Results Strategy Framework and Intermediate Development Outcomes (IDOs)

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Program strategic goal

The Livestock and Fish (L&F) CGIAR Research Program aims to sustainably increase the productivity of small-scale livestock and fish systems to increase the availability and affordability of animal-source foods for poor consumers for improved nutrition and food security and, in doing so, reduce poverty through greater participation by the poor along the whole value chains for animal-source foods (**Figure 1.**). Over a 10-year horizon, the program is committing to deliver impact to over 500,000 households in the target value chains. The following sections explain the logic in Figure 1.

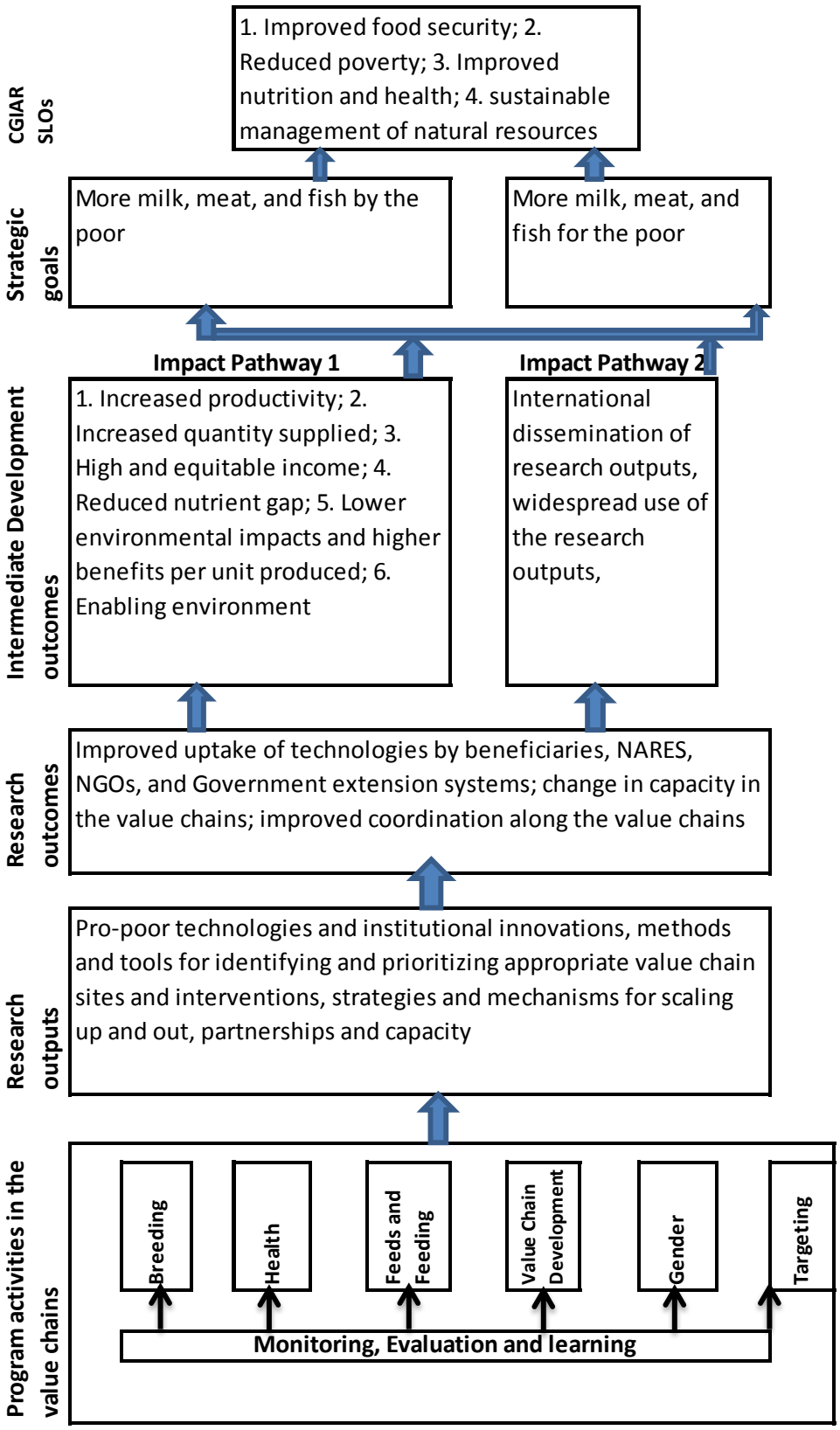
Program impact pathways

The overall program strategic goal will be achieved through 2 impact pathways: 1) delivery through value chains and 2) delivery through production of International Public Goods (IPGs).

