



## Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING)

### Initiative Lead and Co-Lead

Isabelle Baltenweck  
Mourad Rekik

### Primary CGIAR Action Area

Resilient Agri-food Systems

### Estimated 2022 - 2024 Budget

\$90 - \$90 M

### Challenge

Globally, livestock is the fastest-growing, highest-value agricultural subsector, accounting for 15-80% of GDP in LMICs. At the same time malnutrition remains high in livestock dependent communities. In Africa and Asia, demand is expected to skyrocket 200% by 2030, an enormous opportunity for hundreds of millions of small- to medium-scale livestock producers who can meet the demand and provide nutrient dense foods for their families, countries, and regions (<https://bit.ly/3e1Qg4f>). But productivity is extremely low; annual milk yield of a cow in Sub-Saharan Africa and South Asia is 6% and 12% respectively of a cow in an OECD country. Value chain governance structures prevent producers from fully benefiting from markets and commercializing their farms (<https://bit.ly/2QoOAtJ>). Women, who do most of the work caring for livestock, have limited control over resources and decisions, and youth are marginalized from income-generation opportunities and assets (<https://bit.ly/3x6xpht>; <https://bit.ly/2Qt4GT7>; <https://bit.ly/2RFWoI3>). Non-optimal use of livestock genetic potential, lack of quality feeds, poor animal husbandry, and insufficient animal health technologies are widespread biotic constraints to sustainable productivity (<https://bit.ly/3tn5mYP>; <https://bit.ly/3uLIHFH>; <https://bit.ly/3mUsMCb>) leading to increased pressure on natural resources and GHG emissions (<https://bit.ly/3sgP7et>). Livestock producers face new risks from climate change (<https://bit.ly/3aa51B3>; <https://bit.ly/3dieRmq>) and the COVID-19 pandemic (<https://bit.ly/3uSMpxu>). Innovations in improved forages, breeding programs, herd health, and markets have demonstrated sustainable gains in on-farm productivity (<https://bit.ly/2Qqh9qo>; <https://bit.ly/3uVFh3n>; <https://bit.ly/3adIK6F>; <https://bit.ly/3wYhIIX>) but need to reach impact at scale. More broadly, evidence for decisions is lacking, resulting in underinvestment by the private sector and weak policies, limiting scale potential. New research approaches are needed to generate solutions that incentivize and enable producers to invest in sustainable production and achieve better livelihoods.

### Objective

SAPLING aims to enable one million livestock producers, 50% women, in 6 countries to engage in inclusive value chains and achieve sustainable productivity gains between 30-50%, resulting in improved livelihoods. Central to SAPLING's approach is leveraging livestock's huge ability to drive change for women and youth by providing evidence to decision-makers on how and why to be inclusive. SAPLING promotes approaches to ensure benefits of increased productivity translate into healthy, sustainable diets through consumption of safe animal source foods (ASFs). SAPLING aims to fill critical productivity and value-chain competitiveness gaps by developing a pipeline of new and existing demand-driven health, genetics, feed, and market systems innovations, including climate-smart and digital solutions. It will generate robust proof-of-concept results for production technologies and tools and inclusive business models for delivering innovations that incentivize producers to invest in sustainable productivity. SAPLING aims to support inclusive development in 7 value chains with high potential for small- and medium- scale producers to capture market growth. SAPLING will co-create innovation packages that address not only technology requirements but also necessary market structures, capacity and policies, and work with "next user" partners as a starting point to achieve scale. SAPLING will facilitate innovations to reach producers in 4 countries with quick wins for scaling, and 2 countries where relationships will be built and packages co-created, generating evidence and lessons. SAPLING will leverage these results to scale approaches that motivate producers to invest in sustainable production in other countries and to stimulate investment globally in sustainable livestock production.

### Theory of Change

SAPLING, with ANIMALS, OneHealth and Sustainable Intensification, supports sustainable growth of the livestock sector in LMICs, developing market-driven solutions to incentivize small- and medium-scale producers to invest in sustainable productivity and capture growing demand, while enhancing social inclusion, supporting improved nutrition, and contributing to environmental protection. It will do this by (1) developing a pipeline of new and contextualizing existing health, genetics, feed, and market systems innovations - technologies, practices, tools - that fill critical productivity and value-chain competitiveness gaps, (2) generating evidence and tools for enhancing equity, inclusion, and food and nutrition security in value chains, (3) developing, piloting, and facilitating scaling of context-specific innovation packages, and (4) leveraging resulting evidence to guide policies and increase investment for sustainable livestock productivity. Co-creation with private sector and other "next user" and co-design partners is expected to 1) generate solutions that better meet the needs and preferences of users resulting in higher adoption and 2) facilitate investment from partners to take innovations to scale. SAPLING will work in 4 countries where strong partnerships exist and innovation packages are ready for scaling, and 2 countries where relationships will be built and packages co-created. By 2024, this approach will enable one million livestock producers (50% women) of cattle, chickens, small ruminants, and pigs to engage in inclusive value chains and achieve sustainable productivity gains between 30-50%. Results will inform policy change and guide investments in countries and drive the global dialogue on livestock's contribution to livelihoods, leading to increased investment in sustainable livestock production

## Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING)

### Highlights

**Market-Oriented Innovation Packages:** Scaled adoption of market-oriented, co-designed, demand-driven and evidence-based innovation packages for small- and medium-scale producers that include production enhancing technologies/practices, models for competitive value chains, capacity development for public/private partners, and support for effective policies will generate triple impacts for livelihoods (income, nutrition, social inclusion).

**Accelerated Global Impact:** Scaling existing pilot-tested innovation packages in 4 countries with strong existing partnership and favourable scaling environments in 3-years will demonstrate feasibility and impact of interventions across sites and value chains. Resulting evidence will be leveraged to guide and advise national and global policies and investments

**Novel Product Pipeline:** Investment in novel research solves for priority technology/practise gaps within our innovation packages approach. Components of the "improving productivity" pillar of "Transforming Livestock Food Systems" are integrated to SAPLING as a platform to accelerate generation of productivity enhancing research products in health, genetics, and feed/forages.

**Co-creation Handover:** "Next-users" of research products (private companies, other incentivized groups) are embedded in design and development and invest in dissemination. Examples include selecting and testing new veterinary medicinal products with pharmaceutical companies who will take them to market, and co-designing business models with buyers who source from livestock producers.

**Transformative Inclusion:** Innovation packages are designed to support gender and age equity by overcoming gaps in livestock productivity, ownership, and technology access/adoption. Packages include solutions, such as labour-saving technologies, digital tools for information/finance, and entrepreneurship skills, demanded by women and youth to achieve profitable participation in livestock market systems.

### Work Packages

	Scope of Work	3-year Outcomes
Technologies and Practices for Sustainable Productivity	With "next user" delivery partners: Develop, adapt, test, demonstrate, and pilot new and existing productivity enhancing, climate-smart, scalable technologies and practices including improved feeds, forages and dual-purpose crops, novel animal health products, herd health packages, improved genetics, improved husbandry, and cross-cutting solutions for environmental sustainability.	Private and public sector partners invest at least \$30M in co-development and dissemination of novel climate-smart, demand-driven, gender and youth inclusive, and productivity enhancing technologies and practices for genetics, feed/forages, and health
Food and Nutrition Security	Generate evidence on effectiveness of approaches to strengthen the role of ASFs in diets and to reduce social barriers to sub-optimal consumption. Develop and test practices for safe production and appropriate handling of ASFs along livestock value chains. Co-create innovative models to deliver affordable, safe ASFs to consumers.	12 public and private sector nutrition education strategies and/or campaigns incorporate Initiative-developed social behaviour change communication strategies and tools for incorporating safe ASFs into a diverse diet leading to increased access to nutrition education. Value chain partners invest in innovative strategies and business models for reaching consumers with affordable ASFs.
Equity and Inclusion	Design and test accommodative and transformative approaches addressing gender- and youth-related constraints (accessing, benefiting, and controlling opportunities and resources) throughout the livestock market system and at the household level. Design and test women- and youth- demanded innovations that provide opportunities and capabilities to engage in competitive livestock value chains.	Public and private decision-makers in 4 countries use Initiative-generated evidence, knowledge, and tools to advance equality and social inclusion in 5 livestock value chains resulting in increased and beneficial participation by 400,000 women and 150,000 youth. Evidence on successful approaches to increase equity and inclusion informs investments and policies with global reach.
Innovation Packages for Value Chain Competitiveness	Generate evidence on innovation packages across sites and value chains. Prioritize innovations at the farm, value chain and landscape level via trade-off analysis. Co-create gender and youth inclusive innovation packages that include technologies/practices, veterinary/diagnostic services, input, extension and service delivery mechanisms, farmer and SME finance and insurance, and market information and output marketing systems	1 million women and men livestock keepers in 6 countries adopt the Initiative-supported co-created, demand-driven innovation packages, transitioning their systems to sustainable, climate-smart production while engaging in well-functioning, inclusive livestock value chains that provide transparent and efficient output markets, resulting in a 30-50% increase in livestock productivity.
Evidence, Decisions and Scaling	Provide compelling scientific evidence and tools that feed into co-delivery of technologies/practices, business-models and policies that will sustainably improve livelihoods. Synthesize evidence and develop communication and engagement strategies to disseminate and advocate for increased investments and better policies at country level and globally.	Public and private decision makers utilize Initiative-developed tools and recommendations 1) to inform policies and investments in 6 countries, resulting in better animal health, feed and genetics policies and reduced barriers to inclusive value chains and 2) to inform the global dialogue on livestock's contribution to livelihoods, leading to increased investment in sustainable livestock production.

## Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING)

### Impact Area Contributions

<b>Nutrition, health &amp; food security</b>	SAPLING contributes to ending hunger and enabling affordable healthy diets by 1) significantly increasing availability of safe, affordable, and micro-nutrient dense ASFs through increased livestock productivity and better-functioning value chains and 2) stimulating behaviour change of consumers and other actors to incorporate recommended quantities of ASFs in the diet and employ safe ASFs handling practices.
<b>Poverty reduction, livelihoods &amp; jobs</b>	SAPLING contributes to poverty reduction, livelihoods & jobs by making demand-driven productivity enhancing innovation packages available to livestock producers and enabling their participation in well-functioning and growing inclusive livestock value chains, leading to a doubling in sustainable livestock productivity, increased cash income for producers, and business opportunities and jobs for value chain actors.
<b>Gender equality, youth &amp; social inclusion</b>	SAPLING contributes to equality and social inclusion by leveraging livestock as a pathway to empowerment for women, youth, and other marginalized groups. These groups will have equal opportunity to participate in and benefit from strengthened livestock value-chains leading to increased livestock ownership, decision-making and control over income
<b>Climate adaptation &amp; greenhouse gas reduction</b>	SAPLING contributes to reducing emissions and increasing climate adaptation by providing producers with knowledge, tools, climate-adapted innovations (e.g., more adapted breeds, better feeds, improved health), and well-functioning value chains needed to increase productivity from low levels, significantly reducing GHG emission intensity.
<b>Environmental health &amp; biodiversity</b>	SAPLING contributes to environmental health & biodiversity by 1) supporting producers to achieve higher resource use efficiency, improve manure management, and appropriately manage livestock health to reduce residues and 2) preserving and enhancing agro-biodiversity of livestock breeds (for select species) and feeds through genetic and feed improvement programs.

