

# Theory of Change

## West Bengal - Livestock Learning Lab

CGIAR Initiative on Gender Equality (HER+)  
Harnessing Gender and Social Equality  
for Resilience in Agri-food Systems



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# Table of Contents

<b>Acknowledgments</b>	<b>3</b>
<b>1. What is a Theory of Change (ToC)?</b>	<b>4</b>
<b>2. Purpose: Why Should we Use a Theory of Change?</b>	<b>4</b>
<b>3. Context of HER+ West Bengal Livestock Learning Lab</b>	<b>5</b>
<b>4. Key Stakeholders</b>	<b>7</b>
<b>5. Key Risks</b>	<b>8</b>
<b>6. HER+ West Bengal Livestock Learning Lab ToC</b>	<b>10</b>
6.1. Causal Pathway 1 - Gender sensitization training for field staff	10
6.2. Causal Pathway 2 - Organizing women into groups and identifying lead farmers	11
6.3. Causal Pathway 3 - Creating awareness on climate adaptation and resilience practices	13
6.4. Causal Pathway 4 - Capacity building training for improved access to resources, information, technical skills, and entrepreneurship development	14
6.4.1. Causal Pathway 4a - Improved access to resources	14
6.4.2. Causal Pathway 4b - Entrepreneurship development	15
6.5. Causal Pathway 5 - Access to markets for the sale of poultry and goats	15
6.5.1. Causal Pathway 5a - Capacity building of lead farmers and connecting them with livestock training	16
6.5.2. Causal Pathway 5b - Capacity building of women farmers on pre-sale practices	16
6.5.3. Causal Pathway 5c - Platforms to share market-related information with women farmers	16
6.5.4. Causal Pathway 5d - Collectivization of women for livestock sales	16
6.6. Causal Pathway 6 - Establishing mechanisms to provide locally accessible alternative feed sources	17
<b>7. Alignment with CGIAR HER+ Impact Areas</b>	<b>18</b>

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# 1. What is a Theory of Change (ToC)?

A Theory of Change is a method that explains how a given intervention, or set of interventions, is expected to lead to specific development change, drawing on a causal analysis based on available evidence. It explains how activities undertaken by an intervention contribute to a chain of results that lead to the intended or observed impacts.<sup>1</sup> A sound ToC is driven by analyzing current program implementation, consultation with key stakeholders, and learning what works and what does not on the ground with the target groups.

A ToC helps identify solutions to effectively address the causes of problems that hinder progress/impact and guide decisions on which approach to take during implementation. A good ToC can help:

- Develop better key evaluation questions
- Identify key indicators for monitoring
- Identify gaps in available data and processes
- Prioritize data collection, and
- Provide a structure for data analysis and reporting.

A ToC also helps identify underlying assumptions and risks that are vital to understand and revisit throughout the process to ensure that the approach contributes to the desired change.

## 2. Purpose: Why Should We Use a Theory of Change?

Implementing a complex project could be difficult due to the subjectivity that various factors, such as stakeholders, geographies, climatic conditions, and socio-cultural norms bring with them. For example, conducting capacity building training for farmers might not lead to them adopting the suggested cropping pattern, unless aspects such as their interests and actions change, the seeds are available and are market oriented, and various other constraints are addressed. A ToC can help a project implementing agency think through the many underlying root causes systematically, and how they influence each other when determining what the team should address as a priority to maximize the outcomes of the intervention.

Additionally, a ToC provides a framework for learning within and between implementation cycles. It helps internal and external stakeholders get a better context and understanding of how the intervention will bring about change. It aids in course correction if the selected approach is not working, the anticipated

<sup>1</sup>Theory of Change: UNDAF companion guidance. June 2017. <https://unsdg.un.org/sites/default/files/UNDG-UNDAF-Companion-Pieces-7-Theory-of-Change.pdf>.

risks materialise, or the assumptions don't hold. New learnings and lessons from monitoring and evaluation help refine assumptions and inform decisions on how an approach should be adapted to deliver planned results. Adjustments to the ToC should also be made considering changing circumstances, especially in response to crises and shocks, as well as part of regular monitoring.

## 3. Context of HER+ West Bengal Livestock Learning Lab

Climate change is exacerbating uncertainty and risks for farmers and other food systems actors in unprecedented ways. They are grappling with more frequent and severe events such as floods and prolonged droughts, demanding greater resilience. Women and marginalized farmers are highly vulnerable as they usually encounter additional barriers in the form of social and gender norms.

The adoption of adaptive technologies is vital as a response to climate change but also complex due to farmers' diverse needs and preferences, while farmers themselves are not a homogenous category. Additionally, technical innovations addressing climate change have low uptake by women, and evidence of their impact on women's empowerment and resilience has also been inconclusive. The persistent gender and social inequalities in global agrifood systems are additional barriers to women's ability to build and enhance their resilience to climate change.

The CGIAR's Initiative on Gender Equality (HER+ Harnessing Gender and Social Equality for Resilience in Agrifood systems) aims to strengthen climate resilience of vulnerable women in food systems in the Global South. Together with partners, the initiative envisages to support women to increase their agency, and acquire and gain control over resources, which would facilitate their path towards empowerment, help them adapt to climate change, and be resilient to shocks and stresses through higher adaptive capacity. Additionally, the initiative aims to position women as partners and drivers of climate change solutions.

