CGIAR Research Initiative on
Livestock and Climate

Annual Technical Report 2023

Disclaimers

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CGIAR Technical Reporting 2023

CGIAR Technical Reporting has been developed in alignment with the CGIAR Technical Reporting Arrangement. This Initiative report ("Type 1" report) constitutes part of the broader CGIAR Technical Report. Each CGIAR Research Initiative submits an annual "Type 1" report, which provides assurance on Initiative-level progress towards End of Initiative outcomes.

The CGIAR Technical Report comprises:

- Type 1 Initiative, Impact Platform, and Science Group Project (SGP) reports, with quality assured results reported by Initiatives, Platforms and SGPs available on the CGIAR Results Dashboard.

- The Type 3 Portfolio Performance and Project Coordination Practice Change report, which focuses on internal practice change.

- The Portfolio Narrative, which draws on the Type 1 and Type 3 reports, and the CGIAR Results Dashboard, to provide a broader view on Portfolio coherence, including results, partnerships, country and regional engagement, and synergies among the Portfolio's constituent parts.

The CGIAR Annual Report is a comprehensive overview of CGIAR's collective achievements, impact and strategic outlook, which draws significantly from the Technical Report products above. For 2023, the Annual Report and Technical Report will be presented online as an integrated product.
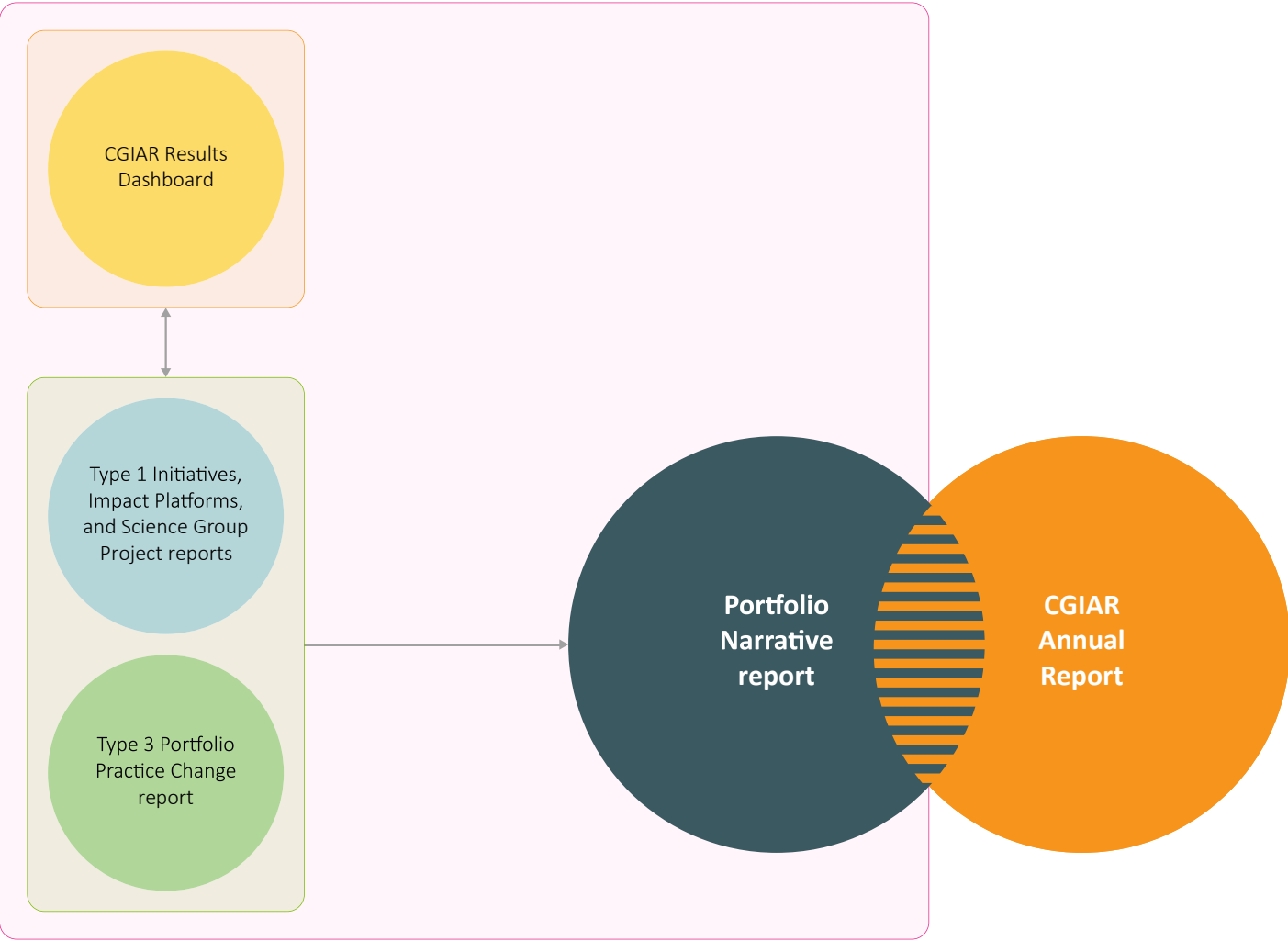
Section 1: **Fact sheet and budget**

Initiative name	Livestock, Climate and System Resilience
Initiative short name	Livestock and Climate
Initiative Lead	Fiona Flintan (f.flintan@cgiar.org)
Initiative Co-lead	Jacobo Arango (j.arango@cgiar.org)
Science Group	Resilient Agrifood Systems
Start – end date	01/01/2022 – 31/12/2024
Geographic scope	**Regions** Central and West Asia and North Africa · East and Southern Africa · Latin America and the Caribbean · West and Central Africa
	Countries Colombia · Ethiopia · Guatemala · Kenya · Mali · Senegal · United Republic of Tanzania · Tunisia
OECD DAC Climate marker adaptation score[1]	**Score 2: Principal** The activity is principally about meeting any of the three CGIAR climate-related strategy objectives – namely, climate mitigation, climate adaptation and climate policy, and would not have been undertaken without this objective.
OECD DAC Climate marker mitigation score[1]	**Score 2: Principal** The activity is principally about meeting any of the three CGIAR climate-related strategy objectives – namely, climate mitigation, climate adaptation and climate policy, and would not have been undertaken without this objective.
OECD DAC Gender equity marker score[2]	**Score 1A: Gender accommodative/aware** Gender equality is an objective, but not the main one. The Initiative/project includes at least two explicit gender specific outputs and (adequate) funding and resources are available. Data and indicators are disaggregated by gender and analyzed to explain potential gender variations and inequalities.
Website link	https://www.cgiar.org/initiative/34-livestock-climate-and-system-resilience/

[1] The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) markers refer to the OECD DAC Rio Markers for Climate and the gender equality policy marker. For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal.

[2] The CGIAR Gender Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.

These scores are derived from Initiative proposals, and refer to the score given to the Initiative overall based on their proposal.

EXECUTIVE SUMMARY

The CGIAR Research Initiative on Livestock and Climate reported 444 results in 2023, 150 of which had a global focus. This includes 320 knowledge products, of which 25 are peer-reviewed articles. The Initiative reported 43 capacity sharing events attended by over 3,640 participants. One in three participants were women. The Initiative has 27 active innovations, including 9 new ones in 2023 from indigenous plants for restoration to a land degradation economics analysis tool. Fourteen innovations are at scaling readiness level five or above. In 2023, six Innovation Package and Scaling Readiness (IPSR) workshops were held. Additionally, the Initiative reported nine Innovation Use cases by livestock farmers, commercial sector actors, microfinance institutions, and NGOs, with another five co-reported with other Initiatives.

The Initiative reported six policy changes in government, in UNFCCC (United Nations Framework Convention on Climate Change), in the Breakthrough Agenda, in a technical agency, and in a donor agency. One policy change was co-reported with the Initiative on Climate Resilience. Additionally, the Initiative achieved seven other outcomes, in which we influenced behavior changes in the UNFCCC, government agencies, and donors. With 22 outcome results, the Initiative is on track to achieve four out of five End-of-Initiative outcomes (EOIO), with some adjustments needed to Work Package 1 outcome due to ongoing conflict in Ethiopia stalling activities.

Highlights of 2024 included: strengthening the positive deviance and farmer–farmer scaling networks approach which gained keen interest from donors; advancing the integration of feeds and forages into the resilience agenda through an 'Occasional Feeds Conversation'; reaching over 100,000 livestock farmers with climate information services directly and millions of others indirectly; supporting the implementation of improved rangeland management on more than 500,000 hectares; using a gender transformative approach to build capacities of women to play a stronger role in decision-making processes among others; linking development of methane emission factors with Tier 2 accounting; and influencing the national and global commercial sectors and donors to secure more than US$35 million in livestock investments and to influence policy change. The year finished with a noteworthy set of contributions to the UN Climate Change Conference (COP28) of the UN Framework Convention on Climate Change (UNFCCC).

The Livestock and Climate Initiative is heavily reliant on active partnerships for success. In 2023, we reported partnerships with 228 organizations, 103 of which were global. The most reported partnerships were with national universities (88) and national agricultural research centers (NARs) (62).

We have strong portfolio linkages across the Initiatives, particularly the Initiatives on Climate Resilience (43 co-developed results) and AgriLAC Resiliente (25 co-developed results), with an additional 21 results co-developed together. In addition, Agroecology (19 co-developed results), Sustainable Animal Productivity (24 co-developed results), and Fragility, Conflict, and Migration (19 co-developed results). Five innovation use outcomes and one policy change were co-developed with the above as well as with the Low-Emission Food Systems Initiative. These connections strengthen output delivery, partnerships, economies of scale, make best use of available resources, and increase our reach.

Our key result story focuses on a local-level intervention in Tanzania using several of the Initiative's innovations to secure and improve management of 166,517 hectares of grazing lands located in 400,000 hectares of village land, benefiting over 100,000 residents

	2022 ▽	**2023** ▼	2024 ▽
PROPOSAL BUDGET ▷	$10.00M	**$19.10M**	$25.90M
APPROVED BUDGET [1] ▷	$7.92M	**$6.97M** [2]	$6.00M [3]

[1] The approved budget amounts correspond to the figures available for public access through the Financing dashboard.
[2] This amount includes carry-over and commitments.
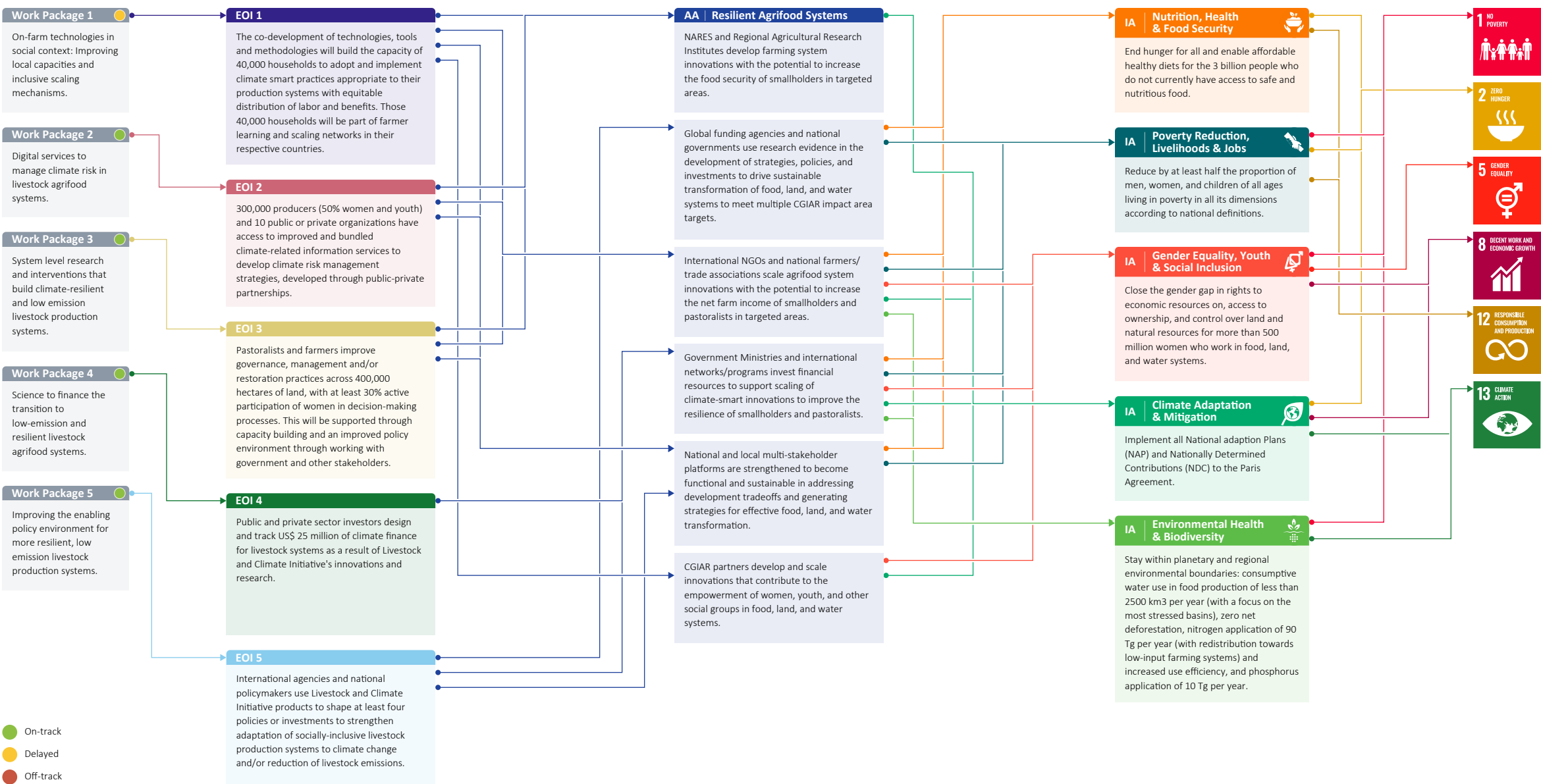[3] This amount is an estimation of the 2024 annual budget allocation, as of the end of March 2024.

