



INITIATIVE ON  
Livestock and Climate

# CGIAR Initiative on Livestock and Climate – Livestock, climate and system resilience (LCSR)

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Fiona Flintan, Jacobo Arango, Todd Crane, Issa Ouedraogo, Mounir Louhaichi, Todd Rosenstock, Renee Bullock and team



# Initiative Overview

The initiative will build the capacities of livestock stakeholders to make more informed decisions to address the climate **double burden** of livestock agrifood systems : the need for livestock agrifood systems to adapt to climate change (as victim) and the need to mitigate the negative impact of livestock agrifood systems on climate change (as villain).



ENVIRONMENTAL  
HEALTH & BIODIVERSITY



GENDER EQUALITY, YOUTH  
& SOCIAL INCLUSION



CLIMATE ADAPTATION  
& MITIGATION



NUTRITION, HEALTH &  
FOOD SECURITY



POVERTY REDUCTION,  
LIVELIHOODS & JOBS

# End of Initiative Outcomes\*



**80,000 households across six countries will implement climate smart livestock technologies** to improve their resilience to climate shocks and reduce GHGe, with labor-saving technologies and mechanisms supporting the potential for women to benefit. **WP1.**



**320,000 value chain actors will access bundled climate information,** insurance and credit services delivered through public-private partnerships; women and youth will show a 25% increase in their use of services. **WP2.**



**Land managers will implement governance and restoration practices on 500,00 hectares of land** used for livestock production, with an increase of 25% in women's participation in decision making. **WP3.**



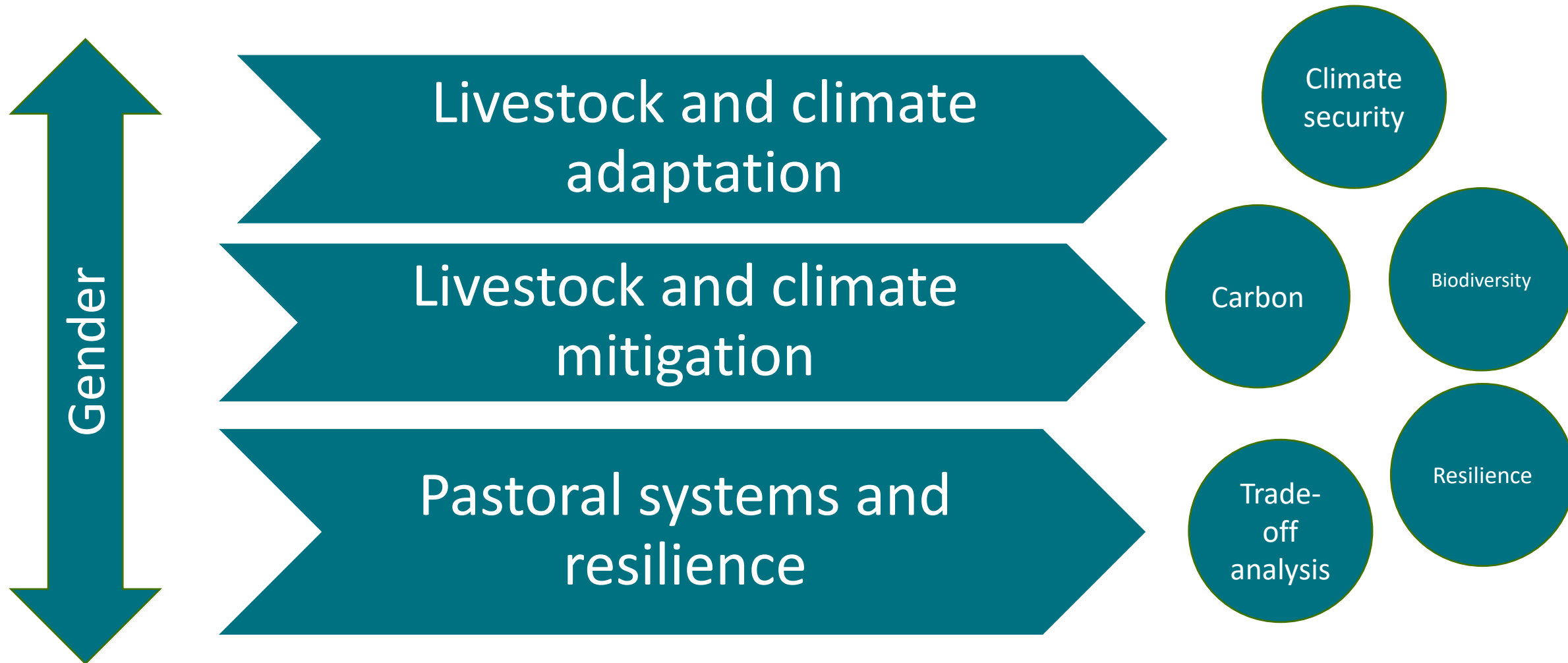
**Climate investors will commit USD 25 Million to finance the transition** towards climate smart livestock production. **WP4**