The goals of the HER+ initiative are achieved through four dimensions (addressed in 4 Work Packages - WP). Work Package 2 titled EMPOWER is aimed at developing and testing context-specific bundles of social and technical innovations (STIBs<sup>2</sup>). The STIBs are designed with the objectives of achieving women's empowerment, climate resilience, and their engagement as partners and drivers of climate change solutions.

To achieve the objectives of HER+ EMPOWER, the WP is setting up pilot Learning Labs (LLs)<sup>3</sup> -- multi-sectoral, multi-stakeholder, and multi-disciplinary spaces where practice and research interact, and

<sup>2</sup> Context-specific bundles of social and technical innovations (STIBs) are integrated solutions tailored to address unique challenges within a specific environment. Combining social innovations such as reforms of institutions and cultural

practices with technical advancements such as new technologies or processes, these bundles aim to create comprehensive approaches that resonate with and effectively meet the needs of a particular context or community.

<sup>3</sup> "Learning lab" refers to a place dedicated to work, to manufacture something and a place dedicated to scientific experimentation. It refers to both practice (creating something) and research (experimenting with something) about learning. (Eric, S., Paukovics, E., Cheniti-Belcadhi, L., El Khayat, G., Said, B., and Korbaa, O. (2022). What do you mean by learning lab? Education and Information Technologies 1-20.)

learning occurs through the design and implementation of context-specific socio-technical innovation bundles (suite of activities/interventions).

This Theory of Change Narrative is for one such Learning Lab (LL) set up by the [International Rice Research Institute \(IRRI\)](#) in collaboration with one of the institutions within the Indian Council of Agricultural Research (ICAR), namely [ICAR - Indian Veterinary Research Institute \(ICAR-IVRI\)](#). The Learning Lab will have various partners to support activities including research and operations. The LL is embedded in ICAR-IVRI's Scheduled Caste Sub-Plan (SCSP) and Scheduled Tribe Sub-Plan (STSP) project, aimed to increase the income of the target population through diverse income-generating schemes, skill enhancement initiatives, and infrastructure and to reduce poverty.<sup>4</sup>

The activities identified for this LL are categorized into Social, Technical, and Technological<sup>5</sup>, as described below:

- **Social activities:** Gender sensitization training for field staff (to enable and encourage household engagement and create conducive social norms for women's participation in the livestock LL); identifying lead women farmers; organizing women into groups; gender-responsive training; and capacity building sessions.
- **Technical activities:** Creating awareness on climate adaptation and resilient practices in livestock management; capacity building training on business management, financial literacy, credit, and market linkages; existing schemes and policies for enterprise/business development; awareness on feeding, housing, disease management, etc; capacity building on presales and sales-related activities; and development of information hub.
- **Technological activities:** Improve goat and poultry breeds, improve feed availability by setting up mechanisms such as improved forage supply by introducing fodder trees, and feed blocks for the lean or flooding season for goats.

The LL will be operating in two villages in West Bengal. In Balarampur (South 24 Parganas - S24P), it will work with women poultry farmers belonging to the Scheduled Caste (SC) and in Makaltala (North 24 Parganas - N24P), the focus will be on women goat farmers who belong to the Scheduled Tribe (ST). The choice of the commodity and location was driven by factors including climate change impacts, existing high involvement of women in farm activities, scope to introduce STIBs, and a quick turnaround in terms of outcomes and learnings. The current goal is to pilot context-specific STIBs in the LL, document the outcomes and learnings, and then replicate them with relevant adaptations in other commodities and geographies.

<sup>4</sup> Ministry of Social Justice & Empowerment. (2019). Special Central Assistance to Scheduled Caste Sub Plan (SCA to SCSP). <https://socialjustice.gov.in/writereaddata/UploadFile/Guidelines-SCA%20to%20SCSP.pdf>.

<sup>5</sup> (i) Social activities: Social norms and values attached to certain practices or social constructs attached to technologies; for example, if a women can join a group, or whether she can access a phone/smartphone, and when she can vaccinate; (ii) Technical activities: Knowledge and skills required to perform a practice; for example, administering vaccines, making feed mix (knowledge and skills associated with it); (iii) Technological activities: Technologies such as improved breeds/germplasm of chicks or goats, smartphones.

Following thorough fieldwork and stakeholder consultations, an extensive list of activities have been identified and their pathways to the intended impact are illustrated using the Theory of Change (ToC) framework (available [here](#)).