Young men and women may require tailored, gender-differentiated interventions – 'community conversations' help to understand this. Credit: G. Smith/ILRI

Section 2: **Progress on science and towards End of Initiative outcomes**

Initiative-level theory of change diagram

This is a simple, linear, and static representation of a complex, non-linear, and dynamic reality. Feedback loops and connections between this Initiative and other Initiatives' theories of change are excluded for clarity.

Work Package 1
On-farm technologies in social context: Improving local capacities and inclusive scaling mechanisms.

Work Package 2
Digital services to manage climate risk in livestock agrifood systems.

Work Package 3
System level research and interventions that build climate-resilient and low emission livestock production systems.

Work Package 4
Science to finance the transition to low-emission and resilient livestock agrifood systems.

Work Package 5
Improving the enabling policy environment for more resilient, low emission livestock production systems.

EOI 1
The co-development of technologies, tools and methodologies will build the capacity of 40,000 households to adopt and implement climate smart practices appropriate to their production systems with equitable distribution of labor and benefits. Those 40,000 households will be part of farmer learning and scaling networks in their respective countries.

EOI 2
300,000 producers (50% women and youth) and 10 public or private organizations have access to improved and bundled climate-related information services to develop climate risk management strategies, developed through public-private partnerships.

EOI 3
Pastoralists and farmers improve governance, management and/or restoration practices across 400,000 hectares of land, with at least 30% active participation of women in decision-making processes. This will be supported through capacity building and an improved policy environment through working with government and other stakeholders.

EOI 4
Public and private sector investors design and track US$ 25 million of climate finance for livestock systems as a result of Livestock and Climate Initiative's innovations and research.

EOI 5
International agencies and national policymakers use Livestock and Climate Initiative products to shape at least four policies or investments to strengthen adaptation of socially-inclusive livestock production systems to climate change and/or reduction of livestock emissions.

AA | Resilient Agrifood Systems
NARES and Regional Agricultural Research Institutes develop farming system innovations with the potential to increase the food security of smallholders in targeted areas.

Global funding agencies and national governments use research evidence in the development of strategies, policies, and investments to drive sustainable transformation of food, land, and water systems to meet multiple CGIAR impact area targets.

International NGOs and national farmers/trade associations scale agrifood system innovations with the potential to increase the net farm income of smallholders and pastoralists in targeted areas.

Government Ministries and international networks/programs invest financial resources to support scaling of climate-smart innovations to improve the resilience of smallholders and pastoralists.

National and local multi-stakeholder platforms are strengthened to become functional and sustainable in addressing development tradeoffs and generating strategies for effective food, land, and water transformation.

CGIAR partners develop and scale innovations that contribute to the empowerment of women, youth, and other social groups in food, land, and water systems.

IA | Nutrition, Health & Food Security
End hunger for all and enable affordable healthy diets for the 3 billion people who do not currently have access to safe and nutritious food.

IA | Poverty Reduction, Livelihoods & Jobs
Reduce by at least half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions.

IA | Gender Equality, Youth & Social Inclusion
Close the gender gap in rights to economic resources on, access to ownership, and control over land and natural resources for more than 500 million women who work in food, land, and water systems.

IA | Climate Adaptation & Mitigation
Implement all National adaption Plans (NAP) and Nationally Determined Contributions (NDC) to the Paris Agreement.

IA | Environmental Health & Biodiversity
Stay within planetary and regional environmental boundaries: consumptive water use in food production of less than 2500 km3 per year (with a focus on the most stressed basins), zero net deforestation, nitrogen application of 90 Tg per year (with redistribution towards low-input farming systems) and increased use efficiency, and phosphorus application of 10 Tg per year.

- ● On-track
- ● Delayed
- ● Off-track

EOI | End of Initiative outcome
AA | Action Area
IA | Impact Area
SDG | Sustainable Development Goal

Note: A summary of Work Package progress ratings is provided in Section 3.

Adaptation pioneers Kidane and Wilta demonstrating their innovative livestock feed supplements, Ethiopia. Credit: Apollo Habtamu/ILRI

Summary of progress against the theory of change

The CGIAR Research Initiative on Livestock and Climate reported 444 results in 2023, 150 of which had a global focus. This includes 320 knowledge products, of which 25 are peer-reviewed articles. Of particular note is (i) a sustainable and climate-resilient livestock systems priority-setting paper, which has been used to influence policies and investments, including a 4.5-million-Euro investment from the German Federal Ministry of Economic Cooperation and Development (BMZ), and (ii) our contribution to the Agricultural Annex of the Breakthrough Agenda Report. We also presented at numerous international events during the year, including 25 presentations at Tropentag 2023.

The Initiative reported 43 capacity sharing events attended by over 3,640 participants. One in three participants were women. While not all events were reported, this was a significant increase from 2022, highlighting the Initiative's focus on building the capacities of those with whom we work. Most trainings were with community members on improving land management and field days for sharing farmer innovations.

Innovations are the Initiative's backbone. The Initiative has 27 active innovations, including 9 new ones in 2023. Fourteen are at scaling readiness level five or above. In 2023, six Innovation Packages and Scaling Readiness (IPSR) workshops were held on (i) animal feed pellet production in Tunisia, (ii) farmer-to-farmer scaling networks in Kenya and Ethiopia, (iii) participatory rangeland management in Baringo County, Kenya, (iv) index-based livestock insurance (IBLI) in Ethiopia, and (v) GANSO (Sustainable livestock standard) in Colombia. Additionally, the Initiative reported nine innovation use cases by livestock farmers, commercial sector actors, microfinance institutions, and NGOs, with another five co-reported with other Initiatives.

The Initiative reported six policy changes in government, the UNFCCC, the Breakthrough Agenda, a technical agency, and a donor agency. One policy change was co-reported with the Initiative on Climate Resilience. Additionally, the Initiative achieved seven other outcomes, in which we influenced behavior changes in the UNFCCC, government agencies, and donor agencies. With 22 outcome results, the Initiative is on track to achieve its 2024 targets.

Research on feeds and forages is taking place at both farm and landscape levels. This includes the development of cactus pear and *Hedysarum coranarium* in Tunisia which FAO selected as one of 12 most successful cases worldwide. Other feed and forage research focuses on climate-adapted planting systems, for example, *Urochloa humidicola* systems in Colombia, and livestock feed using agricultural byproducts in Tunisia. In 2023, the feeds and forages work was consolidated through an Occasional Feeds Conversation that will continue into 2024.

The Initiative is developing climate adaptation innovations and helping communities to scale innovations generated by local farmers through farmer-to-farmer scaling networks. Using a positive-deviance approach, the Initiative is supporting Kenyan pioneer households who have developed climate-friendly feed practices to share these innovations and scale them through farmer field days, co-designed feed management practice summaries, and strengthened social networks observing social inclusivity and gender responsiveness. In 2024, a monitoring, evaluation, learning and impact assessment (MELIA) study will focus on positive deviance, including impacts on learning networks.

Our climate risk research targets mixed crop-livestock and pastoral systems in Senegal, Kenya and Guatemala, reaching over 100,000 farmers and pastoralists. This includes bundled climate information services co-developed with more than 30 partners. With the Initiative on Climate Resilience and the Accelerating the Impact of CGIAR Climate Research for Africa program (AICCRA-Kenya), we worked with the television entertainment programs Shamba Shape Up and iShamba to disseminate information on improved livestock practices. Season 13 (2023) reached 4 million viewers a month. A use survey showed that 90 percent of viewers considered the content useful and 50 percent made changes in response to the program.

We continue to improve index-based livestock insurance (IBLI) by addressing bottlenecks that benefited 10,000 livestock keepers while exploring bundling with other services through the BOMA 'graduation' project. In 2024, a MELIA study will be conducted to identify client preferences. Additionally, a credit risk scoring tool was piloted by two branches of the Ecumenical Church Loan Fund

(ECLOF), reaching 500 dairy farmers (61.5 percent women), and a scaling partnership with Digifarm (Kenya) and Genesis (Guatemala) promises to reach tens of thousands of farmers. A 2024 MELIA study will focus on innovations related to credit scoring and a new ShambaShield for Climate-Proof Farming project.

This Initiative is the only one targeting pastoralists and rangelands, directly supporting improved governance, management, and restoration of 539,748 hectares of rangelands in a broader landscape of 928,413 hectare with 212 hectares under community-led restoration, and 126 hectares under extensive restoration trials. Decision-support tools, including land use, restoration cost-benefit analysis frameworks, and user-friendly GIS targeting tools, are in development. Governments in Ethiopia and Tanzania are scaling participatory land-use planning in pastoral areas. The benefits of these approaches for pastoralist women have been documented. A 2024 MELIA study will focus on the impact of participatory rangeland management on social collectivity and resilience.

The Initiative supports both gender-responsive and gender-transformative approaches. In Kenya, we work with the NGO GROOTS, adapting its "gender champions" model to support and strengthen women's leadership and peer learning in climate-smart dairy collectives. This includes dialoguing with men and boys on more equitable intra-household benefits and labor distributions. In Kenya's pastoral areas, an innovation called 'community conversations' is being tested to advance equitable participation and decision-making in locally led adaptation, and in Tanzania, 'women's leadership forums' are building solidarity, connectivity and individual and group power leading to collective action. A 2024 MELIA study will focus on the impact of these forums on gender transformation. In Tunisia, research supports validating women's roles in pastoralism and drylands agriculture in the face of climate change.

Participatory rangeland resource mapping is a first step of joint village land use planning and participatory rangeland management. Credit: Irene Mukalo/RECONCILE

In Colombia, we continue to bolster Hacienda San Jose's (HSJ) efforts to be a pioneering example of a profitable, low-emission commercial enterprise, improving soil health and carbon sequestration to realize both climate adaptation and mitigation benefits.

Grupo Éxito, one of Colombia's largest retail conglomerates, is collaborating with the Initiative to develop a sustainable livestock model. This innovative approach aims to safeguard forests and to reduce the environmental impact of beef production.

Reducing methane and other emissions from livestock is a major component of this Initiative, which often works on this with the Initiative on Low-Emission Food Systems. In 2023, three outcome results were led by ILRI's Mazingira Centre, including two with the Kenyan government: one on understanding the effect of interventions on greenhouse gas (GHG) indicators and the other on developing marginal abatement cost curves used for tradeoffs in dairy systems. The first results on GHG emissions from sheep excreta on tropical pastures were published. The Mazingira Centre is undertaking research to understand savanna ecosystem CO_2, CH_4, and H_2O exchange and emissions from livestock in pastoral systems, as well as research on reducing manure emissions and the effectiveness of manure biodigesters.

Our research results are used to influence national and global climate and livestock stakeholders. Through our Work Package 4, we target investors while developing data, tools, and systems to support decision-making processes such as cost-benefit analysis.

Monitoring tools are also in development, including a tree cover surveillance system for a 130,000 zero-deforestation program. We target policymakers through Work Package 5. In 2023, we provided data and tools to improve climate reporting, which were taken up by the Government of Kenya. In Colombia, support for the Columbian Roundtable for Sustainable Beef dialogue has continued to develop. A livestock module was developed for the Climate Security Observatory in collaboration with the Initiative on Climate Resilience. The year finished with a strong presence and noteworthy contributions to the UNFCCC COP28.

Progress by End of Initiative Outcome

EOIO 1: On-farm technologies in social context: Improving local capacities and inclusive scaling mechanisms.

In 2023, Initiative-generated GHG data was made accessible to the Government of Kenya, contributing to WP outcome 1. Initiative innovations such as pioneer farmer-led scaling networks and livestock feed pellets were used by stakeholders in undertaking three IPSR workshops. Other WP1 outcome results are proceeding well. EIOI target progress has proceeded as planned in Kenya. However, in Ethiopia, ongoing conflict in the intervention area has halted activities and for the time being attention is being given to building a more enabling environment for uptake when activities can proceed; these include national dialogues and consultations as well as discussions with partners regarding potential new locations.