1) The value chain impact pathway

By building strong and sustainable partnerships and capacity for generating evidence of pro-poor and gender-responsive technological and institutional innovations, methods and tools for prioritizing value chain sites and interventions, and mechanisms for scaling-up and scaling-out, the L&F program will prepare the implementation of large-scale development interventions that translate research results into pro-poor and gender-responsive transformation of selected value chains. The program's strategy sees the selected value chains as "innovation labs". From the start, the program will work closely with both research and development partners in an AR4D effort to design the large-scale interventions and in doing so, establish an evidence base demonstrating how the intervention will lead to improved value chain performance, enhanced equity of the distribution of the benefits of that improved performance, improved capacity of value chain actors, and greater uptake of innovations. The combination of this evidence base, the capacity established among development partners to implement the intervention and an intentional strategy to mobilise the needed development funding will allow the intervention strategy to be deployed at scale in the target value chains, providing the mechanism by which the intermediate development changes (**Intermediate Development Outcomes: IDOs)** will be achieved. The IDOs identify the key features of the value chain that the research is intended to enhance: increased productivity of livestock and fish production systems, increased quantity supplied of targeted animal-source foods (ASFs), a more equitable gender distribution of income and other benefits from the value chains across value chain actors-including for women and

Figure 1: A Livestock and Fish (L&F) CGIAR program Results Strategy Framework



other marginalized groups, a reduction in the nutrient gap, lower impacts on the environment, and an enabling policy environment. These achievements then progressively contribute to broader impacts at the system-wide level in terms of food and nutrition security, poverty reduction, and sustainable management of natural resources. The proof-at-scale will be replicated and generalized with additional development investments, encouraged by influencing development policy more widely.

Key assumptions that inform the program's theory of change**:**

- Addressing whole value chain will improve relevance, uptake and effectiveness of innovations.
- Focus and targeting will increase efficiency and the probability of achieving proof at scale.
- Implementation of demand-driven innovations in the right value chains with the right partners will accelerate the program's progress towards achieving outcomes and impact.
- A significant number of pre-commercial smallholders can become market-oriented and intensify production sustainably.
- Pro-poor value chains can compete and generate sufficient incentives to promote investment in intensification.
- The poor rely on animal-source food produced locally by smallholders and from less formal marketing channels.
- The poor will consume more ASF if availability, access and affordability of products improve from those systems.
- Increased and equitable consumption of ASF will improve nutrition and health.

Key risks that will require strategies to mitigate**:**

- Focusing on a few value chains might limit geographical spread of research benefits.
- Social inequalities bar women and other marginalized groups from taking up innovations, limiting achievement of outcomes at scale.
- High transaction costs of managing a complex network of partnerships.
- Income and gender inequalities are exacerbated due to program implementation.

2) The International Public Goods (IPG) impact pathways

This pathway represents the more conventional process by which research results are expected to translate into uptake and impact more widely. The knowledge and innovation created to find solutions to the constraints in the program's selected value chains will apply to constraints and the scientifically driven development process more generally. This will be achieved through targeted dissemination of results through publications, social and mass media, etc. to provide sufficient supporting evidence and platforms for widespread promotion (at the global scale) of the technologies. In addition, the program will seek to build the capacity of "next users" such as the NARES, NGOs, Civil Society Organizations and public and private service providers in countries outside of the selected value chains, and so accelerate downstream testing and adaptation of research outputs. L&F will specifically engage with key partners in disseminating its research for development outputs and ensuring they are widely accessible and used. The program will also develop a strategy for targeting specific messages and channels to influence policy makers, especially those who

determine development investments, to promote wider deployment of the program's proven interventions. Improving international access to and use of program outputs will eventually, over the 10-year horizon and beyond, contribute to the desired system level changes in food security, nutrition, poverty, and sustainable management of natural resources.