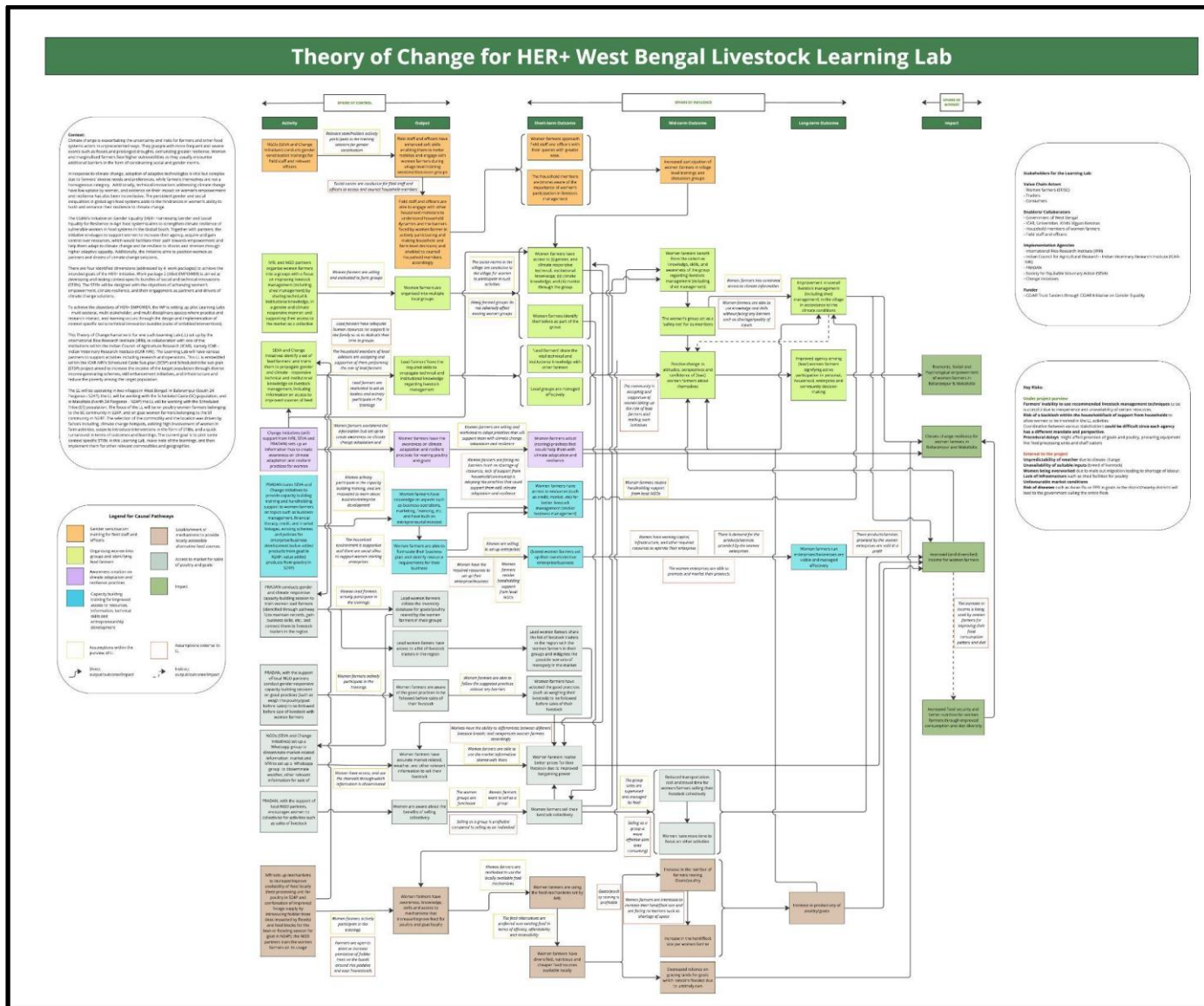


Figure 1. Theory of Change for the West Bengal Livestock Learning Lab.

This Narrative Report lays out the key stakeholders of the LL (Section 4) and the key risks (Section 5). In addition, it explains the pathways charted in the ToC (Section 6) and goes on to outline how the LL is aligned with CGIAR HER+ Impact Areas and the UN's Sustainable Development Goals (Section 7).

## 4. Key Stakeholders

This section highlights the four broad categories of key stakeholders in the LL: (i) Value chain actors, (ii) enablers/collaborators, (iii) implementation agencies, and (iv) funders and their roles.

- **Value Chain Actors**

- Women farmers belonging to the Scheduled Caste and Scheduled Tribe involved in livestock rearing are the target group. They are active users of the STIBs promoted through this LL.
- Traders are expected to participate in buyer-seller interactions and interact with the women livestock farmers.
- Consumers are the end users of livestock (poultry and goats).

- **Enablers/ Collaborators**

- Government of West Bengal
- ICAR, universities, Krishi Vigyan Kendras (KVKs)
- Household members of women farmers are expected to participate in the training and reflection sessions designed for them and support women farmers in participating in the LL's activities.
- Field staff and officers are expected to participate in gender sensitization and other technical workshops.

- **Implementation Agencies**

- International Rice Research Institute (IRRI)
- Indian Council of Agricultural Research - Indian Veterinary Research Institute (ICAR-IVRI) is the on the ground implementation lead. It will provide technical and technological innovation support such as livestock (poultry, goat) germplasm, technical training on feeding, processing, forage, and shed management to the women farmers.
- Society for Equitable Voluntary Action (SEVA) and Change Initiatives are the LL partners who will provide social innovation support such as gender sensitization training, identify 'lead farmers', set up platforms to create awareness on climate adaptation practices, and provide handholding support to women farmers in Makaltala and Balarampur, respectively.
- PRADAN will be responsible for designing capacity building and training sessions for farmers and in upskilling and supporting SEVA and Change Initiatives in implementing the LL activities.

- **Funder**

- CGIAR Trust funders through the CGIAR Initiative on Gender Equality.

