLING's objective will be achieved through five work packages:

Technologies and practices for sustainable livestock productivity: developing, adapting and testing new and existing productivity- and resilience-enhancing, low-emission, scalable technologies and practices across the three main pillars of livestock productivity: improved feeds, animal health products and genetics (Work package 1).

Innovations and practices for safe consumption of livestock-derived foods as part of diverse diets: co-creating innovative models and approaches for social and behaviour change communication (SBCC) and testing, and evaluating approaches for incentivizing market actors to enhance the supply of safe, nutritious and affordable livestock-derived foods (Work package 2).

Sustainable livestock productivity for gender equity and social inclusion: understanding constraints and opportunities, identifying best-bet entry points, addressing constraints, and developing tools to measure progress (Work package 3).

Competitive and inclusive livestock value chains: generating evidence on institutional arrangements and technical interventions to transition towards more profitable, inclusive and sustainable livestock value chains (Work package 4).

Evidence, decisions and scaling: generating and consolidating evidence, models and tools to support public and private decision-making for a sustainable and inclusive livestock sector (Work package 5).



2 The chicken value chain in Tanzania

2.1 Overview

Smallholder farmers in 86% of rural households in Tanzania keep about 75 million chickens, equivalent to 85% of the total production (NBS, 2021). Poultry production supports the livelihood of not only smallholder farm families through nutrition, income and manure for crops, but also other actors along the value chain, such as input suppliers, traders, and processors. In addition, chicken farming supplies eggs and meat to non-agricultural rural and urban households. Chickens can enhance women's empowerment because they often own the chickens and control income generated from the sale of chicken products (Mulema et al., 2018). Women's ownership of livestock products also improves consumption and household nutrition (Mishkin et al., 2018).

Despite its multidimensional contribution to the livelihood of resource-poor households, chicken productivity at the smallholder level is quite low (Birhanu et al., 2021). Chicken production is constrained by the limited genetics of indigenous chickens and intermittent access to improved breeds, low availability of formulated quality feed, and high mortality, especially where access to key vaccines and basic livestock health services is restricted. This low productivity and high mortality can be attributed to poor poultry-keeping practices and technologies due to a lack of access to extension support and financing, limited engagement with private agribusiness sector actors, and the lack of critical links to offtake markets. Enhancing the productivity of the smallholder poultry production system thus demands integrated interventions at the farm and value chain levels. At the farm level, this includes improving access to improved

genetics, feed, health inputs and services; as well as enhancing the policy and institutional environments and capacity building. These areas have since 2015 received support from the Tropical Poultry Genetic Solution (TPGS) but require further strengthening. Further interventions are needed to identify additional locally adapted farmer-preferred breeds for genetic improvement and establish multiplication and distribution systems to enable more farmers to access improved chicken breeds. Evidence from the previous interventions by the African Chicken Genetic Gain (ACGG) project and TPGS demonstrates significant potential for productivity gains and improved livelihoods, especially for women who dominate chicken farming.

Above all, interventions targeting the commercialization of smallholder backyard chicken production are paramount as a promising mechanism for improving productivity and livelihoods in rural areas where production is still predominantly pre-commercial. Currently, the participation by livestock keepers in input and service markets is limited and even declining, going by the recent agriculture census that shows only 9% of livestock keepers accessing extension services, down from 55% a decade ago (NBS, 2021). This trend needs to be reversed. Opportunities for reversal include supporting agribusinesses that provide not only important linkages for the sale of animal products but also as suppliers of much-needed productivity-enhancing technologies. Some of the major current limitations to private sector growth include a lack of knowledge and coordination among actors. Business training of actors and coordination have been shown to significantly increase the probability of success for start-ups and established businesses (e.g., Klinger and Schündeln, 2011), especially when the teaching emphasizes effectuation and "personal initiative" (Campos et al. 2017). Moreover, the growing demand for livestock