**International agencies and national policy makers will use LCSR evidence and outputs to shape at least four policies or investments** to support low emission livestock production. **WP5.**

\* Assumes current budget level

# Cross-center cross-country research streams and emerging research clusters



# Results

## INIT-34

### Livestock, Climate and System Resilience



**224**  
Results

#### Outputs

<b>6</b>	<b>24</b>	<b>161</b>	<b>20</b>
Capacity sharing for development	Innovation development	Knowledge products	Other outputs

#### Outcomes

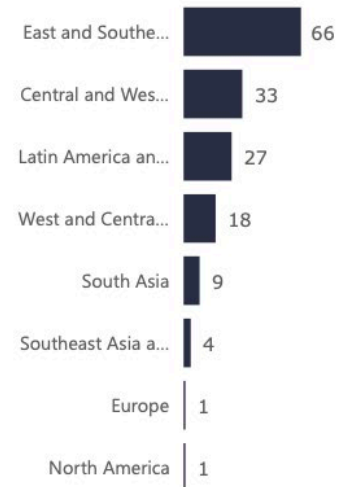
<b>4</b>	<b>6</b>	<b>1</b>	<b>2</b>
Innovation use	Policy change	Capacity change	Other outcome

**0**  
Impacts

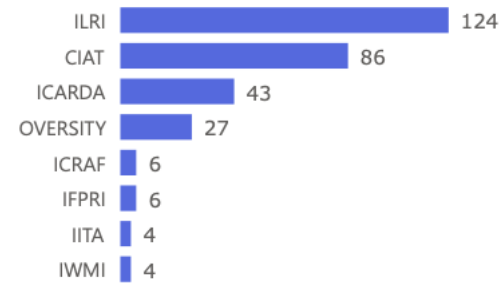
#### National focus contribution



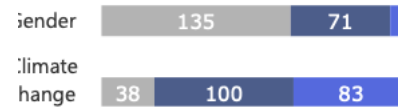
#### Results by regions



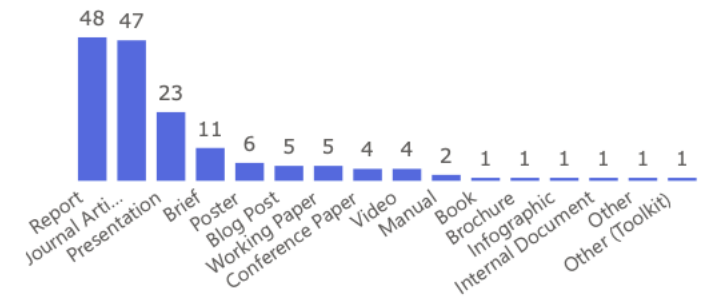
#### Contributing CGIAR Centers



#### Results by gender and climate tag



#### Knowledge product by category





# Results contributing to end of initiative outcomes (EOIs)

**Innovation use:** Woreda participatory land use planning (WPLUP) for pastoral areas in Somali Regional State, Ethiopia for implementation between 2022-23 with investment from IGAD (WP3)