## 5. Key Risks

Risks outline the component of uncertainty within the ToC. These may or may not happen during the intervention but if they do, they risk blocking the pathways of change and will create roadblocks in achieving the desired outcomes and impact.

This section highlights some of the key risks identified, categorized into (i) those that can be mitigated by the LL partners, and (ii) those due to external factors, difficult to manage/mitigate.

The risks under the project purview that can be mitigated by the LL are:

- Farmers' inability to use recommended livestock management techniques due to inexperience and the nonavailability of certain resources.
- The risk of a backlash within the household/lack of support from households in allowing women to be involved in the LL's activities and the formation of groups.
- Coordination between various stakeholders could be difficult since each agency has a different mandate and perspective.
- Procedural delays may affect the provision of goats and poultry and the procurement of equipment like feed processing units and chaff cutters.

Risks external to the project that are difficult to manage/mitigate:

- Unpredictability of weather due to climate change
  - West Bengal is highly vulnerable to extreme climate events including cyclones, floods, droughts, and heat waves,<sup>6,7,8</sup> with severe impacts on farming households.
- Nonavailability of suitable inputs (breed of livestock).
- Women being overworked due to male out-migration, leading to shortage of labor.
- Lack of public infrastructure (such as access to roads, water, electricity, etc).
- Unfavourable market conditions
  - The project envisions increasing the income of women farmers engaged in poultry/goat production. To achieve this outcome, there is a heavy dependence on markets, which is a result of various external variables outside the purview of the project.
- Risk of diseases such as Avian Flu or PPR in goats in the district/nearby districts will lead to the government culling the entire flock.

<sup>6</sup> Riddhima, S., and Shah, M. 2020. 15 Districts in West Bengal vulnerable to extreme climate events: CEEW. Council on Energy, Environment and Water. December 2020. <https://www.ceew.in/press-releases/15-districts-west-bengal-vulnerable-extreme-climate-events-ceew>.

<sup>7</sup> Krishnendu, B. 2021. Climate change may bring flooding and farming woes to Kolkata and Bengal, fear experts. Times of India. August 12, 2021. <https://timesofindia.indiatimes.com/city/kolkata/climate-change-may-bring-flooding-and-farming-woes-to-city-state-fear-experts/articleshow/85256204.cms>

<sup>8</sup> Casciato, P. (n.d.) Killer heatwaves endanger India's development. University of Cambridge. <https://www.cam.ac.uk/stories/india-heatwaves> (Accessed September 25, 2023.)

# 6. HER+ West Bengal Livestock Learning Lab ToC

The ToC for the HER+ West Bengal Learning Lab comprises six causal pathways, each of which outlines the intricate processes by which intended outcomes are achieved through activities conducted by IVRI and other LL partners. The pathways are as follows:

1. Gender sensitization training for field staff and officers
2. Organizing women into groups and identifying lead farmers
3. Creating awareness about climate adaptation and resilience practices
4. Capacity building training for improved access to resources, information, technical skills, and entrepreneurship development
5. Establishing mechanisms to provide locally accessible alternative feed sources
6. Access to market for the sale of poultry and goats.

This section describes these causal pathways.

## 6.1. Causal Pathway 1 - Gender sensitization training for field staff

The Scheduled Caste Sub-Plan (SCSP) program of IVRI currently employs field staff/extension officers in every district who are responsible for the distribution of germplasm, technical training sessions, etc. While trainings are held regularly, the participation of women farmers remains low due to reasons such as their need to travel to the training centers, household chores and childcare responsibilities, hesitation in actively participating in sessions, and the lack of support from household members. The gender composition of the field staff is another deterrent. Since most of them are male, women farmers do not feel comfortable interacting with them independently.

The Learning Lab (local NGO partners) aims to tackle this by providing gender sensitization training to the field staff and officers. This will enhance their soft skills, enabling them to better mobilize and engage with women farmers during training/reflection sessions. The selection of training participants is an important intervention to ensure that the project's engagement with women farmers enables field staff to engage with other household members too, including the spouse and in-laws. So the LL will apply a household approach to engage men, boys, and other household members to understand household dynamics and the barriers faced by women farmers in actively participating and making decisions in households and farms. This knowledge of household dynamics is expected to aid them in understanding the challenges women farmers might face while attending training sessions and enable them to counsel household members accordingly. Engaging with household members will also enable the Research Technicians (RTs) to involve men along with women in sessions where they discuss women's roles and participation in the LL. To make the training gender-responsive, the LL will take into account women's time, work schedule, availability, affordability during the design process.

Regular engagement of household members with the field staff is expected to lead to behavior change and an increased understanding of the significance of women's participation in livestock activities. It is also expected to encourage household members to be more supportive of women farmers attending training sessions and discussion groups, leading to an increase in women's participation in such events and activities, and their access to (i) gender and climate-responsive technical and institutional knowledge; (ii) climate knowledge; and (iii) markets. The resulting long-term outcomes and impact are explained in Section 6.2.

The following underlying assumptions for this pathway can be partially monitored and mitigated by the LL and its partners:

- Relevant stakeholders actively participate in the gender sensitization trainings.