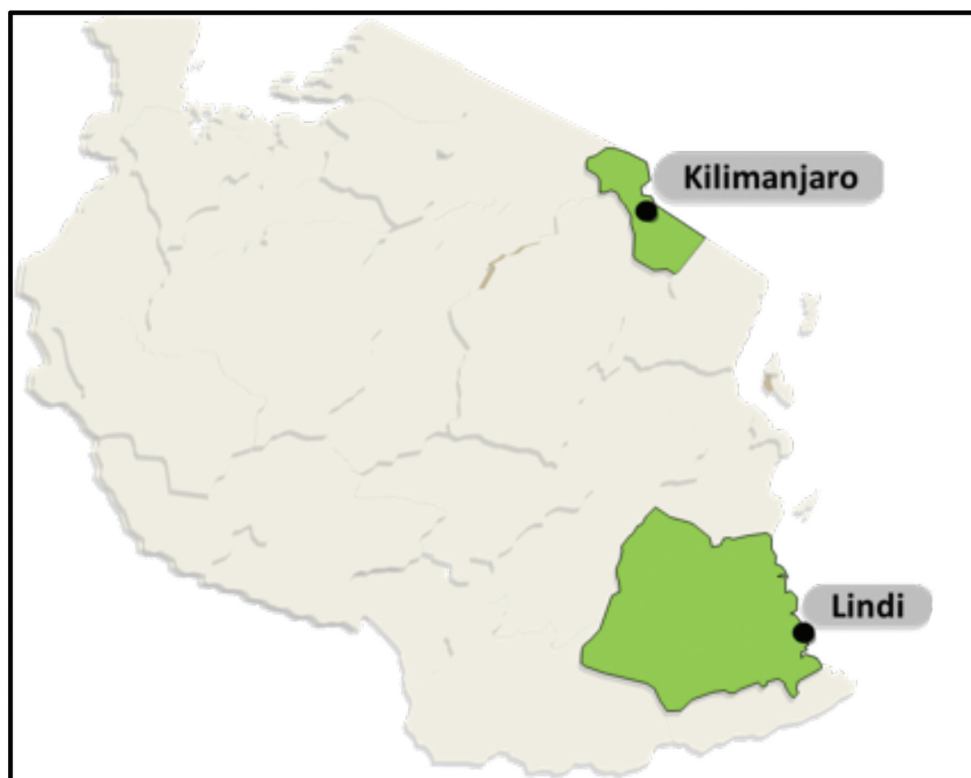
products in Tanzania (Michael et al., 2018) and sub-Saharan Africa in general is making agribusinesses more viable and attractive for employment creation (Tschirley et al., 2015).

2.2 Sites

Two sites, namely, Kilimanjaro and Lindi regions and two districts within each region were selected for the chicken value chain through stakeholder

consultation using criteria such as the need to align with ongoing development projects that could facilitate the uptake of technology packages, district commodity value chain priority, conducive agro-ecology, accessibility, and growth potential. The SAPLING target sites for the chicken value chain within each region are as follows: Siha and Hai districts in Kilimanjaro region, and Mtama and Ruangwa districts in Lindi region (Figure 2).

Figure 2. Chicken value chain sites in Tanzania.



2.3 Key value chain research questions

The key chicken value chain research questions:

1. Which tropically adapted improved chicken breeds and traits have more impact on smallholder farm productivity and household incomes, how and why?
2. What capacities among farmers need strengthening to increase uptake of improved poultry breeds and technology packages?
3. Under which conditions can empowered agribusinesses enhance the uptake of technology packages compared to direct project implementation?
4. How does agribusiness incubation/acceleration/mentorship crowd in competitive and efficient agribusinesses and lead to more competitive smallholder poultry farmers?
5. Under what conditions can the consumption of poultry among farm families, schools and communities be enhanced?

Note: The “conditions” in questions 3 and 5 include using digital platforms, skills training, business models, incentives, policy, and institutional enablers for the uptake of improved chicken breeds, innovations and increased consumption.

Key partners are hatcheries (Silverland Ltd, Interchick Ltd, AKM Glitters Ltd, Mkuza Ltd), [Kuza Biashara](#), the Tanzania Livestock Research Institute (TALIRI), and local government agencies in respective sites.



3 Theory of change (ToC) overview

Since past research has shown that successful livestock development requires integrated packages of productivity enhancing technologies and innovations along the value chain and in the enabling environment, SAPLING organizes its outputs not as individual “silver bullets” but rather in innovation packages—*combinations of interrelated innovations and enabling conditions that, together, can lead to transformation and impact at scale in a specific context*¹—that target specific sets of inter-related, context-specific opportunities and constraints.