**Innovation use:** Government of Kenya includes participatory rangeland management (PRM) as a priority in the 2023-2027 Baringo County Integrated Development Plan (WP3)

**Innovation use:** Uptake of the GANSO (GANaderia SOstenible or Sustainable Livestock) guarantee by largest retail store in Colombia (WP4)

**Other outcome:** Global Environment Facility finances IUCN in partnership with CG centers US\$2million for a project on harnessing commercial sector investment through sustainable livestock value chains for rangeland restoration (WP4)

**Policy change:** The Cow in the Room: the engagement of the CGIAR Livestock and Climate initiative at the UNFCCC COP 27, 2022 (WP5)

**Policy change:** Government of Tanzania gazettes grazing lands secured through Joint Village Land Use Planning and Participatory Rangeland Management innovations (WP3)

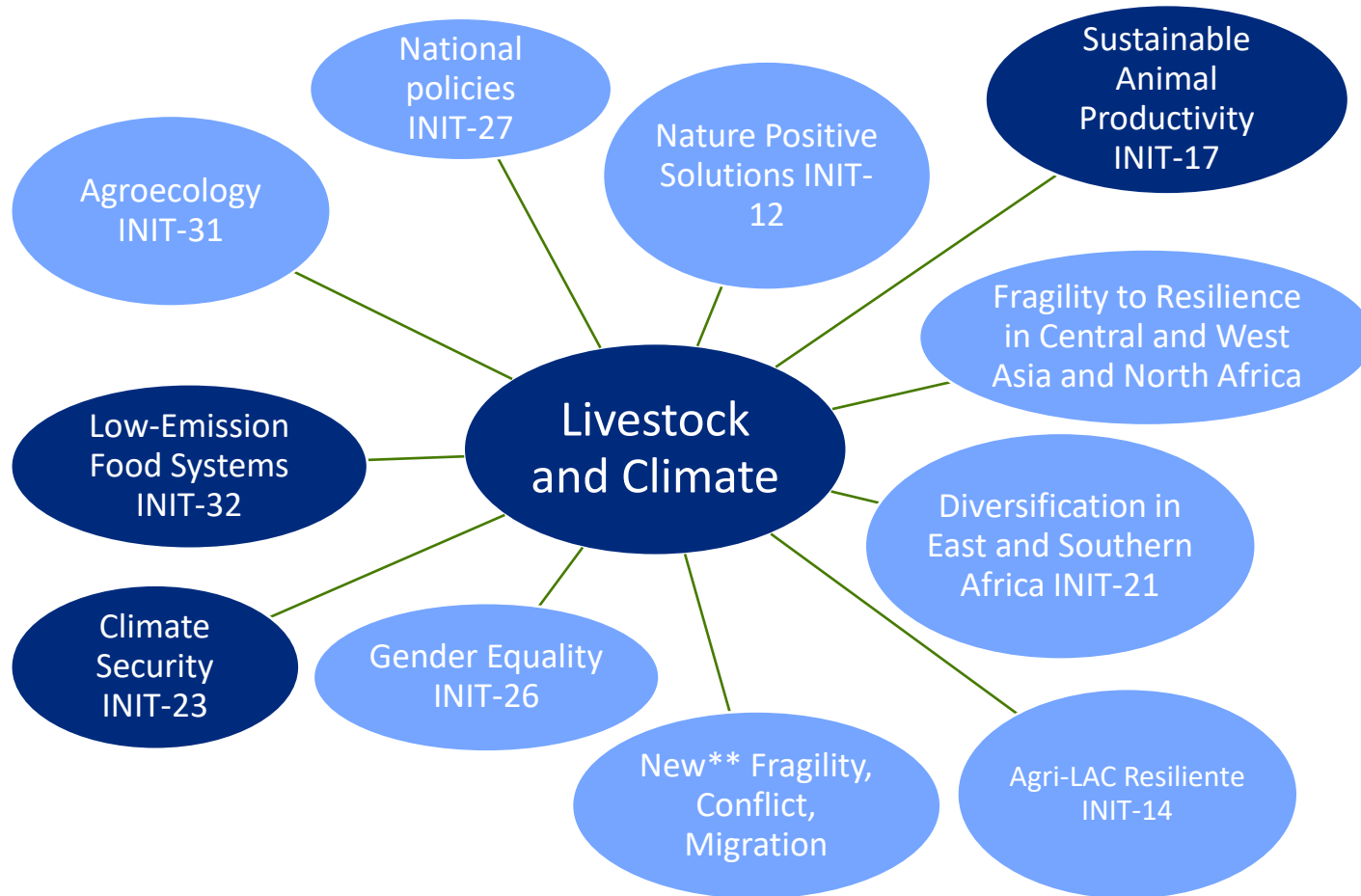
**Policy change:** &Green invests US\$7.7 million in Hacienda San Jose to scale up climate-smart beef production (WP4)