Key assumptions

- Work on localized solutions can generate regional and global public goods.
- Focus and targeting will increase the probability of achieving proof at scale.
- Implementation of appropriate innovations in the right value chains with the right partners will accelerate the program's progress towards achieving outcomes and impact.

Key risks

- Focusing on a few value chains might limit geographical spread of research benefits.
- High transaction costs of managing a complex network of partnerships.

Intermediate Development Outcomes

The program has 6 **Intermediate Development Outcomes (IDOs)** listed in the table below, all of which will be achieved through the value chain impact pathway and which rely on the program's research outcomes. The IPGs impact pathway will build on the achievements in the targeted value chains and prepare more widespread second generation development outcomes. All IDOs and their links with the SLOs are described in Table 1.

Table 1: Livestock and Fish CRP Intermediate Development Outcomes (IDOs)

IDO	Notes
#1 Increased livestock and fish productivity in small-scale production systems for the target commodities (SLO2)	This reflects the considerable investment in research under the CRP to improve technologies related to livestock and fish productivity drivers: health, genetics and feeds. Could be captured in an aggregate productivity target (e.g. cost per unit of commodity), or in individual productivity measures (e.g. increased milk production/cow)
#2 Increased quantity and improved quality of the target commodity supplied from the target small-scale production and marketing systems (SLO2)	Enhancing food security is a key objective and is a product of both improved productivity at farm-level and a well-functioning value chain. Targets will be developed based on a combination of expected productivity gains across different social groups, food safety indicators and density of production in our target markets. Key indicator would be total production per capacity of the commodity
#3 Increased employment and income for low-income actors in the target value chains, with an increased share of employment for and income controlled by low-income women (SLO1)	The CRP also seeks to reduce poverty through the income generation opportunities created within the target value chains. Targets to be set based on planned participation levels. Gender enters both in terms of participation in the value chain and targeting of consumption of the value chain products. These targets focus on the nature of participation of women in the value chains.

	Key indicator: income generated by the commodity through the value chain, disaggregated by gender
#4 Increased consumption of the target commodity responsible for filling a larger share of the nutrient gap for the poor, particularly for nutritionally vulnerable populations (women of reproductive age and young children) (SLO3)	The CRP proposal highlighted the nutritional benefits of the target commodities and anticipated research to ensure these benefits would be done under A4NH (CRP4). Since then, the CRP has recognized that it needs to play a more active role and so proposes reflecting this as an IDO. A preliminary nutritional analysis will be required to understand the appropriate form of targets to adopt. Key indicator could be consumption in the targeted subpopulations, individual dietary diversity index, or micronutrient status.
#5 Lower environment impacts per unit of commodity produced in the target value chains (SLO4)	Improving productivity and value chain efficiency will contribute to reduce the pressure on natural resources (e.g., use of fodder, improved grazing management, vaccines replacing acaricides, more efficient use of crop residues, management of excreta, more efficient use of water), and help reduce the emission of GHG per unit of product (key indicator).
#6 Policies (including investments) support the development of small-scale production and marketing systems, and seek to increase the participation of women within these value chains (SLO2)	Key indicator: share of public spending on the target sector (especially pro-poor investments).

Specific targets will be associated with each IDOs based on what is considered feasible to achieve in each of the selected value chains, e.g. a 50% increase in milk produced per cow in 150,000 poor households in Tanzania, or a 75% increase in volume of production per capita from aquaculture in Egypt. A process has been initiated to develop these targets and will involve a combination of drawing from existing models and analyses to estimate potential productivity gains and reduced environmental impacts from feed, health and genetics interventions and to estimate the potential beneficiary population, together with benchmarking based on existing and past development interventions. This analysis is generating an evidence base to support the level of scaling out and changes that the program is proposing as reasonable to achieve within the 9-12 year IDO time horizon.

Research Outcomes

The primary research outcome targeted by the program is intended to increase the probability of achieving the IDOs in the value chain impact pathway. This outcome is the deliberate preparation and promotion of a large-scale development intervention to be implemented by our research and development partners in each target value chain. The research outcome consists of the intervention design, the evidence base to support its ability to attract development funding, and the research and development capacity that will have been strengthened to support its implementation. The intermediate development outcomes are then achieved only if the intervention is successfully funded and implemented by the development partners and others. Following this logic, the program can be seen to more effectively embody and anticipate its impact pathway.