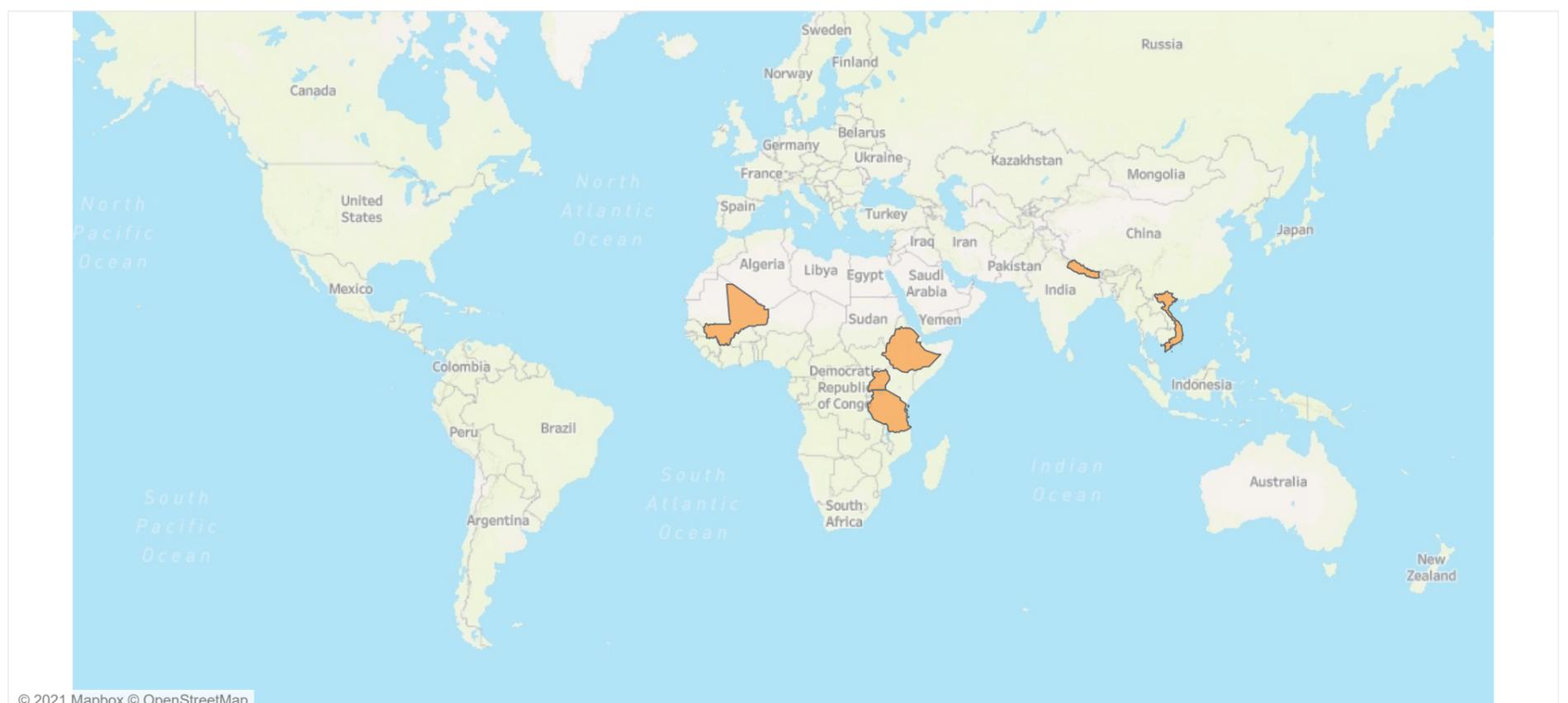
### Impact on SDGs



### Regions

Global East and Southern Africa (ESA), South Asia (SA), South East Asia and the Pacific (SEA), West and Central Africa (WCA)

### Countries



## Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING)

### Innovations

An optimized vaccine formulation for contagious caprine pleuropneumonia, one of the most severe and highly infectious diseases of goats, developed in partnership with an animal health company and used by livestock keepers to significantly reduce morbidity and mortality in their herds.

Market-driven business models that integrate multi-platform digital tools for livestock value chain actors to enhance value chain linkages and efficiency and improve livestock keepers' access to services and profitable input and output markets.

Playbook of social and behavioural change strategies targeted at the household level that include all those involved in decision-making (e.g., men and other influencers), not only the primary caregiver, for practitioners to support appropriate consumption of ASFs

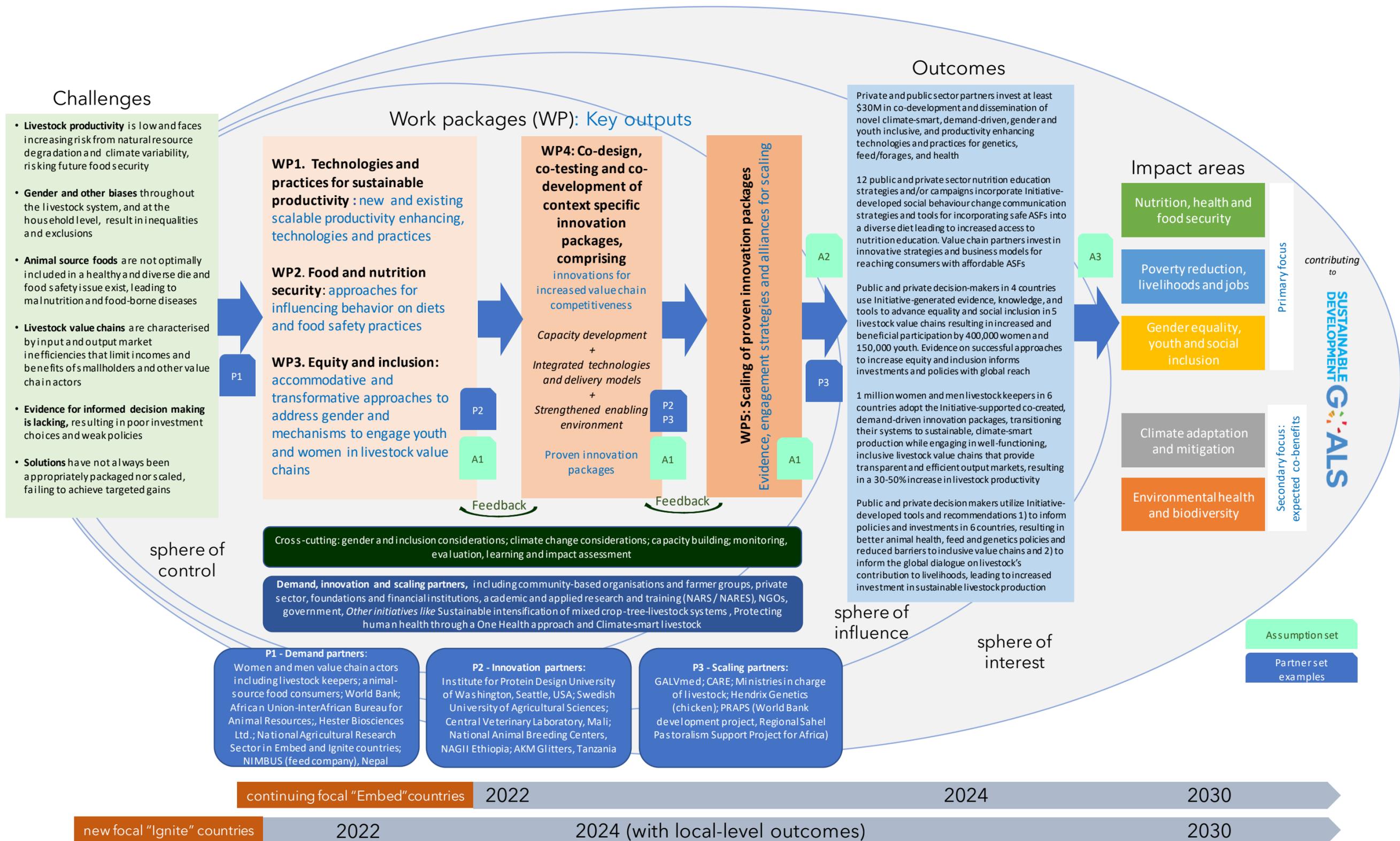
Toolkit of gender-transformative approaches for extension services, NARS, NGOs, private sector actors and multinational organizations to ensure livestock interventions lead to increased agency and decision-making power for women and other marginalized groups as a pathway toward empowerment through livestock