# Partners

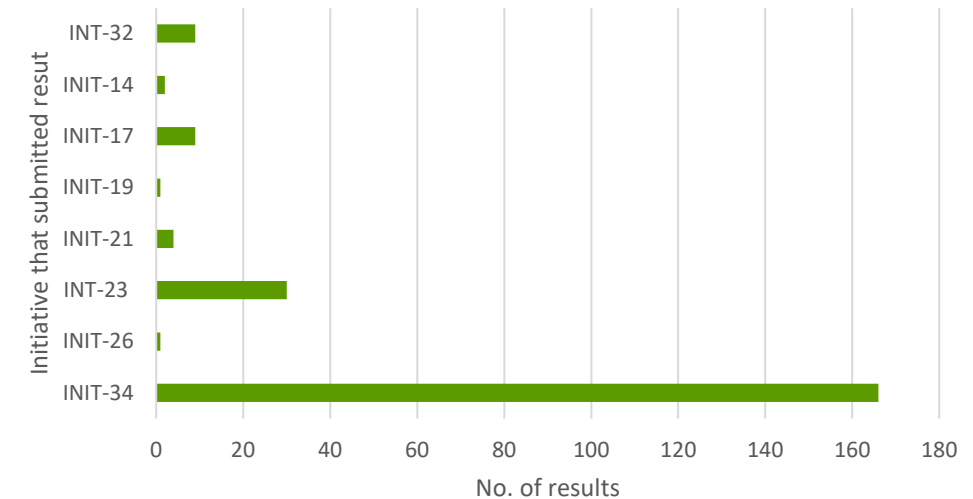


Country	Work Package	Key partners
Kenya	WP1, WP2, WP3, WP5	Ministry of Agriculture, Livestock, Fisheries and Cooperatives, State Department of Livestock; National Land Commission; RECONCILE; Takaful Insurance of Africa; APA Insurance; Shamba-Shapeup; BOMA; Kenya National Bureau of Statistics; county governments (Bariingo, Wajir, Bomet, Kajiado, Murang'a, Embu, Makueni, Machakos). Finance Access; Tufts and Princeton University.; Eldoret University.; Kaimosi Agricultural Research Center. Discussion with CABI, KEFRI, KALRO.
Tanzania	WP3, WP5,	Ministry of Livestock and Fisheries; National Land Use Planning Commission; Tanzania Natural Resource Forum; KINNAPA; Kiteto District Council; Chalinze District Council. Discussion with CABI.
Ethiopia	WP1, WP3, WP5,	Ministry of Agriculture including Land Directorate; HEAL project. Ethiopia Statistics Service/ Central Statistics Agency; Planning and Development Commission; Environment, Forestry and Climate Change Commission; Oromia Insurance Company, ICRC, Ayuda, Islamic Relief; Debre Birhan University; Debre Birhan Agricultural Research Centre. Discussion with GIZ., WB, Ethiopian Institute Agricultural Research (EIAR).
Tunisia	WP3, WP5,	Direction Générale des Forêts Tunisia; Institute des Regions Arides; Public Universities in Tunisia; Office of Livestock and Pasture; Oregon state University; FAO; IUCN; Sahara and Sahel Observatory.
Senegal	WP2	Ministry of Agriculture and Rural Equipment; USAID; ICRISAT; ANACIM (agence nationale de l'aviation civile et de la meteorologie du Senegal); CSE (centre de suivi ecologique de Dakar); URAC (union des radios communautaires et asociatives du Senegal); CNAAS & IBISA (compagnie nationale d'assurance aricole du Senegal); pastoral associations; Jokalante and Mlouma;
Mali		Discussion with GIZ.
Columbia	WP1, WP3, WP4, WP5	Ministries of Agriculture and Environment; EU Peace Fund; Exito Supermarket; WB; GANSO; Unique; Climate Focus; Hacienda San Jose; local universities; dairy companies; Procasur;
Guatemala	WP1 (starting), WP2,	Cattle Aassociation of Izabal; Maga Sedes Departamentales of Jutiapa/Izabal/Santa rosa; Yapu Solutions; Local Agroclimatic Committees (LTACS).
REGIONAL & GLOBAL		IGAD; Global Research Alliance (GRA); UNEP; Green Climate Fund; FAO-Pastoralist Knowledge Hub; FAO – Forestry group; SPARC project (Cowater, ODI, Mercycorps); Global Landscapes Forum; IUCN; World Wildlife Fund; International Land Coalition; Procasur; RAMONA – European Space Agency; ICRISAT; Wagengnen University; SNV; GMV;