Do the IDOs meet the ISPC recommended characteristics?

- All IDOs will be achieved through multiple activities and working with various program partners and stakeholders within and outside the CGIAR.
- Most IDOs will result from program interventions in the value chains. IDO 1 to IDO 4 and IDO6 are directly associated with activities of themes. For instance, the work of technology development themes (animal health, genetics, feeds & fodder) in the value chains will lead to improved productivity and increased quantities supplied of the target products in the value chains. Similarly, work in the Gender component will generate innovative approaches to influencing intra household resources distribution and therefore IDOs 3 and 4 and 6. Activities to address IDOs 4 and 5 were not originally anticipated in the program proposal, but the program is now developing strategies for a research agenda and initiating activities to explore how the program could contribute more directly to both.
- Demonstrating significant progress is being made to achieve all IDOs is considered reasonable within the 6-year time frame for the research phase within each value chain; this will be a precondition for achieving system-wide and long-term changes in the target value chains and countries.
- Although the program IDOs will be achieved through the value chain impact pathway, they are still applicable to both program impact pathways. For instance, all IDOs can be used to evaluate whether the program is contributing to the SLOs through the International Public Goods (IPGs) impact pathway.

Target value chain impact pathways and theories of change

Through one of its principal impact pathways, the L&F program develops and delivers outputs through a number of small and carefully selected national meat, milk, and fish value chains. Nine value chains were selected based on a number of conditions that maximize the program's likelihood of achieving impact at scale. Target value chains were also considered to have high potential for transforming a whole range of actors in the value chains from producers to consumers. The selection criterion included: existence of value chain growth and market opportunities, pro-poor potential, a body of researchable constraints to sustain various research agendas in the value chains, existence of enabling environments, and existence of considerable CGIAR legacy activities. The target value chains also comprise pairs of similar value chains located in different regions of the world, for instance smallholder dairy in Tanzania and India, to allow cross-value chain comparisons and learning. The target value chains include:

1. Fish value chains in Egypt and Bangladesh
2. Small ruminants value chains in Ethiopia and Mali
3. Smallholder dairy value chains in India (a few selected states), Tanzania and Nicaragua
4. Small pig value chains in Vietnam and Uganda.

The program's strategy, as reflected in the value chain-based impact pathway, is to work with a set of carefully selected value chains that will provide favorable settings for technology development specialists, social scientists and other stakeholders, including

development partners, to improve their interaction and better focus on their efforts. Value chains will become the systems-specific and market-specific settings for improving delivery of innovations, promoting intensification through provision of enabling environments for innovations capacity and creation of innovative partnerships. This arrangement will ensure that the program focuses on supporting research that addresses opportunities for increasing productivity and performance of the value chains and provides the mechanisms for disseminating research outputs at scale. Specifically, the program will focus on coordinating research in the value chains and identifying development partners who will be responsible for taking the interventions to scale. The program will hold itself accountable for doing the research needed to inform the design of appropriate interventions in the value chains, facilitating the creation of environments necessary for implementation of innovations, and in the process, serve as a catalyst for mobilizing stakeholder support and strengthening innovation capacity. The program is developing "nested" value chain theories of change and impact pathways tailored to each value chain context, with the overall program theory of change identifying linkages and interactions between different components of the program.

In developing the value chain-specific theories of change and the impact pathways, the program is relying on the Participatory Impact Pathways Analysis (PIPA)[1]approach in stakeholder workshops which allow participants to explicitly reveal their assumptions and hypotheses about how the program will bring about impact. PIPA is quite similar to the outcome mapping philosophy although the PIPA approach differs in two ways: 1) it incorporates both the achievement of outcomes and the key actors responsible for delivering those changes and 2) it also applies network map analysis to understand how different stakeholders in the value chain interact to achieve the desired overall program goals[2]. The workshops engage value chain stakeholders in walking through a predicted process of turning program outputs into research outcomes, to development outcomes, and finally into impacts. These workshops will be held in each of the 9 program target value chains/countries. Participants will be drawn from a wide range of stakeholders including: target value chain staff, scientists directly involved in the value chains, government officials who are directly linked to developing the target value chain, and representatives of farmer forums, implementing partner organizations, national agricultural research institutions, and the private sector. These value chain impact pathway workshops will be organized based on a framework previously proposed by Douthwaite *et al.* (2008)[3]. The framework consists of two processes:

1. Developing the adoption theory model: The model describes the program's logic and consists of a set of hypotheses describing how the program will be implemented, scaled out, and scaled up to deliver the desired changes in the value chains. The model further describes the causal chains that will link program outputs to eventual achievement of impacts in the value chains.