EOIO 2: Digital services to manage climate risk in livestock agrifood systems.

Climate-informed advisory services were co-produced with 30 public and private organizations, reaching approximately 100,000 small-scale farmers and pastoralists and we are exploring service bundling. A climate-credit-risk scoring tool has unlocked climate finance for 500 farmers in Kenya, with a microfinance institute partnership potentially expanding to 200,000. IBLI analysis tools have been improved and an IPSR workshop in Addis Ababa co-developed an IBLI scaling pathway.

EOIO 3: System level research and interventions that build climate-resilient and low emission livestock production systems.

Five Initiative innovations were used by stakeholders to improve land-use planning, management, and governance of resilient livestock production systems. WP3 is directly supporting improved governance, management, and restoration of 539,748 hectares of rangelands set in a broader landscape of 928,413 hectares. Within this area, 212 hectares are under community-led restoration and 126 are under intensive restoration trials. Women's participation in decision-making bodies (where monitored) is more than 30 percent, with some women in leadership positions.

EOIO 4: Science to finance the transition to low-emission and resilient livestock agrifood systems.

In 2023, the Initiative influenced the mobilization of US$38.5 million for livestock adaptation and mitigation projects, which, together with the US$7.7 million mobilized in 2022, takes us well beyond our EOIO US$25-million target. Every WP4 US$1 invested has leveraged 25 times its value. Our awareness-raising EOIO has also been surpassed. Investments are scrutinized through economic evaluations. Investment analysis datasets are a rich resource for future investments.

EOIO 5: Improving the enabling policy environment for more resilient, low emission livestock production systems.

The Initiative works with the governments of Kenya, Ethiopia, Tanzania, Colombia, and Tunisia to (i) better report climate targets, and (ii) to improve sustainable livestock in agricultural policies, using Initiative science and systems. In 2023, two WP5 outcome results were achieved working with the Kenyan government. The Initiative also participated in two global platforms and conventions, the UNFCCC COP28 and the Breakthrough Agenda, which used the Initiative's science.
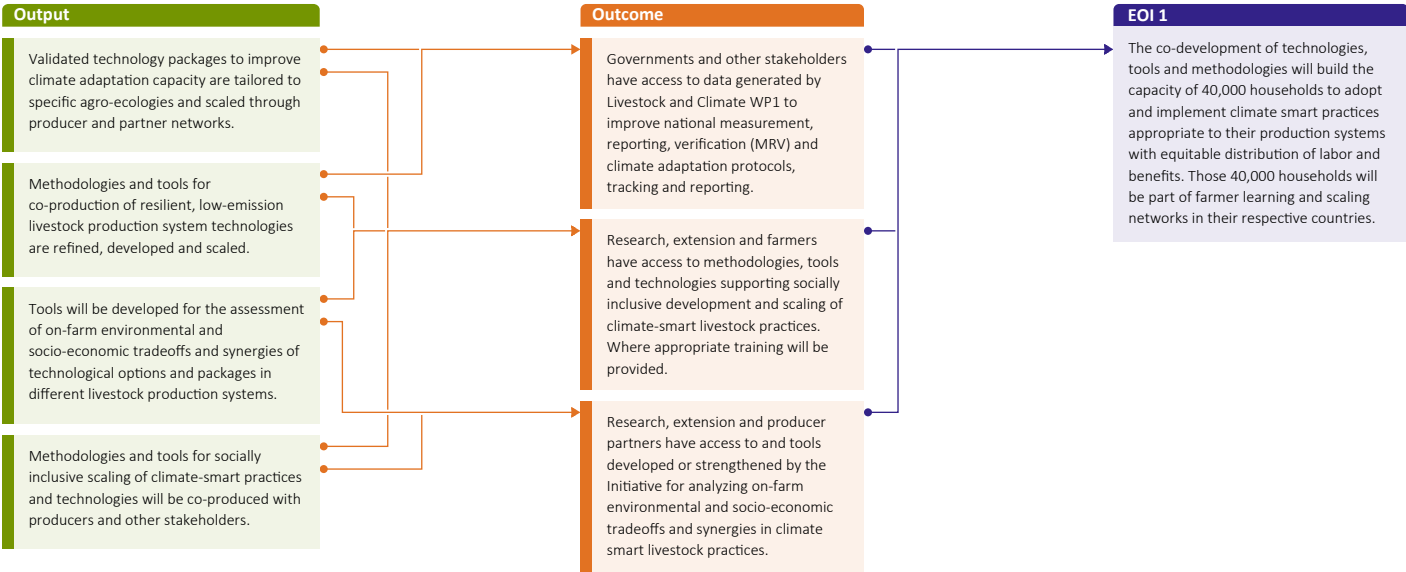

Livestock farmer uses a biodigester to break down manure to produce biogas and nutrient-rich fertiliser.
Credit: Daniel Mulat/ILRI

Section 3: **Work Package progress**

WP1: On-farm technologies in social context: Improving local capacities and inclusive scaling mechanisms

🟡 Delayed

Output	Outcome	EOI 1
Validated technology packages to improve climate adaptation capacity are tailored to specific agro-ecologies and scaled through producer and partner networks.	Governments and other stakeholders have access to data generated by Livestock and Climate WP1 to improve national measurement, reporting, verification (MRV) and climate adaptation protocols, tracking and reporting.	The co-development of technologies, tools and methodologies will build the capacity of 40,000 households to adopt and implement climate smart practices appropriate to their production systems with equitable distribution of labor and benefits. Those 40,000 households will be part of farmer learning and scaling networks in their respective countries.
Methodologies and tools for co-production of resilient, low-emission livestock production system technologies are refined, developed and scaled.	Research, extension and farmers have access to methodologies, tools and technologies supporting socially inclusive development and scaling of climate-smart livestock practices. Where appropriate training will be provided.	
Tools will be developed for the assessment of on-farm environmental and socio-economic tradeoffs and synergies of technological options and packages in different livestock production systems.		
Methodologies and tools for socially inclusive scaling of climate-smart practices and technologies will be co-produced with producers and other stakeholders.	Research, extension and producer partners have access to and tools developed or strengthened by the Initiative for analyzing on-farm environmental and socio-economic tradeoffs and synergies in climate smart livestock practices.	

Work Package 1 progress against the theory of change
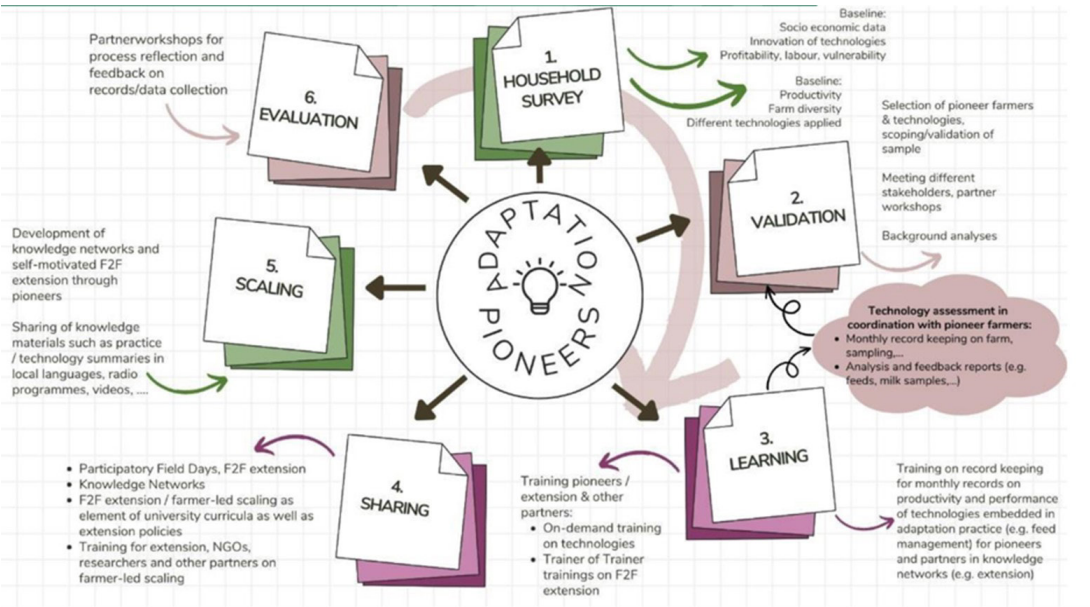
The pioneer-positive deviance (P-PD) scaling approach was refined by analysing data from the pilot phase, identifying examples of positive deviance (PD) in Kenya, Ethiopia, and Colombia, and practical implementation of P-PD in Kenya and Ethiopia. The P-PD work has engaged national and subnational stakeholders and technical scientists in producer-driven knowledge networks. Scaling with households, a methodological innovation, supports socially inclusive and equitable scaling of dairy practices through the P-PD approach. A pathway for scaling the P-PD approach was mapped during two IPSR workshops in 2023, one regional (Amhara) and one national, as well as a national stakeholder workshop to build broader understanding and support.

Building on our work on positive deviance and equity in dairy households, we co-developed a champions for transformation approach to strengthen women's leadership and peer learning in collectives with GROOTS Kenya. These efforts are key for socially inclusive climate adaptation in livestock systems. We also published research that underpins methodological innovations for socially inclusive scaling of climate-smart technologies, emphasizing gender responsiveness and conflict sensitivity in sylvo-pastoral systems with a history of forced displacement, dispossession, and violence.

Climate-smart technologies have been characterized for their contributions to productivity and climate change mitigation potential, including new forage options, nutritional blocks from tropical legumes and fruit trees, and feed pellets produced from agricultural byproducts for which an IPSR scaling workshop was held in 2023.

Other climate-smart livestock practices were co-developed with farmers, including pasture management and soil amendments, milking practices, and division of paddocks with forage trees. We published the first GHG emissions measurements from sheep excreta on tropical pastures and a direct comparison of Tier 1 and Tier 2 methodologies for estimating intake and enteric methane emissions. Together, this environmental research represents significant progress in validating and recommending climate-smart livestock practices and improving the measurement of GHG emissions in tropical livestock systems.

WP2: Digital services to manage climate risk in livestock agrifood systems

Output

- Global and local digital tools for delivering livestock climate information and index-based livestock insurance. Such tools will boost the access to and large-scale adoption of climate information services, credit and insurance products.
- A satellite-based agri-climate credit risk scoring system developed to inform service bundling for small-scale livestock producers and service providers.
- National insurance companies capacitated to improve insurance products, delivery and pay-out to meet the needs of farmers and pastoralists.
- A risk reduction monitoring toolkit to track and assess bundled services based on two-way feedback and real-time data collection, analysis and reporting is developed, tested and validated.
- Socially inclusive service bundles and feedback systems for de-risking LAFS are developed.

Outcome

- At least three meteorological services, livestock producers' organizations or extension services deliver gender-sensitive livestock CIS for climate risk management.
- At least three financial service providers in three countries adopt insurance-focused digital risk-scoring system quality standards.
- Public institutions in at least three countries use risk reduction platform developed by the Livestock and Climate Initiative to monitor livestock production systems.
- At least three agricultural small-medium enterprises across three countries adopt service bundles for climate risk management.

EOI 2

300,000 producers (50% women and youth) and 10 public or private organizations have access to improved and bundled climate-related information services to develop climate risk management strategies, developed through public-private partnerships.

Work Package 2 progress against the theory of change

Livestock and Climate's Work Package 2 has yielded promising impacts, taking us close to the EOIO of reaching 300,000 livestock producers with climate-risk management innovations. Engaging with more than 30 farmer-facing organizations and small and medium agricultural enterprises, Work Package 2 has implemented digital and participatory approaches to co-produce, translate, and disseminate climate information. In Kenya, through partnerships with the Initiatives on Climate Resilience and Diversification in East and Southern Africa (Ukami Ustawi), we have leveraged platforms such as Shamba Shape Up and iShamba to enhance climate and financial literacy among livestock keepers. For example, Shamba Shape Up Series 13, Episode 1, and Episode 11 reached four million viewers weekly, with a 90 percent utility rate and beneficial changes reported by 50 percent of people surveyed in a user study.