The following assumption for this pathway is influenced by numerous variables external to the Learning Lab that are difficult to be mitigated and that directly feed into the risks of the project:

- The social norms are conducive for research technicians, KVK staff, and AHOs to access and counsel household members

## **6.2. Causal Pathway 2 - Organizing women into groups and identifying lead farmers**

In the selected villages for this Learning Lab, women are members of self-help groups (SHGs) or other forms of collectives like Farmer Producer Organizations (PFOs). However, it was observed during field visits and stakeholder consultation workshops that these groups are either not fully operational or primarily focus on lending and borrowing activities. Leveraging women's groups effectively holds the potential to empower their members significantly.<sup>9,10,11</sup> These groups can contribute to enhanced confidence and negotiation skills by fostering a supportive community and providing mentorship opportunities. Furthermore, they play a vital role in developing leadership skills through workshops and by assigning leadership roles within the group. There is also the potential to improve access to information and resources through networking, educational programs, and advocacy initiatives.

Additionally, these groups can be instrumental in promoting economic empowerment as delivery partners by supporting entrepreneurship and implementing financial literacy programs as post-training support activities. Overall, women's groups can create a positive and empowering environment that positively influences the personal and professional lives of their members. So, this pilot will start with the women's groups in close consultation with their household members so that the impact will be positive and will not create intra-household problems. They have been identified as crucial channels through which other activities within this LL can be effectively disseminated.

<sup>9</sup> Neha, K., Raghunathan, K., Arrieta, A., Jilani, A., Chakrabarti, S., Menon, P., and Quisumbing, A.R. (2019). Social networks, mobility, and political participation: The potential for women's self-help groups to improve access and use of public entitlement schemes in India. *World Development* 114: 28-41.

<sup>10</sup> Neha, K., Raghunathan, K., Arrieta, A., Jilani, A., and Pandey, S. (2021). The power of the collective empowers women: Evidence from self-help groups in India. *World Development* 146: 105579.

<sup>11</sup> Neha, K., Samuel Scott, S., Menon, P., Kannan, S., Cunningham, K., Tyagi, P., Wable, G., Raghunathan, K., and Quisumbing, A. (2018). Pathways from women's group-based programs to nutrition change in South Asia: A conceptual framework and literature review. *Global Food Security* 17: 172-185.

The second pathway in the ToC focuses on organizing women into groups with a focus on improving livestock management (including shed management) by sharing technical and institutional knowledge (that help with livestock management, including feeding practices, vaccination, shed management, etc.) in a gender and climate-responsive manner, and supporting their access to markets as a group. Additionally, it involves identifying and training a select group of lead farmers (terms yet to be finalized) to promote gender and climate-responsive practices in livestock management. This encompasses information on accessing improved feed sources.

The formation of such groups and identification of lead women farmers (who also act as influencers/change agents/first-movers in the project villages) is expected to enhance (i) gender, and climate-responsive technical and institutional knowledge; (ii) climate knowledge; and (iii) market accessibility in the villages. Furthermore, it aims to bolster their bargaining power when selling livestock, including poultry and goats (refer to pathway 4 for further insights into the outcomes on this aspect). This improved knowledge is anticipated to result in overall enhancement of livestock management (including shed management) aligned with local climatic conditions, thereby contributing to climate change resilience among women in the target villages.

Participation in these groups is expected to increase access to knowledge and information, foster a sense of belonging, and provide a valuable safety net for women farmers, leading to significant positive changes in their attitudes, perspectives, and confidence. Moreover, improved livestock management is also expected to create similar positive transformation.

Similar favorable outcomes are projected for individuals who are identified and trained to effectively oversee these women's groups. These anticipated changes are expected to empower both women farmers and lead women farmers, enabling them to exercise greater agency in their personal lives, household dynamics, and farm-related activities.

Greater participation in personal, household, and farm-related activities is expected to lead to the economic, social, and psychological empowerment of women farmers. However, restrictive cultural norms can counteract the gains achieved from enabling groups and pose a risk to achieving improved agency of women and their empowerment.

Enhancement of livestock management (including shed management) is also expected to improve women's incomes. Assuming that this additional income is invested by women on improving their food consumption patterns and dietary choices, it is expected to have a positive impact on food security and nutrition.

The following underlying assumptions for this pathway can be partially monitored and mitigated by the LL and its partners:

- Women farmers are willing and motivated to form and/or reinstate groups.
- The social norms in the village are conducive for women to participate in such activities.
- Newly formed groups do not adversely affect existing women's groups.
- Women farmers have continued access to climate information.
- Lead farmers are motivated to act as leaders and actively participate in trainings.
- Household members of local advisors are accepting and supportive of them performing this role.

Following are other assumptions for this pathway which are influenced by numerous variables, external to the LL, making it difficult to be mitigated and that directly feed into the risks of the project:

- Women farmers are able to use knowledge and skills without facing any barriers such as shortage/quality of inputs.
- Lead farmers have adequate human resources (or support) in the family so as to dedicate their time to groups.
- The community accepts and supports women taking up these roles and leading such initiatives.

### 6.3. Causal Pathway 3 - Creating awareness on climate adaptation and resilience practices

The adverse effects of climate change are felt worldwide, and the state of West Bengal is no exception. Bengal is highly vulnerable to extreme climate events including cyclones, floods, droughts, and heat waves.<sup>12,13,14</sup> This has a detrimental impact on the livestock sector.