[1] Douthwaite, B., Alvarez, B.S., Cook, S., Davies, R., George, P., Howell, J., Mackay, R. and Rubiano, J. 2007. The Impact Pathways Approach: A Practical Application of Program Theory in Research-for-Development. *Canadian Journal of Program Evaluation.* 22(2): 127-159.

[2] Douthwaite, B., Alvarez, B.S., Cook, S., Davies, R., George, P., Howell, J., Mackay, R. and Rubiano, J. 2007. The Impact Pathways Approach: A Practical Application of Program Theory in Research-for-Development. *Canadian Journal of Program Evaluation.* 22(2): 127-159.

[3] Douthwaite, B. Alvarez, S., Thiele, G. and Mackay, R. 2008. Participatory Impact Pathways Analysis: A practical Method for Project Planning and Evaluation. http://impactpathways.pbwiki.com

2. Developing value chains network maps: Network maps describe networks of actors who will deliver program outputs and networks of actors who will scale out and scale up program outputs. The maps describe the existing actor networks, provide an analysis of the existing gaps in the networks, and help identify what changes are needed to achieve the program vision in the value chain.

Articulated value chain impact pathway(s) consisting of these two components will provide a clearer picture of how program activities will deliver the desired changes. Moreover, the outcome logic model which emerges from developing the adoption theory model will provide a framework for prioritizing outcomes, developing outcome indicators for the prioritized outcomes, and setting targets for an overall program monitoring and evaluation/impact assessment plan.

Value chains impact pathways will consist of result chains representing the various steps that lead from program output development to having impact at scale through successive stages of outcomes, as a result of adoption and use of program outputs by different actor types at different stages of the value chains. Each value chain's impact pathway(s) will be part of a more comprehensive value chain theory of change consisting of the following elements:

1. Value chain impact pathway(s) (**see figure 2**) will describe sequence of program activities and desired changes due to program activities which will eventually lead to impacts in the value chains.
2. Assumptions: events and conditions necessary for the predicted links in the adoption theory model to be realized.
3. Risks: external events and conditions that could put at risk the predicted links in the result chains.
4. Other explanatory factors: other factors that might explain the occurrence of the predicted changes.
5. Unintended effects: unintended positive and negative effects due to program activities and outcomes.

Principles for developing value chains impact pathways and theories of change

1. Value chain impact pathways will be part of the program Theories of Change in the value chains.
2. The impact pathways will be accompanied with impact narratives and clear description of the relationships among key actors.
3. The impact pathways will have a clear description on how the program will deliver changes in knowledge, attitude, and capacity within the next users and end users of program outputs in the target value chains.
4. The impact pathways will be clear on how changes in knowledge, attitude, and capacity will translate into direct benefits to end users.
5. Impact pathways will show a clear distinction between program outputs, research outcomes, development outcomes, and program goals
6. They will describe how evidence will be generated and how outputs will be marketed and effectively communicated.

The value chains impact pathways will be clear on how component aggregated outputs will contribute to the achievement of IDOs in each target value chain.

Program Theory of Change

In sum, the L&F program is implementing a model intended to accelerate AR4D by building better partnerships and capacity for generating evidence of pro-poor and gender-responsive technological and institutional innovations, developing methods and tools for prioritizing value chain sites and interventions, and creating mechanisms for scaling-up and scaling-out. This is being done with the objective of attracting investment for large-scale development interventions and incentivizing private sector actors to produce and disseminate the innovations which will lead to improved value chain performance and improved capacity of value chain actors, thus stimulating the widespread uptake of innovations. Better performing value chains will then become the channels through which intermediate development changes in terms of increased productivity, higher supply of ASFs, higher household income especially for women, reduced nutrient gap, lower environment impacts and better policy environments, will be delivered. Eventually, at the system-wide level, changes in food security, nutrition, poverty and sustainability of natural resources will be achieved. System-wide changes will also be achieved if program research and development outputs are widely disseminated and picked up by “next-users” and “end-users” (**see Figure 3**).