Decision-support system (integrating ex-ante modelling tools) that helps development actors, donors, and governments to assess trade-offs between social, economic, and environmental outcomes at different scales guiding the evidence-based planning of investments in sustainable livestock production.

### Key Partners

<b>Demand</b>	Academic, Training and Research	National Agricultural Research Sector in Embed and Ignite countries
	Multilateral	World Bank
	Other Public Sector	African Union- InterAfrican Bureau for Animal Resources
	Private Sector	Hester Biosciences Ltd.
NIMBUS (feed company), Nepal		
<b>Innovation</b>	Academic, Training and Research	Central Veterinary Laboratory, Mali
		Institute for Protein Design, University of Washington, Seattle, USA
		Swedish University of Agricultural Sciences
	Other Public Sector	National Animal Breeding Centers, NAGII Ethiopia
	Private Sector	AKM Glitters, Tanzania
<b>Scaling</b>	Government	Ministries in charge of livestock
	International NGO	CARE
		GALVmed
	Other	PRAPS (World Bank development project, Regional Sahel Pastoralism Support Project for Africa)
Private Sector	Hendrix Genetics (chicken)	

# Theory of change for Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING)



Assumption set	Key assumptions
1 Activities to outputs	<ul style="list-style-type: none"> <li>▪ Demand, innovation and scaling partners support the co-design, testing and scaling of innovations and innovation packages.</li> <li>▪ Sufficient incentives and safety-nets exist for stakeholders to adopt the innovation packages, including for risk-adverse groups.</li> <li>▪ The livestock sector is attractive to private and public sector engagement.</li> <li>▪ The enabling environment is conducive for scaling.</li> </ul>
2 Outputs to outcomes	<ul style="list-style-type: none"> <li>▪ Sufficient incentives and safety-nets exist for stakeholders to adopt the innovation packages, including for risk-adverse groups.</li> <li>▪ The livestock sector is attractive to private and public sector investment.</li> <li>▪ The enabling environment is conducive for scaling.</li> <li>▪ Smallholder livestock keepers remain competitive in the livestock sector.</li> <li>▪ There is sufficient demand for animal source foods and other livestock products.</li> </ul>
3 Outcomes to impacts	<ul style="list-style-type: none"> <li>▪ Smallholder livestock keepers remain competitive in the livestock sector.</li> <li>▪ There is sufficient demand for animal source foods and other livestock products.</li> <li>▪ Innovation packages are sustainable including from social, economic, and environmental perspectives.</li> </ul>