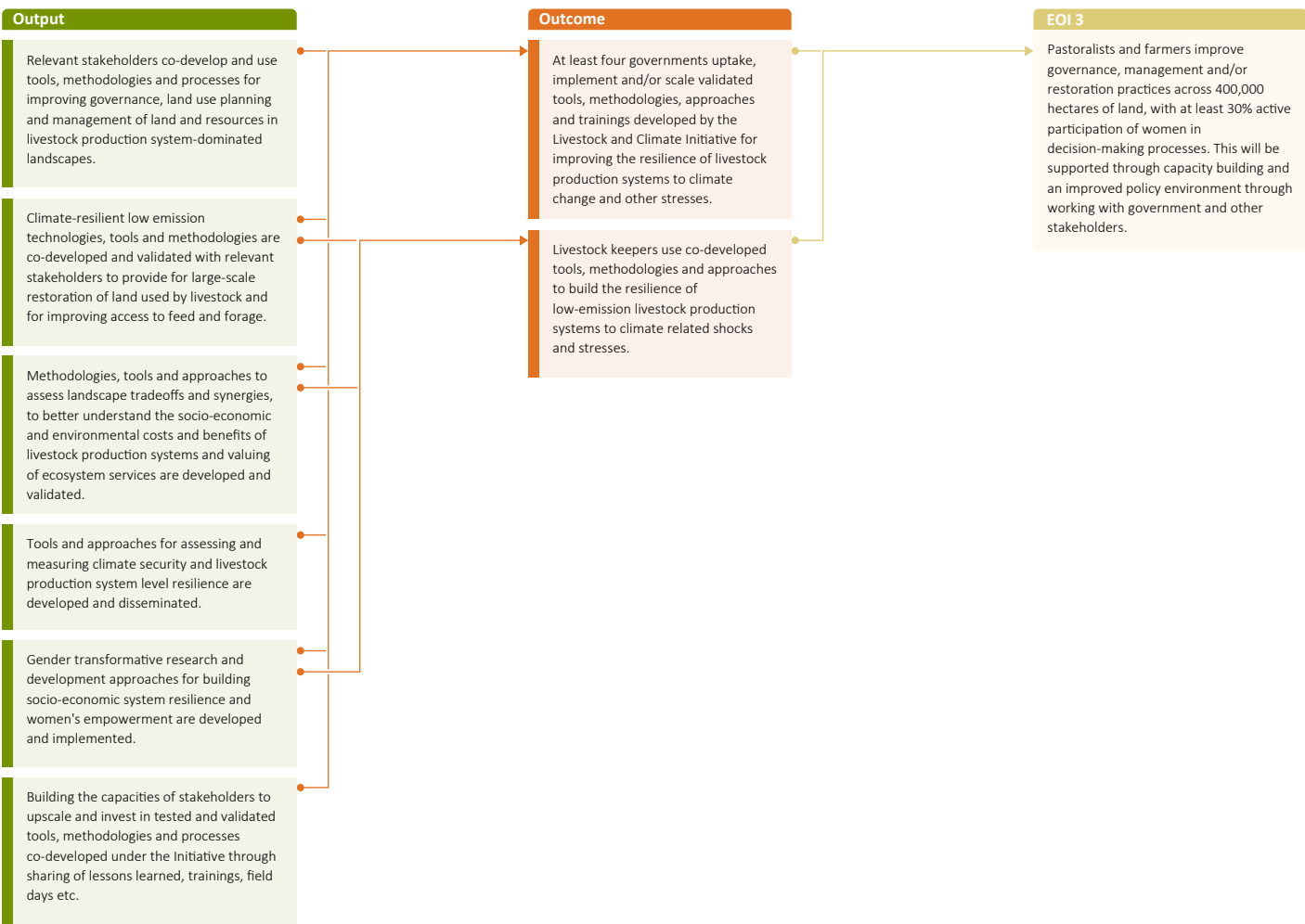A multidisciplinary working group in Senegal and local technical agro-climatic committees in Guatemala deliver climate-informed advisories to an estimated 50,000 farmers across all livestock-dominated areas. Climate information provision is being enhanced with targeting tools, namely climate risk maps.

Activities continue to support refining and scaling IBLI and bundling insurance with savings through the BOMA 'graduation' program, reaching 7,000 beneficiaries. We developed a new approach for detecting and segmenting palatable and non-palatable vegetation. An IPSR workshop on IBLI in Ethiopia charted a way forward for addressing scaling bottlenecks and challenges.

Through Work Package 2, we are working with the monetary financial institution, ECLOF, to unlock finance opportunities for dairy farmers and pastoralists by developing a climate-linked credit risk scoring tool that catalyzes farm adaptation and facilitates access to credit. Currently, 500 dairy farmers (62 percent women) in Kenya are benefiting. Strategic partnerships with organizations such as Safaricom Digifarm (Kenya) and Genesis (Guatemala) can potentially extend these benefits to hundreds of thousands more farmers. Building from the credit risk scoring success, Work Package 2 is engaged in the bundling climate and financial services through the ShambaShield innovation package currently being co-designed with the Ukami Ustawi and Climate Resilience Initiatives.

WP3: System level research and interventions that build climate-resilient and low emission livestock production systems

Output

- Relevant stakeholders co-develop and use tools, methodologies and processes for improving governance, land use planning and management of land and resources in livestock production system-dominated landscapes.
- Climate-resilient low emission technologies, tools and methodologies are co-developed and validated with relevant stakeholders to provide for large-scale restoration of land used by livestock and for improving access to feed and forage.
- Methodologies, tools and approaches to assess landscape tradeoffs and synergies, to better understand the socio-economic and environmental costs and benefits of livestock production systems and valuing of ecosystem services are developed and validated.
- Tools and approaches for assessing and measuring climate security and livestock production system level resilience are developed and disseminated.
- Gender transformative research and development approaches for building socio-economic system resilience and women's empowerment are developed and implemented.
- Building the capacities of stakeholders to upscale and invest in tested and validated tools, methodologies and processes co-developed under the Initiative through sharing of lessons learned, trainings, field days etc.

Outcome

- At least four governments uptake, implement and/or scale validated tools, methodologies, approaches and trainings developed by the Livestock and Climate Initiative for improving the resilience of livestock production systems to climate change and other stresses.
- Livestock keepers use co-developed tools, methodologies and approaches to build the resilience of low-emission livestock production systems to climate related shocks and stresses.

EOI 3

Pastoralists and farmers improve governance, management and/or restoration practices across 400,000 hectares of land, with at least 30% active participation of women in decision-making processes. This will be supported through capacity building and an improved policy environment through working with government and other stakeholders.

Work Package 3 progress against the theory of change

2023 saw significant progress in the use of rangeland-focused innovations. The Sustainable Rangeland Management Toolkit was taken up by the International Union for the Conservation of Nature (IUCN) and the IGAD Centre for Pastoral and Livestock Development committed to scaling participatory rangeland management (PRM).

The Initiative is supporting PRM on 539,748 hectares of rangeland, including as a contribution to One Health, while indirectly benefiting a broader landscape of 928,413 hectares. Of this, 112 hectares are under community-led restoration, and 66 are under intensive restoration research trials. A further 90,000 hectares is being implemented with AICCRA. Across these sites, decision-making bodies include more than 30 percent women.

In Tunisia, a 110,000-hectare Pastoral Living Landscape integrating territorial intelligence with economic diversification was established with a feed intervention covering 45,000. A 5,000-hectare silvopastoral site is supported, with 100 hectares under community-led restoration and 50 hectares under restoration trials. This is supported by research and capacity building on the use of native species in silvopastoral rehabilitation, the contribution of rangeland management in collective action, and the use of a Bayesian

Belief approach to understand pathways for improving rangeland governance.
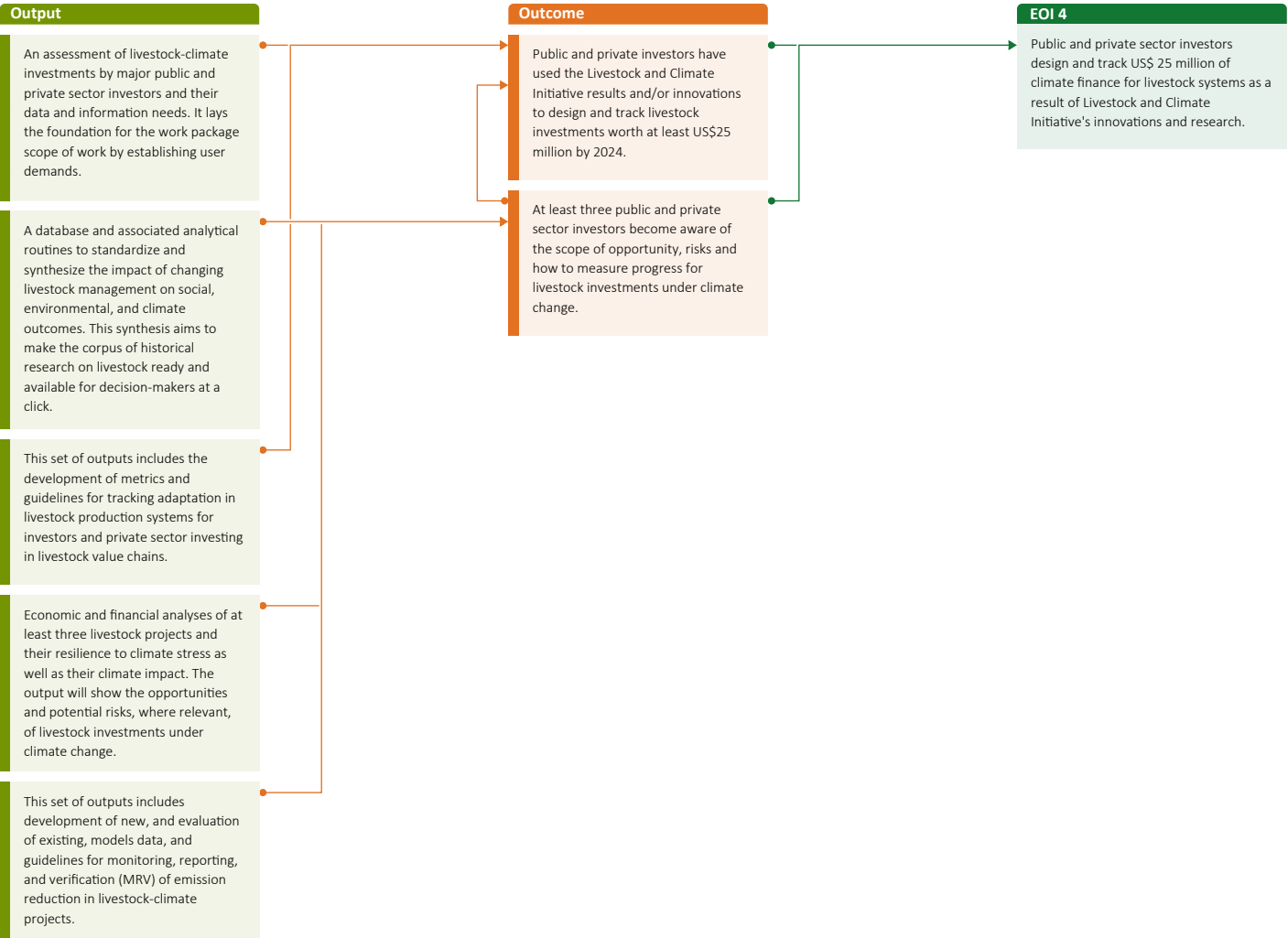
In 2023, we strengthened our efforts to integrate gender transformative approaches into our activities. We support community conversations, and, in collaboration with the Initiative on Climate Resilience and the Nordic Africa Institute, tested a social equity lens for nurturing transformative adaptation building on CGIAR's GENNOVATE. In Tanzania, women's leadership forums are being piloted and research in Tunisia revealed that policy fails to support pastoral women.

Decision-support tools, including land-use and restoration cost-benefit analysis frameworks and user-friendly GIS targeting tools are in development. To understand landscape tradeoffs and synergies, a framework for integrating ecosystem services valuation into economic valuations is under development.

On climate mitigation, at ILRI's Kapti Research Station, we are researching savanna ecosystem CO_2, CH_4 and H_2O exchange. An eddy tower 'sees' incoming and outgoing C and H_2O fluxes. Research on reducing manure emissions and the effectiveness of manure biodigesters is under way. Another study is examining emissions from termite mounds.

WP4: Science to finance the transition to low-emission and resilient livestock agrifood systems

Output

An assessment of livestock-climate investments by major public and private sector investors and their data and information needs. It lays the foundation for the work package scope of work by establishing user demands.

A database and associated analytical routines to standardize and synthesize the impact of changing livestock management on social, environmental, and climate outcomes. This synthesis aims to make the corpus of historical research on livestock ready and available for decision-makers at a click.

This set of outputs includes the development of metrics and guidelines for tracking adaptation in livestock production systems for investors and private sector investing in livestock value chains.

Economic and financial analyses of at least three livestock projects and their resilience to climate stress as well as their climate impact. The output will show the opportunities and potential risks, where relevant, of livestock investments under climate change.

This set of outputs includes development of new, and evaluation of existing, models data, and guidelines for monitoring, reporting, and verification (MRV) of emission reduction in livestock-climate projects.

Outcome

Public and private investors have used the Livestock and Climate Initiative results and/or innovations to design and track livestock investments worth at least US$25 million by 2024.

At least three public and private sector investors become aware of the scope of opportunity, risks and how to measure progress for livestock investments under climate change.

EOI 4

Public and private sector investors design and track US$ 25 million of climate finance for livestock systems as a result of Livestock and Climate Initiative's innovations and research.