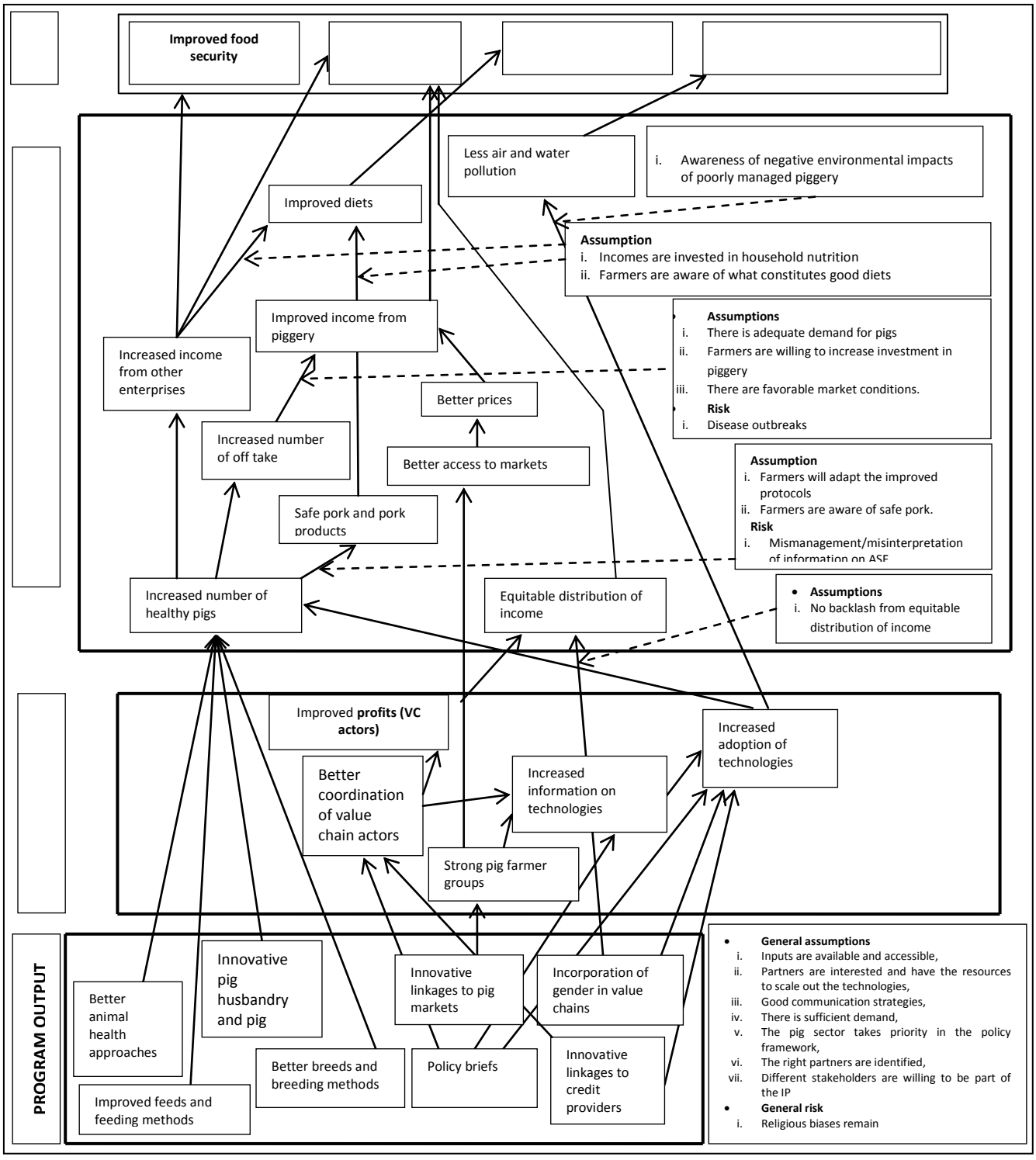


Figure 2: An example of a value chain impact pathway-the Uganda pig value chain impact pathways

Figure 3: Livestock and Fish (L&F) Theory of Change (ToC)