SAPLING chose to develop theories of change (ToCs) at value chain (VC) level to demonstrate how the outputs of SAPLING’s Work Packages come together

in Innovation Packages to contribute to outcomes on the ground. ToCs were initially developed in participatory workshops with stakeholders and later updated to reflect changes in programming, to clarify and firm up the underlying logic—via specification of sub-pathways—and to increase consistency across value chains. Click [here](#) for information on the stakeholder workshop that initiated the development of the ToC for the chicken value chain in Tanzania (Omore, A.O. 2022). Going forward, regular review and updating is planned as part of program management and monitoring, evaluation, learning and impact assessment (MELIA). For more information on how the value chain ToCs fit into the overall SAPLING monitoring, evaluation and learning plan, see the [SAPLING MEL Brief](#).

Annex 1 provides additional information on the elements included in the ToC.

1. Definitions from CGIAR [MEL glossary](#) unless otherwise noted.

4 Theory of change for the chicken value chain in Tanzania

Figure 3. Theory of change for the chicken value chain in Tanzania indicating innovation packages (IPs), immediate outcomes (IOs), and end of initiative (Eol) outcomes in boxes. Linkages to work-package (WP) outcomes are presented in the other outcome boxes. See Annex 2 for full details of all SAPLING outcomes.

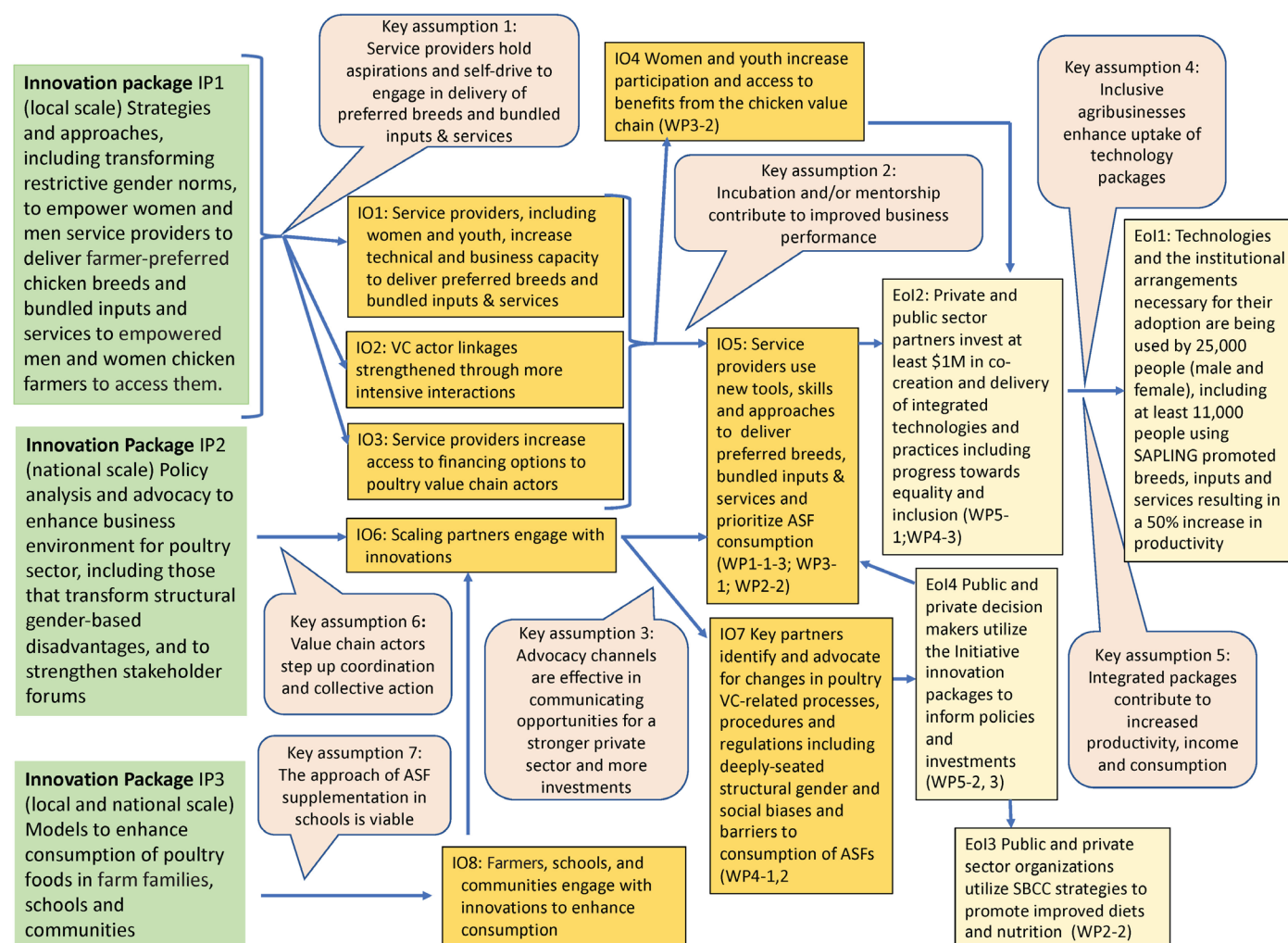


Figure 3 presents the ToC of the chicken value chain in Tanzania with target values determined as given [here](#). It contains three sub-pathways. The first focuses on the local scale and targets farmers and value chain actors, especially service providers to farmers. The second pathway focuses on policy influence at the national scale, targeting poultry forums and the business environment. The third pathway focuses on models to enhance consumption at both local and national levels. While the three pathways are mutually reinforcing, especially in the longer run, it is useful to describe them separately to make it clear how SAPLING expects early interactions and outcomes to occur.

The **first sub-pathway**, linked to the Innovation Package 1 (IP1), has improved backyard chicken breeds as the core technology. Around this are strategies and approaches to empower service

providers to deliver the preferred chicken breeds, bundled inputs and services to empowered chicken producers, and nurture an enabling environment, all developed with attention to gender and inclusion (see Box 2). The gender and social inclusion aspects entail specific strategies and approaches to empower women and men service providers to deliver preferred breeds and bundled inputs and services to men and women chicken producers, including approaches to transform restrictive gender norms.

IP1 has two threads of interventions targeting farmers. The first is via agripreneurs providing inputs and services to promote technology uptake at the farm level. This is referred to as inputs and service provider-mediated interventions. The second is through direct implementation at the farm. These threads are further elaborated below.