Work Package 4 progress against the theory of change

Progress has been made across four Work Package 4 components: (i) undertaking analyses and developing tools for better understanding risks and opportunities in livestock investment, (ii) global and local analyses that provide evidence to unlock investments, (iii) tools for tracking adaptation and measuring emission reductions at the investment project level, and (iv) testing these approaches with end stakeholders.

An analysis of priority areas for investment in more sustainable and climate-resilient livestock systems published in *Nature Sustainability* was used by IUCN to develop a US$34-million Green Climate Fund investment and by the German Corporation for International Cooperation (GIZ) to leverage a Euro4.5-million BMZ investment. Co-produced with the Initiative on Excellence in Agronomy, a Compendium of Impact Pathways for Adaptation of African Agriculture guides private- and public-sector agricultural investments.

Additionally, the Initiative raised awareness about the scope of opportunities and risks and how to measure progress for livestock climate investments of three investors: the Bezos Earth Fund, Sail Ventures, and International Finance Corporation.
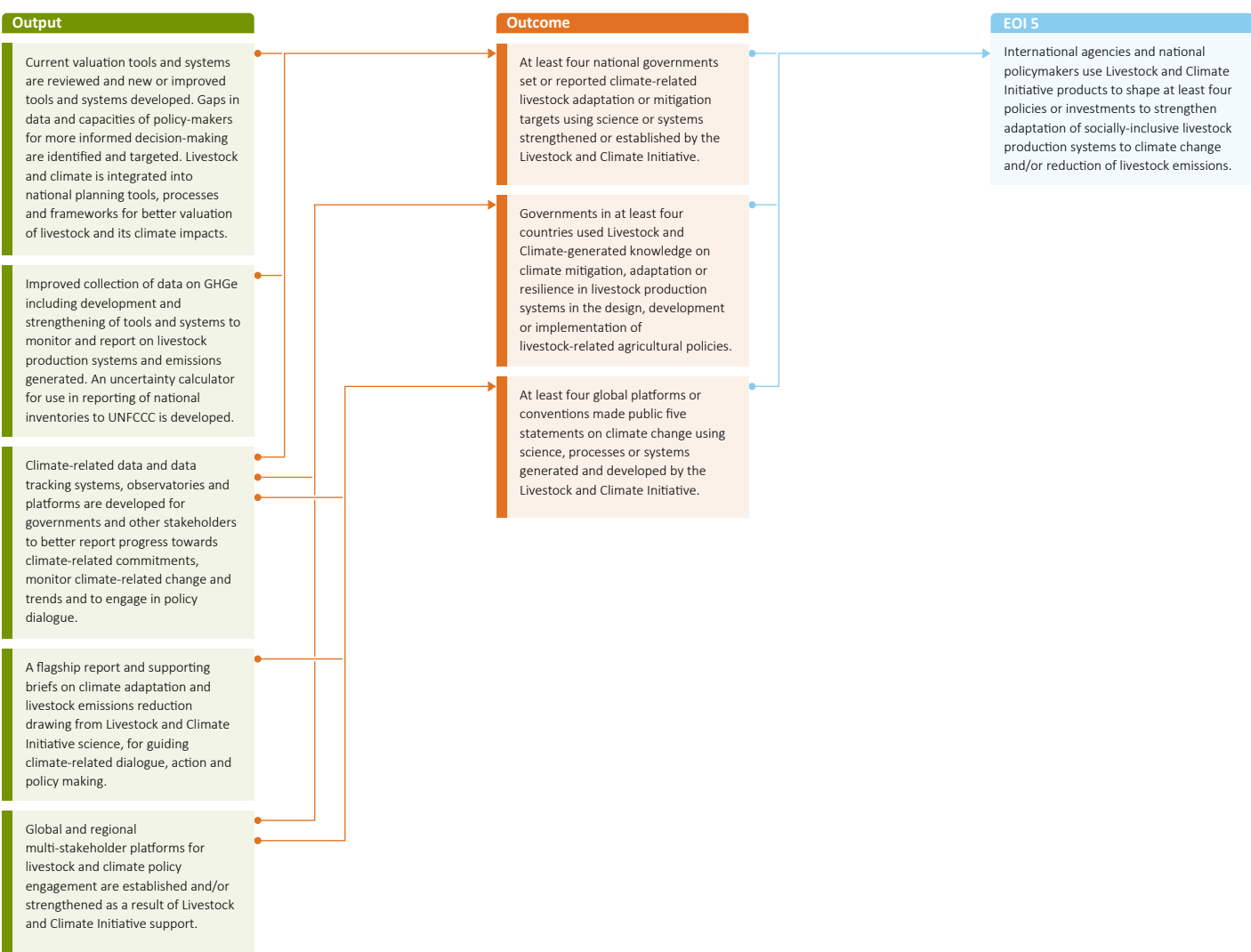
In Tunisia, the International Center for Agricultural Research in the Dry Areas (ICARDA) developed an Analysis Pack for the Economics of Land Degradation to estimate costs of land degradation and guide proactive measures. We also explored remote sensing to monitor land degradation in Ethiopia.

In Latin America, we provide economic analysis tools, methodologies, and data to guide investments in more sustainable beef production, particularly silvopastoral systems. This includes economic analyses of *Canavalia brasiliensis* (a, b, c), other forage supplementation, and methane reductions in silvopastoral, dairy, and beef farming. We also explored silvopastoral market governance, mechanisms, and potential in Latin America and East Africa.

In Colombia, we continue to work with Grupo Éxito on a beef certification scheme with a scaling pathway developed in an IPSR workshop. In Work Package 3, we developed a tree cover surveillance system for 130,000 ha under a zero deforestation program and the potential of AI models using remote sensing for monitoring trees in silvopastoral systems.

WP5: Improving the enabling policy environment for more resilient, low emission livestock production systems

Output

Current valuation tools and systems are reviewed and new or improved tools and systems developed. Gaps in data and capacities of policy-makers for more informed decision-making are identified and targeted. Livestock and climate is integrated into national planning tools, processes and frameworks for better valuation of livestock and its climate impacts.

Improved collection of data on GHGe including development and strengthening of tools and systems to monitor and report on livestock production systems and emissions generated. An uncertainty calculator for use in reporting of national inventories to UNFCCC is developed.

Climate-related data and data tracking systems, observatories and platforms are developed for governments and other stakeholders to better report progress towards climate-related commitments, monitor climate-related change and trends and to engage in policy dialogue.

A flagship report and supporting briefs on climate adaptation and livestock emissions reduction drawing from Livestock and Climate Initiative science, for guiding climate-related dialogue, action and policy making.

Global and regional multi-stakeholder platforms for livestock and climate policy engagement are established and/or strengthened as a result of Livestock and Climate Initiative support.

Outcome

At least four national governments set or reported climate-related livestock adaptation or mitigation targets using science or systems strengthened or established by the Livestock and Climate Initiative.

Governments in at least four countries used Livestock and Climate-generated knowledge on climate mitigation, adaptation or resilience in livestock production systems in the design, development or implementation of livestock-related agricultural policies.

At least four global platforms or conventions made public five statements on climate change using science, processes or systems generated and developed by the Livestock and Climate Initiative.

EOI 5

International agencies and national policymakers use Livestock and Climate Initiative products to shape at least four policies or investments to strengthen adaptation of socially-inclusive livestock production systems to climate change and/or reduction of livestock emissions.

Work Package 5 progress against the theory of change

The Initiative continues to influence the UNFCCC with scientists contributing to the latest Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report (AR6) and a strong presence at COP28. The Initiative builds the capacity of the African Group of Negotiators Expert Support (AGNES), including the preparation of submissions to UNFCCC. The Initiative contributed to the UN Adaptation Gap Report 2023, and GHG emissions research was presented at the United Nations General Assembly Science Week.

The Initiative also worked with the United Nations Convention to Combat Desertification (UNCCD), including dialogue on achieving Land Degradation Neutrality and a side event at the UNCCD Committee for the Review of the Implementation of the Convention (CRIC). We also supported FAO's Committee on Forestry and contributed to FAO's Sustainable Livestock conference, including supporting three pastoralists to attend the parallel youth dialogue.

Through the Climate Impact Platform, livestock and climate scientists contributed to a chapter on reducing livestock emissions in Achieving Agricultural Breakthrough, the CGIAR Annex to the 2023 Breakthrough Agenda Report. We also presented in several webinars for which a supporting film was made.

Work Package 5 also seeks to influence national governments. In 2023, two outcome results were achieved by the Mazingira Centre working with the Kenyan government. The upscaling of the environmental assessment tool CLEANED and integrated climate mitigation into Livestock Master Plans was supported with the Initiative on Sustainable Animal Productivity. In Colombia, the Initiative continues to support the Colombian Roundtable for Sustainable Beef, policy influence, and a low carbon livestock research network. Generation and modeling of GHGe is undertaken, including for reporting nationally determined contributions.

As a contribution to adaptation and climate security policy making, the Initiative developed the livestock module of the Climate Security Observatory (CSO), collaborating with several other Initiatives. The Initiative also works with the governments of Kenya and Ethiopia on developing a climate adaptation livestock tracking system.

The livestock module within the Climate Security Observatory
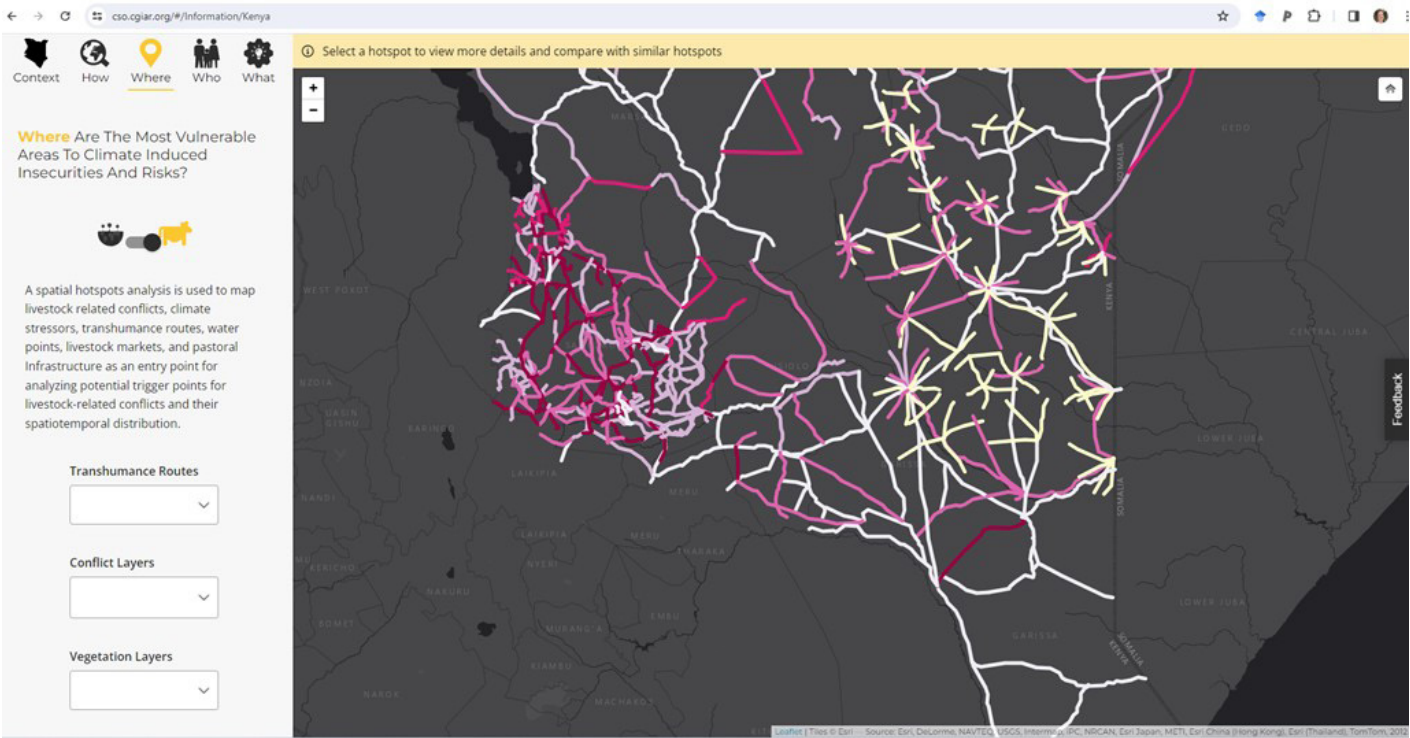
A discussion on women's land rights led by a Women's Leadership Forum, Tanzania
Credit: UCRT Tanzania