Poultry flocks are particularly vulnerable to large temperature fluctuations and are highly susceptible to heat stress<sup>15</sup>, making poultry farming challenging unless adaptive practices are implemented. The situation for goat farming mirrors these challenges. Goats are also vulnerable to the adverse impacts of climate change due to their heavy reliance on climate-sensitive resources (such as pasture and water)<sup>16</sup>. Additionally, their immobility during floods<sup>17</sup> and the inability to adapt to situations such as feed and fodder shortages<sup>18</sup>, often caused by climate change, further compound the challenges faced by goat farmers.

During early stakeholder interactions with women farmers in the two project villages, it became evident that while there is some awareness about climate change and indigenous adaptive practices among them, there's a need to provide additional information on climate adaptation and resilient livestock management practices.

As part of this LL, Change Initiatives (with support from IVRI, SEVA, and PRADAN) is planning to establish an information hub for both Makaltala and Balarampur, to raise awareness on climate adaptation and resilient practices for women poultry farmers. The platform will host information on aspects such as climate change adaptation, veterinary centers, government schemes and policies, etc., and specific

<sup>12</sup> Riddhima, S., and Shah, M. (2020). 15 Districts in West Bengal vulnerable to extreme climate events: CEEW. Council on Energy, Environment and Water. December 2020. <https://www.ceew.in/press-releases/15-districts-west-bengal-vulnerable-extreme-climate-events-ceew>.

<sup>13</sup> Krishnendu. B. (2021). Climate change may bring flooding and farming woes to Kolkata and Bengal, fear experts. Times of India. August 12, 2021. <https://timesofindia.indiatimes.com/city/kolkata/climate-change-may-bring-flooding-and-farming-woes-to-city-state-fear-experts/articleshow/85256204.cms>

<sup>14</sup> Casciato, P. (n.d.) Killer heatwaves endanger India's development. University of Cambridge. Accessed September 25, 2023. <https://www.cam.ac.uk/stories/india-heatwaves>.

<sup>15</sup> Chatterjee, R. N., and Rajkumar, U. (2015). An overview of poultry production in India. Indian Journal of Animal Health 54 (2): 89-108.

<sup>16</sup> Saidu, O., and Bebe, O. (2010). Climate change, genetics of adaptation and livestock production in low-input systems. In 2nd international conference: climate, sustainability and development in semi-arid regions, August, vol. 1620.

<sup>17</sup> *ibid.*

<sup>18</sup> Sahoo, A., Devandra Kumar, and Naqvi, S.M.K. (2013). Climate resilient small ruminant production. National Initiative on Climate Resilient Agriculture (NICRA), Central Sheep and Wool Research Institute, Izatnagar, India. pp 106.

information related to goat and poultry rearing. Through these platforms, it is hoped that women will gain access to valuable information and knowledge (associated outcomes explained in Section 6.2), in turn empowering them to adopt rearing practices that enhance their ability to adapt to climate change and build resilience.

This is expected to lead to an overall improvement in livestock management, aligned with local climatic conditions, thereby contributing to climate change resilience among women in the target villages.

Furthermore, lead women farmers are expected to play a crucial role in promoting awareness about climate adaptation and resilient practices among women poultry farmers. Therefore, this pathway is closely linked to certain aspects of pathway 1 explained in Section 6.1.

The following underlying assumptions for this pathway can be partially monitored and mitigated by the LL and its partners:

- Women farmers use/attend the platforms set up to create awareness on climate change adaptation and resilience.
- Women farmers are willing and motivated to adopt practices that will aid them in climate change adaptation and resilience.

The following assumption for this pathway is influenced by numerous variables external to the LL, difficult to be mitigated and that directly feeds into the risks of the project:

- Women farmers are facing no barriers (such as shortage of resources, lack of support from the household/community) in adopting practices that could support them with climate adaptation and resilience.

#### **6.4. Causal Pathway 4 - Capacity building training for improved access to resources, information, technical skills, and entrepreneurship development**

In pursuit of improving and diversifying income streams for women poultry farmers in Balarampur and Makaltala, the LL aims to offer comprehensive capacity building training. The topics covered will include business management, financial literacy, credit and establishing market linkages, existing schemes and policies for women farmers to foster enterprise/business development [potentially to create value-added products from goats in North 24 Parganas and from turkey/poultry in South 24 Parganas (possible ideas include tapping into niche turkey markets, value addition like technical aspects of cold cuts, value addition within the poultry value chain, like chicken sausages and nuggets)]. PRADAN will take the lead in training the local NGO partners (SEVA and Change Initiatives), who in turn will train the women farmers and provide them handholding support.

##### **6.4.1. Causal Pathway 4a - Improved access to resources**

As a result of the capacity building training and handholding support, it is expected that women farmers will have access to knowledge and thereby required resources (such as access to credit and market) that would enable them to improve their overall livestock (including shed) management. The improvement in livestock management will contribute to their climate resilience and improved income, as explained in Section 6.2.

#### **6.4.2. Causal Pathway 4b - Entrepreneurship development**

These training initiatives are also expected to cultivate an entrepreneurial mindset among women, inspiring them to develop business plans and identify the necessary resources. Assuming they gain access to all the required resources to set up their enterprise, it is envisioned that some of them will establish individual or collective enterprises. Over time, these enterprises are expected to thrive and be managed efficiently. Ultimately, this endeavor is designed to serve as an additional or alternative source of income for women, thereby diversifying their income streams.