1. **Agripreneur-mediated interventions targeting poultry farmers:** The thread rests on recognizing that sustainable improvements in farm-level poultry productivity need stronger involvement of agribusinesses that can profitably provide inputs and services. This requires strengthened capacity and innovations that ensure profitability and equity for all actors. Creating an enabling entrepreneurship approach targeting individual agripreneurs providing farm inputs and services as part of a broader ecosystem enabled by a digital platform can support him/her to thrive (Stam, 2015). This approach can complement existing public extension and, more importantly, sustainably address the ongoing decline in participation by livestock keepers in input and service markets.
2. **Direct implementation at poultry farms:** This thread refers to the direct implementation of interventions by the project. It aims to empower farmers directly through awareness creation and capacity building related to improved chicken breeds and other required inputs such as feeds and vaccinations. Considering lessons from the previous ACGG project, capacity will focus on enhancing farmers' access to a package of technologies for both the production and marketing of promising tropically adapted chicken breeds (Birhanu et al., 2022). Testing the suitability of the breeds and related innovation packages under local on-farm conditions will generate the required evidence on farmer preference, growth, egg production as well as the technical and economic feasibility of keeping different flock sizes across different geographies and agroecology. Farmers will be organized into groups and trained on basic chicken management and husbandry practices and linked with inputs and service providers. The efforts will build on the work previously done by the Naliendele Livestock Research Centre of TALIRI that identified the local Horassi chicken breed for improvement.

IP1 is expected to improve the knowledge and technical, business, and entrepreneurial skills of farmers and service providers (IO1); to enhance networking to strengthen linkages among actors all along the VC (IO2), and to inculcate business acumen and discipline among fledgling agripreneurs to enable them to develop bankable ideas and business plans that can attract financing (IO3). As a result, women and youth are expected to increase

their ability to access opportunities in chicken value chains (IO4), leading to private and public sector partners' investment in the co-creation and delivery of integrated technologies and practices, thus guiding progress towards gender equality and inclusion. Also, through the channels of (IO1), (IO2) and (IO3), service providers will use their new skills, tools and approaches to deliver preferred chicken breeds and bundled technology packages to producers (IO5). The increased participation of women and youth in chicken VC (IO4) and service providers will use new skills, tools and approaches to deliver integrated technology packages to producers (IO5). This will result in investment by the private and public sector partners of at least USD 1M in co-creation and delivery of novel, demand-driven, gender and youth inclusive, and productivity enhancing technologies (EOI2). SAPLING-related technologies and the institutional arrangements (including markets) necessary for their adoption are expected to be taken up by 25,000 people (male and female), including at least 11,000 people using SAPLING-promoted improved forage and food feed crops, resulting in a 50% increase in productivity (EOI1).