Work Package progress rating summary

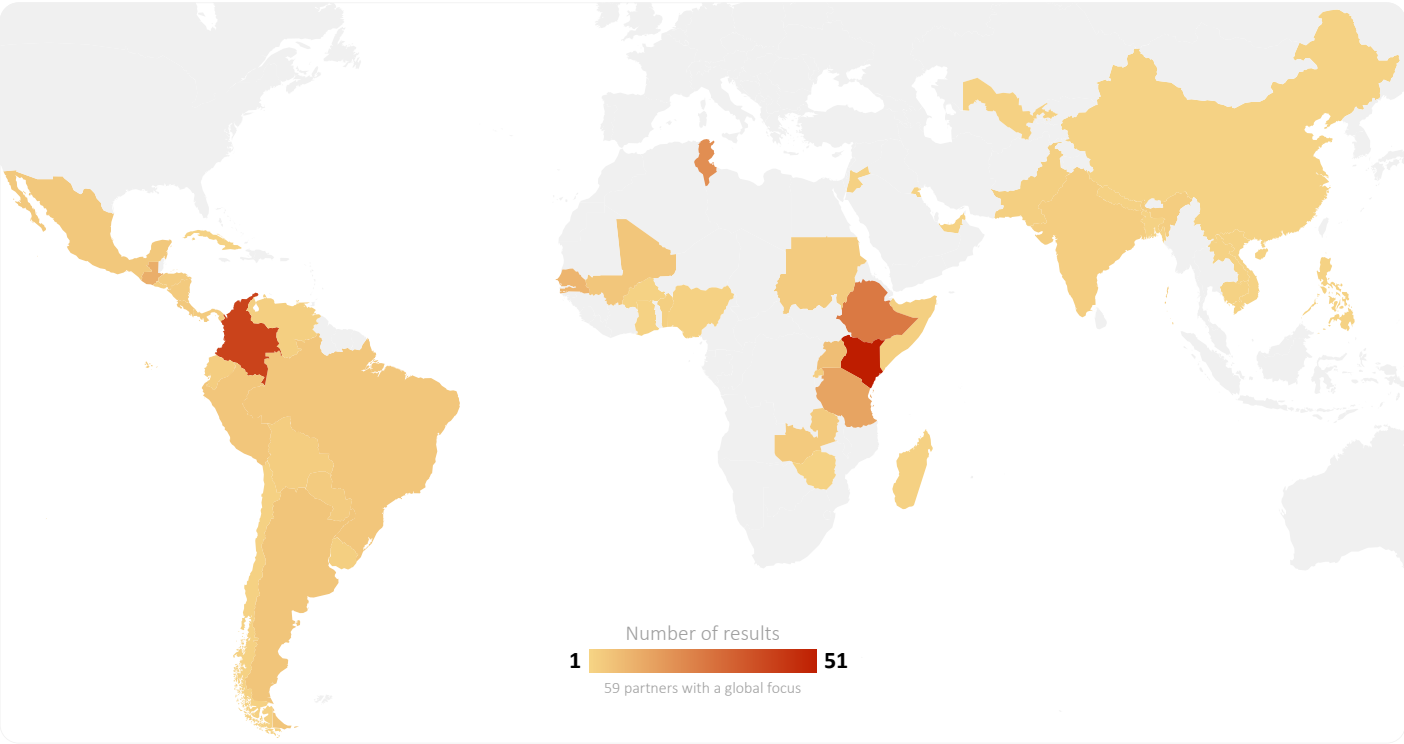| WORK PACKAGE	PROGRESS RATING & RATIONALE
1	🟡 **Progress rating** The mid-2023 budget cuts forced us to reduce our pioneer farmer scaling activities in Colombia. The ongoing conflict and security situation in Ethiopia's Amhara Region required us to cease all activities in July 2023. We are currently exploring how to establish similar activities in Ethiopia's Somali Region, but activities are unlikely to start until mid-2024. This situation has compromised our ability to reach our WP EOIO. Other activities are proceeding well.
2	🟢 **Progress rating** Despite some delays in 2022, this WP is now well on track to achieve its EOIOs. Strong partnerships, including with the Initiative on Climate Resilience and AICCRA, and the innovative use of media such as Shamba ShapeUp, has allowed us to reach large numbers of farmers and livestock keepers.
3	🟢 **Progress rating** WP3 has reached its EOIO in terms of hectares; however, we continue to work on improving the depth of our engagement and the policy environment. We also continue to develop our growing library of innovations and develop action scaling pathways.
4	🟢 **Progress rating** With the EOIO already surpassed, this WP continues to strengthen its engagement with investors and to enhance our influence by strengthening data, tools, and approaches to support more informed and favorable decision-making on sustainable livestock investments.
5	🟢 **Progress rating** WP5 achieved a good number of outcome results in 2023. We are confident we will reach our EOIO targets. This will be accompanied by well-documented evidence of policy influence.

Definitions

🟢 **On track**

✅ Annual progress largely aligns with Plan of Results and Budget and Work Package theory of change.

✅ Can include small deviations/issues/delays/risks that do not jeopardize success of Work Package.

🟡 **Delayed**

🔲 Annual progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas.

🔲 Deviations/issues/delays/risks could jeopardize success of Work Package if not managed appropriately.

🔴 **Off track**

❌ Annual progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas.

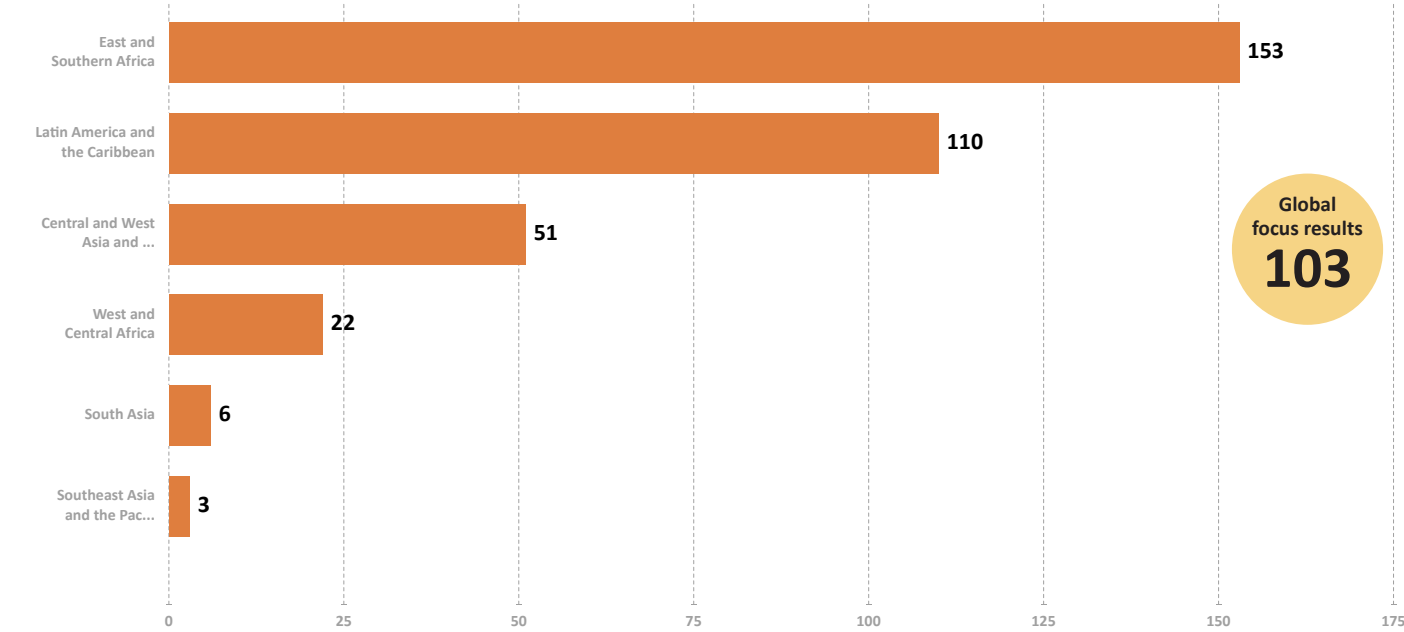❌ Deviations/issues/delays/risks do jeopardize success of Work Package.

Section 4: **Key results**

This section provides an overview of results reported by the CGIAR Research Initiative on Livestock and Climate in 2023. These results align with the CGIAR Results Framework and Livestock and Climate's theory of change. Source: *Data extracted from the* [CGIAR Results Dashboard](#) *on 29 March 2024.*
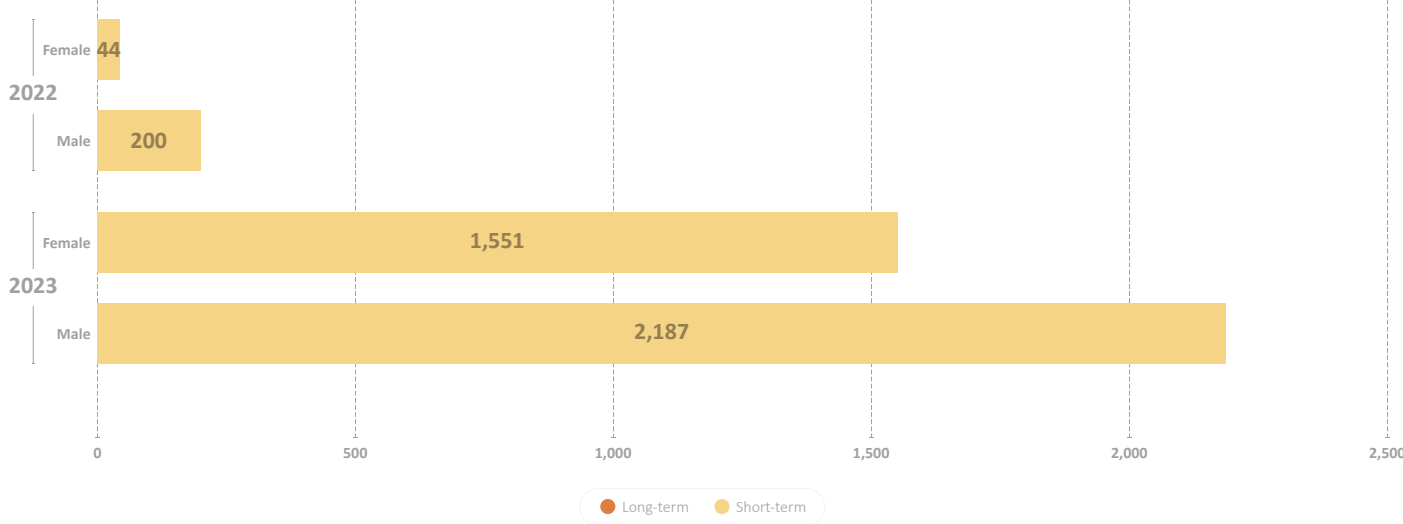
Geographic distribution of 2023 results

Number of results
1 — 51
59 partners with a global focus

Results by region

Region	Results
East and Southern Africa	153
Latin America and the Caribbean	110
Central and West Asia and ...	51
West and Central Africa	22
South Asia	6
Southeast Asia and the Pac...	3

Global focus results 103

Overview of results reported

Outputs

Knowledge products	320
Capacity sharing for development	43
Innovation development	34
Other outputs	13

Outcomes

Innovation use	21
Other outcome	7
Policy change	6

Number of individuals trained by the Initiative (trend overview, 2022-2023)