Assuming that this additional income is invested by women for improving their food consumption patterns and dietary choices, it is expected to have a positive impact on food and nutrition security.

The diversification (and/or addition) of income sources is also expected to lead to positive shifts in attitudes, perspectives, and confidence of women farmers, leading to outcomes as outlined in Section 6.2.

The following underlying assumptions for the pathway can be partially monitored and mitigated by the LL and its partners:

- Women actively participate in the capacity building training and are motivated to learn about enterprise/business development.
- Women farmers receive handholding support from local NGOs.
- The household environment is supportive and there are social allies to support women starting enterprises.
- Women are willing to set up enterprises.

The following assumptions for this pathway are influenced by numerous variables external to the Learning Lab, making it difficult to be mitigated and that directly feed into the risks of the project:

- Women have the required resources to set up their enterprise.
- Women have working capital, infrastructure, and other required resources to run their enterprise.
- The women enterprises are able to promote and market their products.
- There is demand for the products/services provided by the women enterprises.
- The products/services provided by them are sold at a profit.
- The increase in income is being used by women farmers to improve their food consumption pattern and diet.

#### **6.5. Causal Pathways 5a and 5b - Awareness and training on best-fit onion varieties and Good Agricultural Practices**

During field visits and stakeholder consultation workshops, it became evident that women in the two project villages are significantly involved in poultry and goat farming activities but have limited participation in market-related aspects. Typically, these responsibilities are shouldered by men within the household. To empower women to engage in market activities, this LL aims to disseminate essential knowledge and training.

### **6.5.1. Causal Pathway 5a - Capacity building of lead farmers and connecting them with livestock training**

As an initial step, PRADAN will conduct gender and climate-responsive capacity building sessions for women lead farmers on business skills and record keeping of poultry/goats. It will also make efforts to connect lead farmers to livestock traders in the region. The expectation is that the lead women farmers will compile the inventory database for goats/poultry reared by women farmers in their groups, thereby contributing to the mechanisms (WhatsApp groups) aimed at sharing market information, pricing data, weather updates, and other pertinent details to facilitate the sale of poultry and goats by women farmers. Through these trainings, lead farmers are also expected to have access to a list of livestock traders in the region and share the information with the women farmers in their groups, thereby helping them to mitigate the possible scenario of monopoly in the livestock market and to realise a better price for their livestock.

### **6.5.2. Causal Pathway 5b - Capacity building of women farmers on pre-sale practices**

PRADAN aims to conduct gender-responsive capacity building sessions on pre-sales good practices (such as weighing poultry/goat before sale) for women farmers. This increased knowledge and awareness could lead to women farmers adopting the practices and realizing better prices for their livestock.

### **6.5.3. Causal Pathway 5c - Platforms to share market-related information with women farmers**

Local NGOs will set up WhatsApp groups with local mandis to get updates on market prices and relevant information for the sale of poultry and goats. Additionally, IVRI will make the technology developed by ICAR-Agricultural Technology Application Research Institute (ATARI) accessible to women information such as for local weather updates. The larger aim of this initiative is to ensure that women farmers possess accurate market information, pricing data, weather updates, and other pertinent information to facilitate the sale of poultry and goats that helps them realise better prices for their livestock.

### **6.5.4. Causal Pathway 5d - Collectivization of women for livestock sales**

PRADAN, with the support of local NGO partners, plans to encourage women to collectivize for activities such as the sales of livestock. Assuming that the women's groups formed (as referred to in Section 6.2.) are functional, and selling collectively proves more profitable than individual sales, it is anticipated that women farmers will unite to sell their livestock as a group. With lead farmers supervising and managing group selling activities, selling collectively is projected to reduce transportation costs and travel time for women, allowing them more time to focus on other activities, including income-generating pursuits.

Adoption of vital pre-sales and sales practices by women farmers is expected to improve and/or diversify their income. Assuming that this additional income is invested in improving their food consumption patterns and dietary choices, it is expected to have a positive impact on food security and nutrition, and lead to enhanced climate resilience. It is further expected to lead to positive shifts in attitudes, perspectives and confidence of women farmers, leading to the outcomes outlined in Section 6.2.

The following underlying assumptions for the pathway can be partially monitored and mitigated by the LL and its partners:

- Women lead farmers actively participate in the trainings.
- Women farmers are able to follow the suggested practices without any barriers.

- Women have access to and use the information channels.
- Women farmers are able to use the market information shared with them.
- The women groups are functional.
- Women farmers want to sell as a group.
- Group sales are supervised and managed by lead farmers.

The following assumptions for this pathway are influenced by numerous variables external to the LL, making it difficult to be mitigated and that directly feed into the risks of the project:

- Markets have the ability to differentiate between different livestock breeds and compensate women farmers accordingly.
- Selling as a group is profitable compared to selling as an individual.
- Selling as a group is more effective (less time consuming).
- The increase in income is being used by women farmers to improve their food consumption pattern and diet.