Several assumptions underlie the logic of the **first sub-pathway**. The first is that service providers including women and youth hold aspirations and self-drive to engage in delivery of bundled inputs and services. Second, within this pathway is that incubation and/or mentorship contribute to improved business performance. Within the same pathway, the third assumption is that inclusive agribusinesses enhance uptake of technology packages by producers and lastly, that integrated packages contribute to increased productivity, income and consumption among producers. Impact evaluations are planned to test these assumptions.

The **second sub-pathway**, linked to the Innovation Package 2 (IP2), recognizes the important role that policy often plays in achieving and maintaining sustainable, equitable improvements in productivity, profitability and transformation along the value chain. IP2 (see Box 3) inform advocacy efforts for more coordination, inclusive and gender transformative investments, an enabling business environment, and for supportive/appropriate regulatory frameworks for service providers including formalization/certification of agribusinesses and inputs. This IP will also develop and implement media campaigns to promote uptake of technologies at national scale along with campaigns targeted towards gender transformative change aimed at structural gender-based disadvantages.

Key to achieving outcomes along this pathway is working with select scaling partners. Therefore, it is essential that these partners engage actively with SAPLING (IO6). While this engagement can result in scaling partners promoting the innovation packages themselves (see a link to IO5 in the first pathway), it is also expected that they will be powerful advocates for policy change (IO7), ultimately contributing to the use of innovation packages to inform policy and investment (EOI4). Over time, these changes are expected to improve the business environment for poultry sector development, thus encouraging investment by service providers and other VC actors.

A key assumption underlying this pathway is that value chain actors step-up coordination, SAPLING advocacy channels are effective in communicating opportunities for a stronger private sector and more investments. Knowledge, attitude, and practice surveys will be conducted to identify the contributions of SAPLING's communications and advocacy to influencing change.

The **third sub-pathway**, linked to the Innovation Package 3 (IP3), focuses on models to enhance consumption of poultry foods in farm families, schools and communities in rural areas, to improve nutrition. IP3 involves introducing model poultry production demonstration farms at selected primary schools to promote small-scale poultry production and animal-source food consumption in school feeding programs and promoting improved poultry product consumption through integrated nutrition education in rural and urban areas (Box 4). A model poultry farm

is expected to be established in one primary school to promote one-egg-per-day-per-child consumption as part of the school feeding program. Improved vegetable production is an integral part of this innovation that uses the manure from the poultry farm as a fertilizer. Tailored nutrition education and training on improved poultry husbandry practices are also provided to children in the pilot schools. The impact of the intervention on the nutritional status of school-age children will be evaluated.

Key to achieving outcomes along this pathway is for farmers, schools and communities to engage with the innovation to enhance consumption (IO8), working with select scaling partners in the IO6. While this engagement can result in scaling partners promoting the innovation packages themselves (see a link to IO5 in the first pathway), it is also expected that they will be powerful advocates for policy change (IO7), ultimately contributing to the use of innovation packages to inform policy and investment (EOI4). Over time, these changes are expected to improve the business environment for poultry sector development, thus encouraging investment by service providers and other VC actors.

A key assumption underlying this pathway is that the approach of animal source foods supplementation and poultry foods specifically, in schools is viable. Secondly, it is assumed that SAPLING advocacy channels are effective in communicating opportunities for a stronger private sector and more investments. Knowledge, attitude, and practice surveys will be conducted to identify the contributions of SAPLING's communications and advocacy to influencing change.

Box 2. IP1. Strategies and approaches, including transforming restrictive gender norms, to empower service providers to deliver farmer-preferred chicken breeds and bundled inputs and services to empowered men and women chicken producers to access them.