# Linkages with other CGIAR initiatives



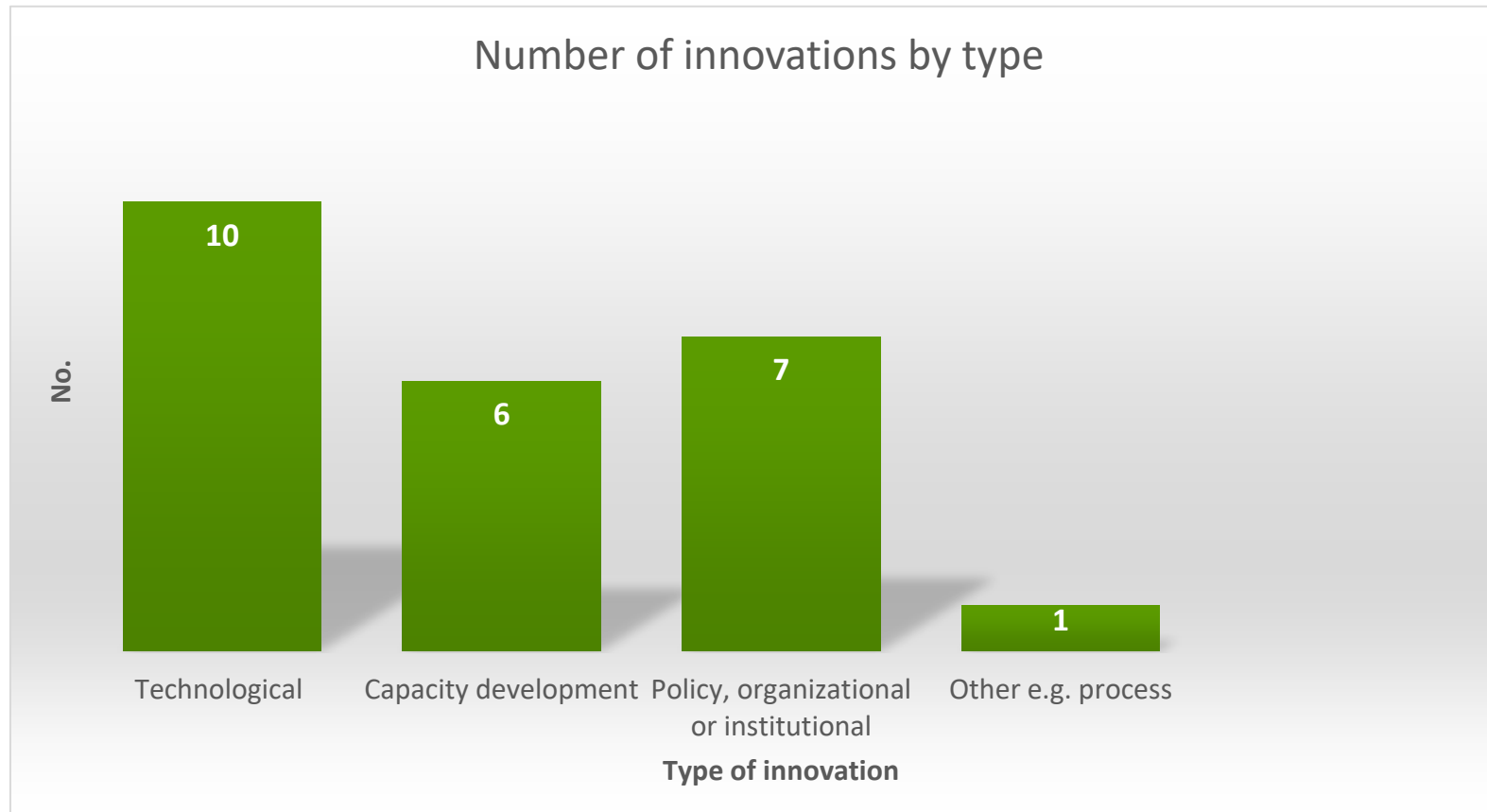
Number of results and primary submitter





# Innovations

24 innovations submitted as results. Worked with scaling team to pilot approaches to develop innovation packages.



## Innovation readiness



# Technological: Organic growth additives to enhance in-vitro propagation for shrub/tree species for rangeland restoration



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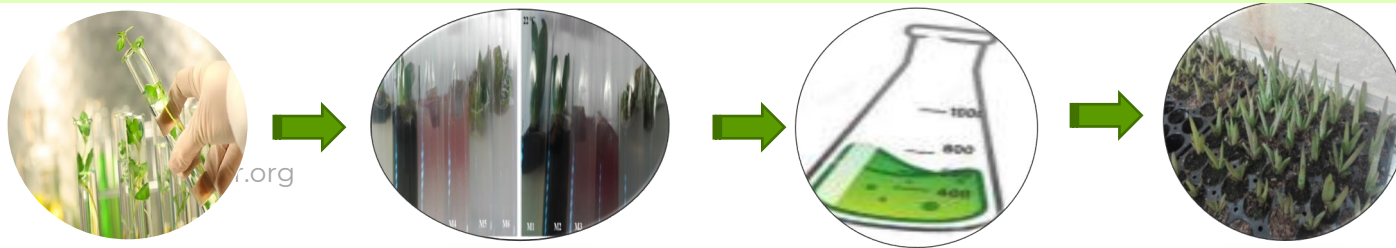


## Justifications

- Most public nurseries rely on introduced species to improve silvopasture systems.
- Several key native species have poor germination and/or low seeds viability.
- Many plants need specific climatic conditions to germinate or take a long time to establish and multiply.
- Several species at seedlings stage are subject to disease and genetic variations.
- Exotic species have low productivity due to the lack of high yielding and biotic stress-tolerant cultivars.

## Advantages

- Overcome dormancy.
- Rapid and efficient production of large numbers of plant species that are well-suited to local conditions.
- Produce high-quality, disease-free, and true-to-type plants at a fast rate.
- Facilitate large scale restoration of degraded ecosystems using native species.
- Provide government and developing agencies access to more options that are ecologically sound and socially accepted by local communities (multipurpose)



Review

## Incorporation of Organic Growth Additives to Enhance In Vitro Tissue Culture for Producing Genetically Stable Plants

Imtinene Hamdeni<sup>1</sup>, Mounir Louhaichi<sup>2,3,\*</sup>, Slim Slim<sup>4</sup>, Abdennacer Boulila<sup>5</sup> and Taoufik Bettaieb<sup>1</sup>

<https://cgspace.cgiar.org/handle/10568/125752>

South African Journal of Botany 147 (2022) 1199–1205



Contents lists available at ScienceDirect

South African Journal of Botany

journal homepage: [www.elsevier.com/locate/sajb](http://www.elsevier.com/locate/sajb)



Rosemary essential oil enhances culture establishment and inhibits contamination and enzymatic browning: Applications for *in vitro* propagation of *Aloe vera* L.