## **6.6. Causal Pathway 6 - Establishing mechanisms to provide locally accessible alternative feed sources**

Following extensive fieldwork, it was evident that women in Balarampur and Makaltala are encountering challenges in sourcing suitable and affordable poultry and goat feed. Therefore, as part of the LL, IVRI will set up mechanisms to increase/improve the availability of local feed options in the project villages. For poultry in South 24 Parganas, this involves setting up a feed processing unit, while for goats in North 24 Parganas, it includes a combination of measures such as the supply of improved forage by introducing fodder trees and providing feed blocks for the lean/flooding season. In tandem with these efforts, lead women farmers will raise awareness about these alternative feed sources. To complement these efforts, the local NGO partners and lead farmers aim to create awareness among women farmers by ensuring that they are skilled to use the newly introduced feed mechanisms.

Consequently, it is expected that women farmers in the project villages will gain access to and use mechanisms that increase availability and improve the quality of poultry and goat feed locally, along with knowledge on its utilization. This is expected to result in a diversified range of nutritious and cost-effective feed sources, an increase in the number of women farmers engaged in poultry and goat rearing, as well as an expansion in the size of herds/flocks per woman farmer.

These developments are expected to boost overall productivity, ultimately contributing to the broader impact of enhancing the nutrition of women, children, and households in an environmentally sustainable manner. The improvement in productivity is also expected to lead to positive shifts in attitudes, perspectives, and confidence of women farmers, and its associated outcomes as explained in Section 6.2.

By offering alternative feed sources such as fodder trees (which are less susceptible to flooding), as well as silage and rice straw, it is anticipated that there will be less reliance on grazing lands for goats. The reduced dependence on grazing areas which are often inundated due to untimely rains is expected to play a crucial role in enhancing climate change resilience among women farmers in Makaltala.

The following underlying assumptions for the pathway can be partially monitored and mitigated by the LL and its partners:

- Women farmers actively participate in the trainings.
- Women farmers are motivated to use the locally available feed mechanisms.
- The feed alternatives are comparable or superior to existing feed in terms of efficacy, affordability, and accessibility.

There are assumptions for this pathway that are influenced by numerous variables external to the LL, making them difficult to be mitigated, and that directly feed into the risks of the project:

- Farmers are open to planting or increasing plantation of fodder trees on bunds around rice paddies and near homesteads.
- Goat/poultry rearing is profitable.
- Women farmers are interested in increasing their herd/flock size and are facing no barriers such as the shortage of space.

## 7. Alignment with CGIAR HER+ Impact Areas

The activities within this LL are strategically designed to make significant contributions to the five key impact areas envisioned for the CGIAR. This section succinctly outlines how these activities align with the impact areas.

### 1. Nutrition, health, and food security (SDG Target 2.1)<sup>19</sup>

The West Bengal LL strives to enhance and broaden women's income through a range of strategic interventions including capacity building on livestock management, market linkages, business acumen, and financial literacy. With the underlying assumption that the supplementary income generated is directed by women towards enhancing their dietary preferences and consumption habits, the increased income is anticipated to yield positive outcomes in terms of bolstering food security and nutrition. Consequently, the LL aligns with the impact area Nutrition, health, and food security under the HER+ initiative.

### 2. Poverty reduction, livelihoods, and jobs (SDG: Targets 1.5; 5.5)<sup>20</sup>

The activities within this LL are designed to result in an increase and/or diversification of women's income, offering potential relief to their financial standing. Moreover, the LL is actively engaged in fortifying women's resilience to climate change-related challenges, equipping them to confront

<sup>19</sup> SDG Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

<sup>20</sup> SDG Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

SDG Target 5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.

climatic shocks more effectively. By doing so, the LL seeks to mitigate the risk of financial crises that could otherwise lead to impoverishment. This multifaceted approach aligns with the overarching impact areas of Poverty reduction, livelihoods, and jobs, as part of the broader HER+ initiative.

### **3. Gender equality, youth, and social inclusion (SDG: Targets 5.1; 5.4; 5.a; 10.2)<sup>21</sup>**

All the activities in the LL are carefully crafted to be gender responsive. Additionally, the LL strives to build a conducive environment for women within both households and communities. Each activity is purposefully designed to actively promote gender equality and empowerment, thereby contributing to the impact area of Gender equality, youth, and social inclusion of the HER+ initiative.

### **4. Climate adaptation and mitigation (SDG: Targets 1.5; 13.1; 13.3)<sup>22</sup>**

Through activities such as disseminating climate-responsive technical and institutional knowledge on livestock management, shed management, and introducing alternative/improved feed sources, the LL seeks to enhance climate resilience of women. Improved climate resilience is expected to lead to improved climate adaptation and mitigation. These activities are strategically aligned with the impact area Climate adaptation and mitigation of the HER+ initiative.

### **5. Environmental health and biodiversity (SDG: Target 12.4)<sup>23</sup>**

Enhancements in livestock and shed management, and feed management practices such as improved feeding and fodder practices are anticipated to play a pivotal role in fostering improved environmental health. These are integral to the success of the impact area focusing on Environmental health and biodiversity in the HER+ initiative.

<sup>21</sup> SDG Target 5.1: End all forms of discrimination against all women and girls everywhere;

SDG Target 5.4: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.

SDG Target 5.a: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.

SDG Target 10.2: By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

<sup>22</sup> SDG Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

SDG Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries; and

SDG Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

<sup>23</sup> SDG Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

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