Key innovations from work packages 1, 3, 4 and 5 include:

- Expanded range of farmer-preferred improved chicken breeds and bundled inputs
- Capacity building/incubation of women and agripreneurs on delivery of bundled services via the "one network ecosystem" described above.
- Capacity building of women and men poultry farmers by incubated agripreneurs on productivity enhancing husbandry practices and technologies.
- Strengthened agripreneur incubation package, including components on gender responsiveness, bundled inputs and services, and use of the one network ecosystem, followed by agripreneurs induction and incubation.
- Women and men chicken agripreneurs incubated under the package described above.
- Strengthened "one network ecosystem" linked to service providers, for delivery of bundled technologies.
- Behaviour change communication (BCC) for gender transformative change, including more equitable engagement in, and benefit from, agribusiness.
- Implementation of the BCC campaign for the promotion of gender transformative change.

Box 3. IP2. Policy analysis and advocacy to enhance coordination among actors and business environment for poultry sector.

Key innovations in this IP come from WPs 1, 3, 4, and 5:

- Evidence-based recommendations for communities and policymakers to overcome gender barriers.
- Advocacy to policymakers and investors on the recommendations for a supportive/appropriate environment for service providers.
- Strengthened platforms and forums for poultry linked to service providers, for delivery of bundled technologies.
- Roadmap for capacity development for actors involved in improving poultry value chain.
- Advocacy for more investments for scaling of innovations.

Box 4. IP3. Models to enhance consumption of poultry foods in farm families, schools and communities.

Key innovations in this IP come from WPs 1, 3, 4, and 5:

- Model for school-feeding programs to increase consumption of poultry foods among school-going children and local communities based on school-managed production farms.
- Training on human nutrition, including animal source foods, targeting smallholder chicken keepers.
- Farmer-friendly digital application to enhance human nutrition from consuming animal-source foods.
- Model poultry production farms with integrated vegetable production in selected schools.
- Training package on poultry farm management practices to the school community.

Next steps

ToCs are living documents that should be developed and updated in response to concrete programmatic needs. Detailed ToCs were originally developed in participatory workshops with partners as part of co-designing SAPLING. The revisions presented here were intended to clarify that logic, enhance consistency across ToCs, and make more explicit the links to program-level MELIA. Future revisions,

which are expected to occur annually, will depend on what is most useful for Tanzania. They could focus in more detail on specific sub-pathways, especially where there are still questions in the logic. They could also focus on identifying indicators and plans for tracking them at VC level to complement Initiative-level monitoring. As results emerge and experiences are gained in VCs, the ToC should be updated, and appropriate changes made in overall program planning.

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Annex 1. Elements included in the ToC

The ToC includes three standard elements: outputs (Innovation packages), outcomes and assumptions. CGIAR defines an outcome as “a change in knowledge, skills, attitudes and/or relationships, which manifests as a change in behavior in particular actors, to which research outputs and related activities have contributed.” In these ToCs, immediate outcomes (IOs) are initial changes in things like awareness and capacity that occur among next-users of the innovation packages. End-of Initiative outcomes (Eols) are outcomes that occur further along the pathway and reflect changes in behavior among target actors and, in some cases, the consequences of that behavior such as increases in productivity or the value of investments. Eols are the same across all ToCs while the immediate outcomes that lead to them are context specific. In order to see the whole VC ToC in a single diagram, multiple similar outcomes are grouped together in a single IO or Eols. These could be unpacked in a series of nested ToCs if further detail on sub-pathways is needed.

Just as Innovation packages combine innovations from different Work Packages, IOs and Eols combine expected outcomes of different Work Packages that

were specified in SAPLING’s results framework. As expected, the mapping of WP to ToC outcomes (IO and EOs) is not one to one; for example, use by value chain actors of a gender-aware business model can contribute to expected outcomes of work package 3 (strategies and approaches for enhancing gender equity and social inclusion) and work package 4 (evidence and approaches for strengthening competitive and inclusive livestock value chains). In Figure 1 each IO or Eol notes the WP outcome(s) to which it maps. Being explicit about how the different types of outcomes relate to each other is intended to facilitate use of the ToC for program-level monitoring and learning and avoid confusion and duplication.

Assumptions are “hypotheses about factors or risks which could affect the progress or success of a development intervention... It is useful to distinguish between: (i) theoretical assumptions, about how the intervention is expected to contribute to a process of change based on facts, and, (ii) contextual assumptions, about current conditions and the trajectory and risks that could affect the progress or success of a development intervention.” While both types of assumptions are important, these ToCs focus on key theoretical assumptions since these are the ones that programs address as part of their research programs, investing resources to understand and test them.