Imtinene Hamdeni<sup>a,d</sup>, Slim Slim<sup>b</sup>, Adnen Sanaa<sup>b</sup>, Mounir Louhaichi<sup>c</sup>, Abdennacer Boulila<sup>d,\*</sup>, Taoufik Bettaieb<sup>a</sup>

South African Journal of Botany 147 (2022) 1206–1213



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*Aloe vera* L. (Asphodelaceae): Supplementation of *in-vitro* culture medium with *Aloe vera* gel for production of genetically stable plants



Imtinene Hamdeni<sup>a,e</sup>, Islem Yangui<sup>b</sup>, Adnen Sanaa<sup>c</sup>, Slim Slim<sup>c</sup>, Mounir Louhaichi<sup>d</sup>, Chokri Messaoud<sup>b</sup>, Abdennacer Boulila<sup>e,\*</sup>, Taoufik Bettaieb<sup>a</sup>

# Capacity development: Tracking adaptation in livestock systems (TAiLS)

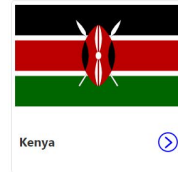


Tracking Adaptation in Livestock Systems (TAiLS)

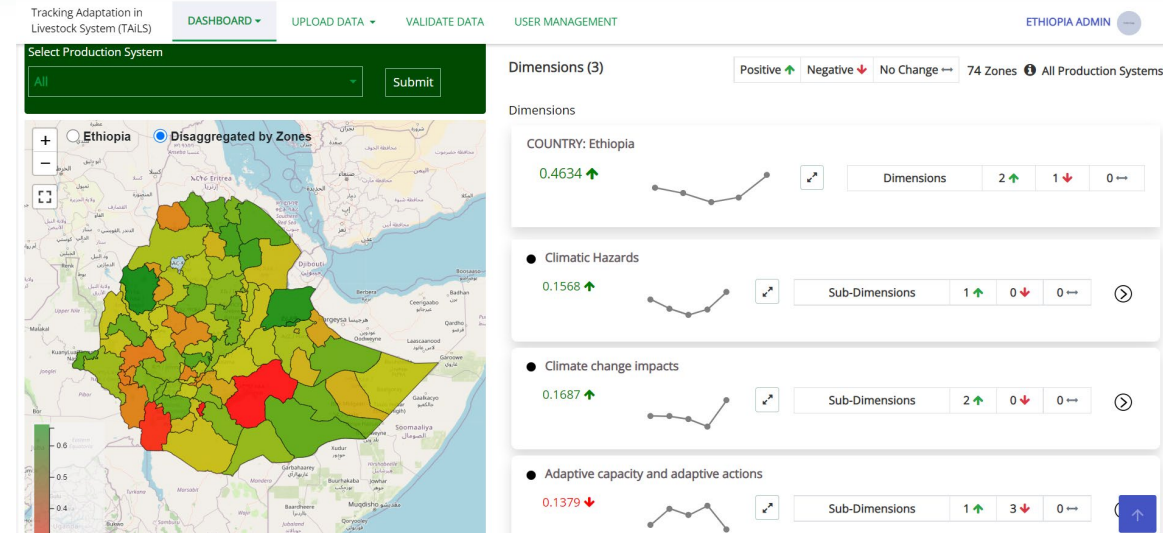
## About TAiLS

Taking stock of climate change adaptation in livestock systems requires effective tracking and reporting. The Paris Agreement establishes a Global Goal on Adaptation (GGA) and encourages countries to report on their vulnerabilities, adaptation efforts, and outcomes. However, adaptation tracking in livestock systems is hindered by several challenges, including the lack of validated indicators and tools to support the assessment and comparison of adaptation progress across temporal and spatial scales.