Year		Value
2022	Female	44
	Male	200
2023	Female	1,551
	Male	2,187

● Long-term ● Short-term

Short-term capacity sharing for development: the Initiative reported events reaching 3,754 participants with 1 in 3 being women.
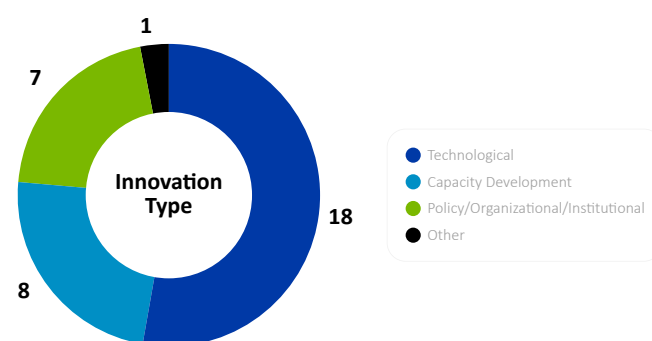
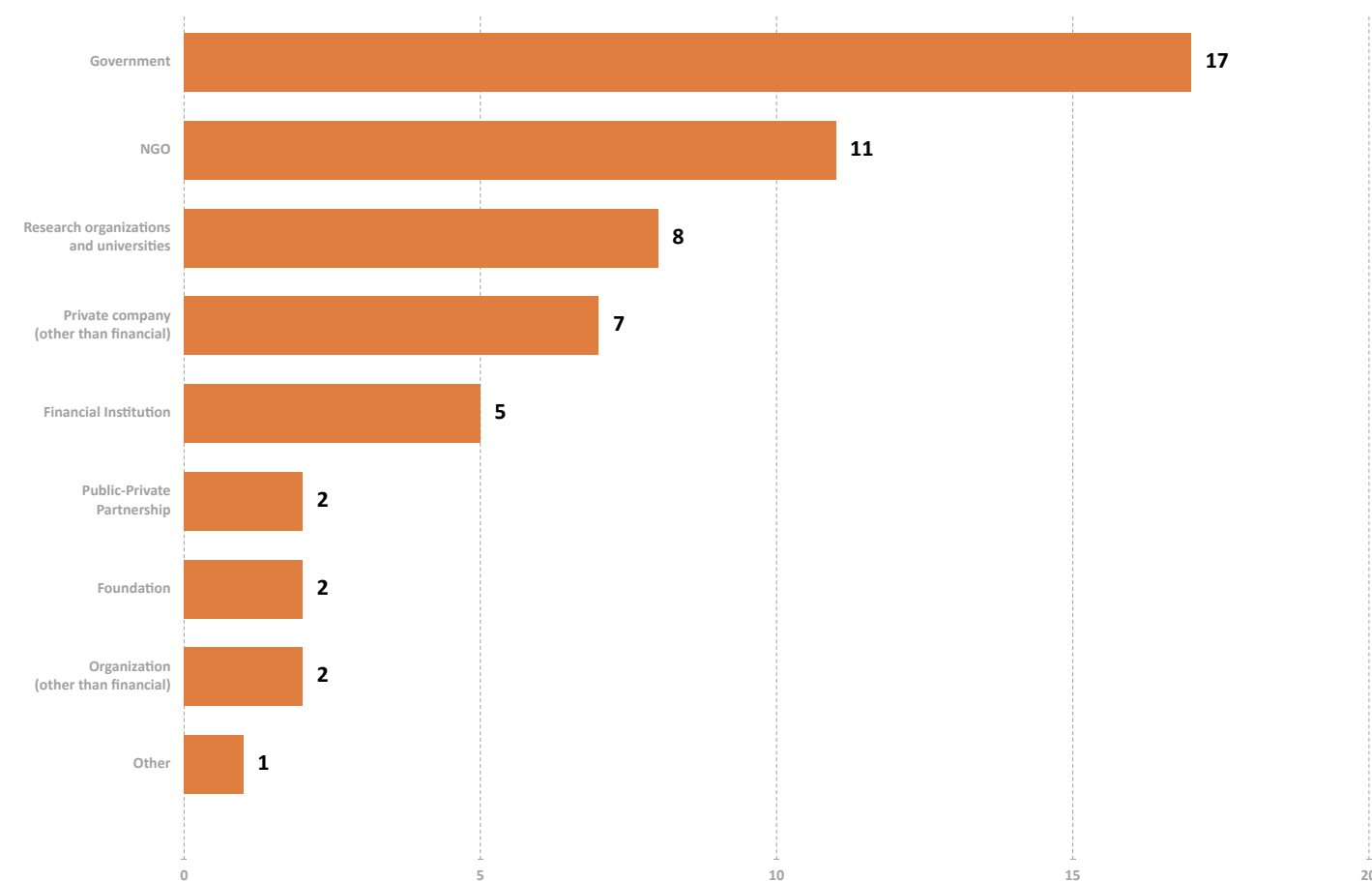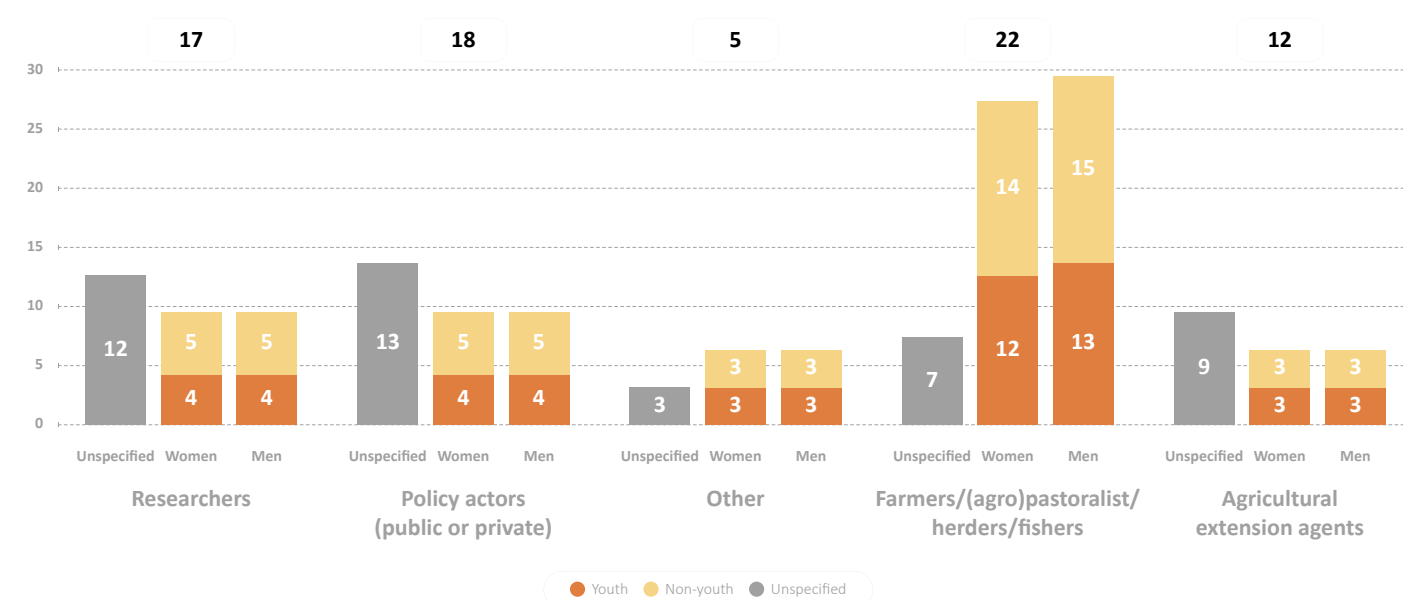## Percentage of reported results tagged to CGIAR Impact Areas

Nutrition, health and food security — 5% / 31% / 64%

Poverty reduction, livelihoods and Jobs — 12% / 43% / 45%

Gender equality, youth and social inclusion — 5% / 31% / 64%

Climate adaptation and mitigation — 12% / 43% / 45%

Environmental health and biodiversity — 5% / 31% / 64%

● **Principal:** The result is principally about meeting any of the Impact Area objectives, and this is fundamental in its design and expected results. The result would not have been undertaken without this objective.

● **Significant:** The result has made a significant contribution to any of the Impact Area objectives, even though the objective(s) is not the principal focus of the result.

● **Not targeted:** The result did not target any of the Impact Area objectives.

Number of innovations by readiness level

Pipeline overview
# of innovations ⌄

9	**Proven Innovation** The innovation is validated for its ability to achieve a specific impact under uncontrolled conditions	5
8	**Uncontrolled Testing** The innovation is being tested for its ability to achieve a specific impact under uncontrolled conditions	4
7	**Prototype** The innovation is validated for its ability to achieve a specific impact under semi-controlled conditions	8
6	**Semi-Controlled Testing** The innovation is being tested for its ability to achieve a specific impact under semi-controlled conditions	2
5	**Model/Early Prototype** The innovation is validated for its ability to achieve a specific impact under fully-controlled conditions	2
4	**Controlled Testing** The innovation is being tested for its ability to achieve a specific impact under fully-controlled conditions	5
3	**Proof of Concept** The innovation's key concepts have been validated for their ability to achieve a specific impact	1
2	**Formulation** The innovation's key concepts are being formulated or designed	5
1	**Basic Research** The innovation's basic principles are being researched for their ability to achieve a specific impact	1
0	**Idea** The innovation is at idea stage	1

Reported innovations by type

Innovation Type

- Technological — 18
- Capacity Development — 8
- Policy/Organizational/Institutional — 7
- Other — 1

Innovation users by institution type

Institution	Value
Government	17
NGO	11
Research organizations and universities	8
Private company (other than financial)	7
Financial Institution	5
Public-Private Partnership	2
Foundation	2
Organization (other than financial)	2
Other	1

Innovation development results by specific target group/action

	Researchers (17)	Policy actors (public or private) (18)	Other (5)	Farmers/(agro)pastoralist/herders/fishers (22)	Agricultural extension agents (12)
Unspecified	12	13	3	7	9
Women	4 / 5	4 / 5	3 / 3	12 / 14	3 / 3
Men	4 / 5	4 / 5	3 / 3	13 / 15	3 / 3

Legend: ● Youth ● Non-youth ● Unspecified

Section 5: **Partnerships**

EXTERNAL PARTNERS CONTRIBUTING TO RESULTS, PER COUNTRY

Number of results

1   79

103 partners with a global focus

Colors represent the number of different partners which collaborated on results achieved in a specific country. One result can impact different countries and therefore the same partner can be associated with more than one country. Source: Data extracted from the Results Dashboard on 29 March 2024.

TOP 10 PARTNER TYPOLOGIES THAT CONTRIBUTED TO DELIVERING 2023 RESULTS

Typology	Number
Research organizations and universities National (Universities)	88
Research organizations and universities National (NARS)	62
Government (National)	42
Government (Subnational)	31
Private company (other than financial)	22
NGO International (General)	16
NGO Local (General)	15
Organization (other than financial or research) International	15
Research organizations and universities International (CGIAR)	13
Other	11

Partnerships and Livestock and Climate's impact pathways

The Livestock and Climate Initiative is heavily reliant on active partnerships for success. In 2023, we reported partnerships with 228 organizations, 103 of which were global. The most reported partnerships were with national universities (88 results) and NARs (62 results).

In terms of partnerships that achieved results, national and subnational government agencies contributed to 73 results. Partners influencing national policy include the Colombian Roundtable for Sustainable Beef and the Colombian NARS Agrosavia, and the National Land Use Planning Commission in Tanzania, with which a memorandum of understanding has just been signed. To directly support our research on the ground, we work closely with local government administrations, extension agents and planning officers.

In Tunisia, ICARDA co-developed a Pastoral Living Landscape with the Institut des Régions Arides, the Direction Générale des Forêts and Commissariat Régional au Développement Agricole Medenine

and agropastoral communities. Partnerships were established with the Office l'Elevage et des Pâturages and farmers associations. Additionally, partnerships with the Tunisian Ministry of Agriculture, Hydraulic Resources and Fisheries provided opportunities to guide future investments in land degradation neutrality. Additionally, the Initiative has contributed to a draft rangeland code and a proposal to create an independent "rangeland" institute at the national level to enforce the code.

NGOs also play a role in the Initiative, particularly in co-developing and scaling innovations. NGO partnerships have been critical for interventions where approaches are being piloted and scaled. A new partnership developed this year is with GROOTS Kenya, a vibrant national NGO focusing on gender-inclusive development.

Currently, Work Package 2 works with 30 partners, including government's NGOs and the commercial sector. The national hydrological and meteorological services of Senegal, Guatemala and
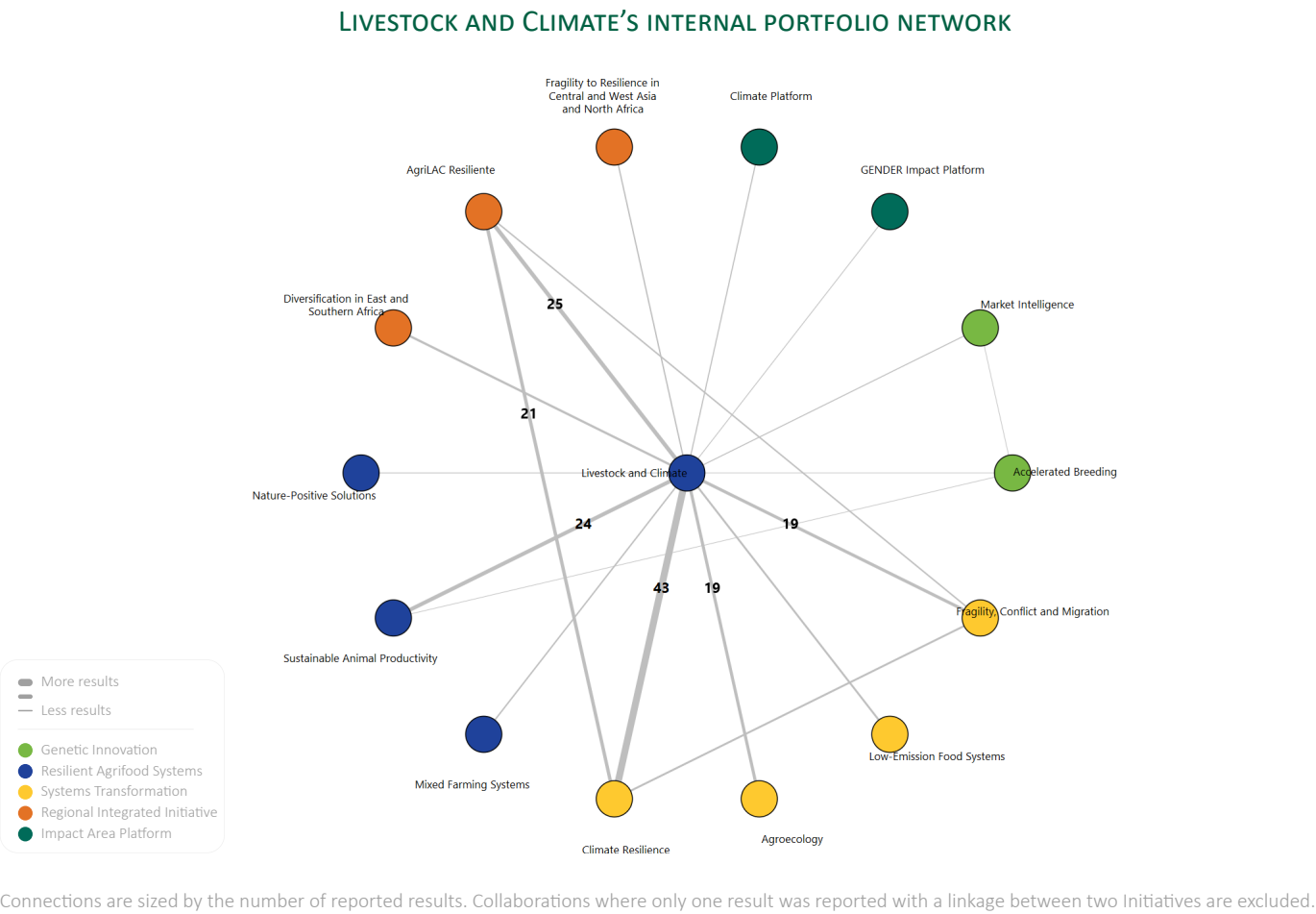
Kenya are included in multistakeholder working groups and local technical agroclimatic committees and included in dissemination partnerships, such as, in Kenya with Mediae, a small social enterprise responsible for the Shamba Shape Up TV series reaching millions of viewers. For financial services, we co-design and scale service bundles with the private sector, including Takaful Insurance (Kenya) for IBLI, ECLOF (Kenya), Yapu Solutions (Guatemala), and Genesis Empresarial (Guatemala) for credit scoring and climate-resilient lending to livestock keepers.