Annex 2. Initiative and work-package level outcomes from the SAPLING results framework

| Outcome code (EOI – end of initiative; WP = work package) | Outcome |
|---|--|
| EOI1 | Co-created, demand-driven innovation packages of productivity- and resilience-enhancing, low emission technologies and the institutional arrangements (including markets) necessary for their adoption are being used by 800,000 people (male and female), including at least 100,000 people using SAPLING-promoted improved forage and food feed crops, in households keeping cattle, chickens, small ruminants, pigs and buffalo in Ethiopia, Kenya, Tanzania, Uganda, Mali, Nepal and Vietnam, resulting in a 30–50% increase in livestock productivity |
| EOI2 | Private and public sector partners invest at least USD 30 million in co-creation and delivery of novel, low-emission, demand-driven, gender and youth inclusive, and productivity enhancing technologies and practices for genetics, feed/forages and health |
| EOI3 | Six public and private sector organizations utilize initiative-developed social behaviour change communication strategies, tools or campaigns targeted at incorporating safe livestock-derived foods into diverse diets to inform nutrition education strategies and/or campaigns |
| EOI4 | Public and private decision-makers utilize the initiative’s innovation packages to inform policies and investments in Ethiopia, Kenya, Tanzania, Uganda, Mali, Nepal and Vietnam towards an inclusive and sustainable livestock system, including progress towards equity and inclusion |
| WP1-1 | Public and private sector value chain actors use promoted genetic improvement programs in smallholder systems, built on the needs and preferences of livestock keepers in seven countries, and incorporating information and communications technology as well as genomic and reproductive technologies as appropriate |
| WP1-2 | Development partners as well as the public and private seed sector use, promote and commercialize improved forage and food-feed crops, and feed companies employ prioritization approaches to improve feed options and reduce livestock feeding gap |
| WP1-3 | Animal health system actors in seven countries promote and use tools and technologies (herd health packages and disease control) to reduce disease burden |
| WP2-1 | Government and development practitioners take up the decision support tools to diagnose and prioritize livestock-derived foods in food and nutrition interventions |
| WP2-2 | Government and development practitioners support and promote social behaviour change communication and market-related innovations that enhance affordability and safety of livestock-derived foods |
| WP3-1 | In four selected countries, policy, the private sector and the development community acknowledge gender- and youth-based discrimination in livestock value chains and co-develop strategies to close the gender and age gap |

| Outcome code (EOI – end of initiative; WP = work package) | Outcome |
|---|--|
| WP3-2 | Community and household members in selected livestock value chains adopt gender-transformative approaches and show more gender-equitable behaviour to enable participation and benefitting from livestock assets and opportunities |
| WP3-3 | Scientists, practitioners and extension agents in animal health, feeds and forages, genetics and environment collaborate with gender scientists to generate gender- and youth-responsive livestock innovation bundles |
| WP4-1 | Government and development practitioners support new business models and interventions that ensure improved competitiveness of the livestock value chains |
| WP4-2 | Government and development practitioners support and promote SAPLING innovation packages |
| WP4-3 | Market actors invest in profitable and inclusive business models promoted by SAPLING, which provide transparent and efficient markets |
| WP5-1 | Value chain actors are adjusting their investments and practices based on prioritization, trade-off and/or scaling readiness analysis |
| WP5-2 | Public and private decision-makers utilize Initiative-developed tools and recommendations to inform policies and investments in the seven focus countries and beyond (scaling) |
| WP5-3 | Researchers and decision-makers have access to and use improved analytical tools (environmentally and gender-sensitive), evidence and processes to guide livestock master plans (LMP) |



INITIATIVE ON

Sustainable Animal Productivity

CGIAR's Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING) is working in seven countries focusing on livestock value chains to package and scale out tried-and-tested, as well as new, innovations in livestock health, genetics, feed and market systems. SAPLING aims to demonstrate that improvements in livestock productivity can offer a triple win: generating improved livelihoods and nutritional outcomes; contributing to women's empowerment; and, reducing impacts on climate and the environment. Its seven focus countries are Ethiopia, Kenya, Mali, Nepal, Tanzania, Uganda and Vietnam.