For climate mitigation, policy and investment influencing global collaboration is key. In 2023, the Initiative expanded multistakeholder engagement partnerships to realize several outcome results. Through the Mazingira Centre, the Alliance of Bioversity International and

CIAT, and the Climate Impact Platform, we engage with (i) global platforms (e.g., Global Research Alliance on Agricultural Greenhouse Gases and African Biogas Component); (ii) donors (e.g., Bezos Fund, Bill & Melinda Gates Foundation, GIZ, Environmental Defense Fund); (iii) governments, particularly Kenya, Brazil, and Colombia; (iv) research institutes (e.g., FAO, Technical University of Munich, Agroscope, Bangor University, Norwegian Institute of Bioeconomy Research, Eidgenössische Technische Hochschule Zürich); and (v) the commercial sector (e.g., Flexibiogas). Additional global NGO and agency partnerships facilitate our influence with UNFCCC, as highlighted in our amplification of livestock engagement at COP28 and capacity building of the African Group of Negotiators Expert Support (AGNES).

Met service sharing the seasonal climate forecast in a Local Technical Agroclimatic Committee in Guatemala.
Credit: Mónica Hernández CIAT

Section 6: **CGIAR Portfolio linkages**

LIVESTOCK AND CLIMATE'S INTERNAL PORTFOLIO NETWORK

Connections are sized by the number of reported results. Collaborations where only one result was reported with a linkage between two Initiatives are excluded.

Portfolio linkages and Livestock and Climate's impact pathways

We have strong portfolio links across the Initiative, particularly the Initiatives on Climate Resilience (43 co-developed results) and AgriLAC Resiliente (25 co-developed results), with an additional 21 results co-developed together. In addition, Agroecology (19 co-developed results), Sustainable Animal Productivity (24 co-developed results), and Fragility, Conflict, and Migration (19 co-developed results). Five innovation use outcomes and one policy change were co-developed with the above as well as the Low-Emission Food Systems Initiative. These connections strengthen output delivery, partnerships, economies of scale, make best use of available resources, and increase our reach.

On livestock emissions, we work closely with the Initiative on Low-Emission Food Systems to collect data, co-produce publications, and advocate for greater investments. Together, we have been able to increase investment in data collection and analysis of livestock emissions. The pioneer positive deviance and gender work of this Initiative's Work Package 1 links closely with the "living labs" approach of Low-Emission Food Systems. In technology development, we work closely with the Sustainable Animal Productivity, Accelerated Breeding and Agroecology Initiatives and for rangelands with the Agroecology and Climate Resilience Initiatives.

On climate security, migration, and displacement, our work with Climate Resilience, FCM, and AgriLAC Resiliente Initiatives includes joint innovations. Examples are the livestock module of the Climate Security Observatory and the Climate Security Sensitivity Tool. On crosscutting themes such as climate security risks and solutions for pastoral communities across multiple countries, see Kenya, Ethiopia, and farmer-herder conflicts, specifically with FCM.

Coordination with the regional Initiatives AgriLAC and Ukama Ustawi and related thematic initiatives (e.g., Climate Resilience) was fundamental to Work Package 2 understanding of the need for animal and herd health advisories linked to weather and climate predictions. Collaborations started at the end of 2023 between Livestock and Climate and the One Health Initiative to record Shamba Shape Up episodes around livestock health. Work Package 4 established a link with the Initiative on Climate Resilience to share our analytical expertise and insights on Green Climate Fund proposals.

In 2023, we strengthened our links with the CGIAR Impact Platforms. We worked with the Climate Impact Platform in our contribution to the Breakthrough Agenda Report and we work with the Gender Impact Platform on several pieces of research, e.g., in Tunisia and Kenya. We are also developing collaboration with the Environment and Biodiversity Impact Platform, including in relation to a memorandum of understanding and workplan with the United Nations Environment Programme.

Our year culminated with a mega cross-Initiative collaboration with the Climate Resilience, FCM, Low-Emission Food Systems, AgriLAC Resiliente, One Health and Sustainable Animal Productivity Initiatives; as well as with the impact platforms on Climate and on Environment and Biodiversity and the AICCRA program to move livestock up the agenda at UNFCCC COP 28.

Section 7: **Adaptive management**

RECOMMENDATION	SUPPORTING RATIONALE
Reduce WP1 targets to reach 40,000 households to reach 20,000.	Due to ongoing insecurity in northern Ethiopia, we have had to stop the main farmer–farmer network activities there, which means we are unable to meet our proposed targets. We recommend reducing them appropriately. At the same time, we will consolidate other Initiative technology scaling activities and better capture these in our reporting.
Source bilateral funding to complement Initiative work and to close Initiative research gaps due to insufficient funds.	Given the ongoing reduced budget, we continue to source additional bilateral funding and/or align our projects with existing bilaterals to fill research gaps.
Improve partnerships with national agricultural research systems, relevant government ministries and others.	We have greatly increased our partnerships with national agricultural research systems and with government ministries this year, but we plan to still do more.
Make greater investments in gender transformation.	We have greatly increased attention to gender transformative approaches this year and plan to still do more.
Review research questions and indicators in the theory of change (TOC).	There is some inconsistency in the structure of research questions in the TOC and we have not yet developed indicators. In 2024, at the very least we will review and tighten up our research questions and ensure that they set up our TOC to contribute to CGIAR cross-Initiative indicators.
Invest in consolidation of evidence and dissemination of results.	As the Initiative draws to a close, we need to put increased effort into consolidating evidence of reaching our outcomes and in disseminating and communicating results to our different target audiences. We are investing in increased Initiative communications support to facilitate this. We are also investing in a legacy flagship report on Livestock and Climate that targets policy makers and can be repackaged as policy briefs.

Section 8: **Key result story**

Secure, better managed rangelands for pastoralism climate adaptation and mitigation

Participatory land-use planning and rangeland management are building climate resilience in more than 100,000 people and reducing livestock's carbon footprint.

Maasai pastoralists self-mobilize removal of 112 hectares of bush to restore grasses in their shared grazing lands.
Credit: Birikaa Olesikilal/ILRI

Primary Impact Area

Other relevant Impact Areas targeted

Contributing Initiative

Livestock and Climate

Contributing Center

ILRI

Contributing external partners

Tanzania Ministry of Livestock and Fisheries · KINNAPA Development Program · Tanzania Natural Resource Forum · Kiteto District Council

Geographic scope

Tanzania

In Tanzania, joint village land-use planning and participatory rangeland management practiced on 166,517 hectares of grazing land located in 400,000 hectares of village land in Kiteto and Chalinze districts are benefiting more than 100,000 residents. These methods are instrumental in securing land tenure for pastoralists, improving governance, resolving land-use conflicts, and helping to restore degraded lands. They are enhancing community resilience and climate adaptation and mitigation efforts.

Participatory approaches to land-use planning and management are enhancing tenure security, resolving conflicts and optimizing land use in East Africa's rangeland communities. Led by ILRI and global and national partners, this strategy has made strides in Ethiopia, Kenya, and Tanzania. In Tanzania, CGIAR's Joint Village Land Use Planning (JVLUP) innovation, backed by policy and legislation, is enabling communities to protect shared grazing lands and water resources.

Building on the groundwork laid by the CGIAR Research Program on Livestock and related projects, the Livestock and Climate Initiative has helped to secure 400,000 hectares of village land, which includes approximately 166,000 hectares designated for grazing. Not only does this benefit village livestock keepers and pastoralists, but with land-use conflicts reduced, all 100,000 residents directly gain.

After securing grazing lands, the next step involves facilitating Participatory Rangeland Management (PRM). First introduced in Ethiopia and expanded to over 1 million hectares with the support of ILRI and the CGIAR Research Program on Livestock, PRM is a community-led systematic process that generates a rangeland or grazing land management plan. Where necessary, it also facilitates a management agreement between the community and local government to secure rangeland access and usage rights. This is a community-led process, with researchers and practitioners merely facilitating the process. In the Initiative intervention areas, the benefits of the approach have been most recently seen in the clearance of 112 hectares of bush-invaded grazing land by the community, self-mobilized and with minimal external support.

> ❝
>
> Last year we had a plan to clear the bush. It is one of our priorities because we have a lot of cattle on our grazing land and it is important to clear the bush so our cows can get the productivity of the land.
>
> Member of ALOLLE Livestock Keepers Association talking on grazing land restoration activities.

This approach is currently being piloted in Kenya and Tanzania under the Livestock and Climate Initiative. Early assessments in both countries show significant improvements in rangeland conditions, community engagement, rights security, livelihoods, livestock productivity, and women's participation in decision-making.

— Video reflecting the positive perceptions of the local communities about this approach.

Ensuring women's representation

Both PRM and JVLUP are grounded in principles of good governance and gender equity. Together with the Gender Impact Platform, the Livestock and Climate Initiative is building on CGIAR innovations such as community conversations and women's leadership forums. Highlighting the impact of these efforts are role models like Paulina Ngurumwa, a community facilitator who represented her community and the Initiative at the Norman Borlaug International Dialogue in Idaho in 2023, and Warda Abdi Andalu, a newly employed woman land-use planning expert.

These strategies have led to significant outcomes, such as more than 30 percent participation of women in decision-making bodies for JVLUP and PRM and women's assertive collective actions, such as the women-led protest against land encroachment in Kiteto, Tanzania.

Strengthening the policy environment

The continued success of JVLUP and PRM will require an enduring enabling policy environment. Both PRM and participatory land-use planning in pastoral areas are developed with government, NGO and community partners. Holding innovation package scaling workshops has proved useful. A national participatory land-use planning IPSR workshop was held in Tanzania in 2022 and a national PRM IPSR workshop is planned for 2024.

A milestone in commitment by the Tanzanian Government is the memorandum of understanding between its National Land Use Planning Commission and ILRI, which includes co-development of a JVLUP manual, joint research, and co-hosting a national conference in 2024. This commitment is further supported by new investments from the United States Agency for International Development (US$464,487) and the European Commission (US$450,000) toward this Initiative's partner, the Tanzania Natural Resource Forum.

Expansion across the East and Horn of Africa

The success of these approaches has sparked interest in scaling them across the East and Horn of Africa. The IGAD Center for Pastoral Areas and Livestock Development is collaborating on a PRM manual, planning a regional rollout. Efforts to integrate these management strategies into broader Initiatives such as One Health and to combine them with other innovations such as community livestock breeding programs are also under way.

> ❝
>
> IGAD aims to scale up PRM across the region because improved rangeland can contribute to a triple-win: climate change adaptation and mitigation and improved livelihoods.
>
> Dereje Wakjira, director of the IGAD Center for Pastoral Areas and Livestock Develpoment

Front cover photo

The Initiative is working with farmers to evaluate the time that cows spend feeding and ruminating.
Credit: Andrea Ramirez/CIAT

Back cover photo

Filming a Shamba Shape Up episode on poultry production, which is then televised to millions of farmers.
Credit: The Mediae Company

CGIAR

INITIATIVE ON
Livestock and Climate