For which country are you reporting?



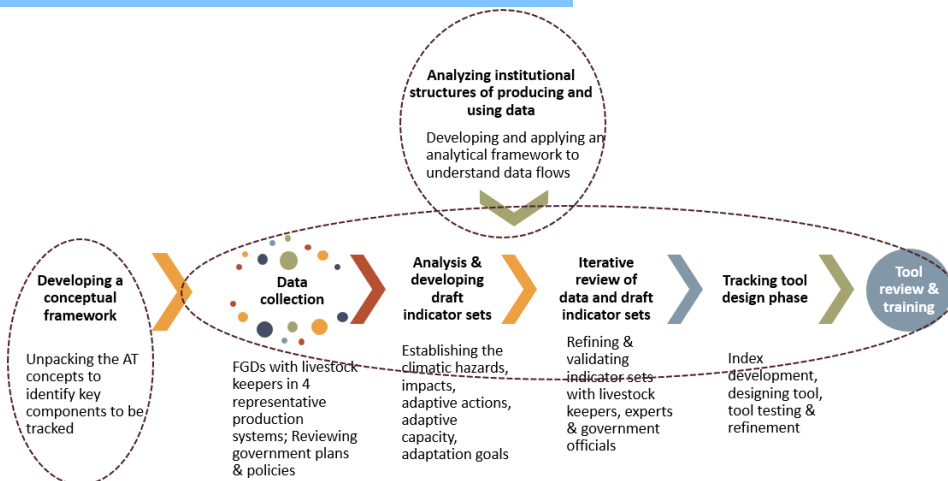
Web-based tool designed to enable government officials to track and report on adaptation progress in the livestock sector



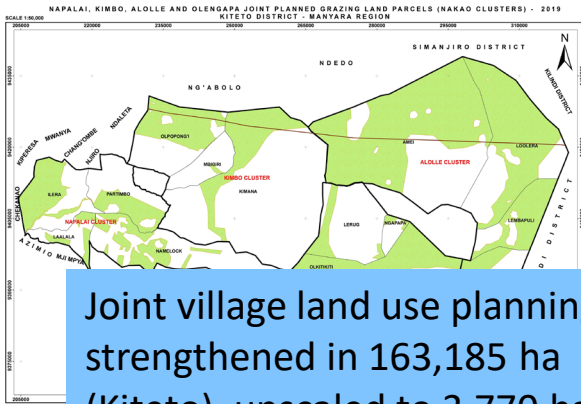
Supports the development of statements of adaptation progress across space and time:

- Captures adaptation efforts at farm, sub-national and national scales
- Indicators show adaptation processes and outcomes
- Temporal progress based on a fixed reference year – can show the adequacy of commitments e.g., NDC, NAPs

- Co-development of tool with livestock keepers, governments, and researchers → buy-in and capturing multiple perspectives
- For sustained tracking and reporting, TAiLS tool aligns with existing government structures and data streams



# Policy, organizational or institutional: PLUP across administrative borders + participatory rangeland management (PRM)

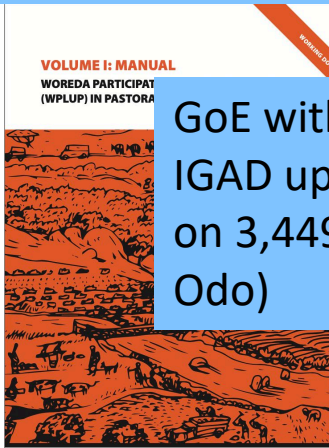


Joint village land use planning strengthened in 163,185 ha (Kiteto) upscaled to 3,770 ha (Chalinize) Tanzania. Included in Darwin proposal with CABI & WB land project in development

Panel at IGAD 2022 Conference on Land and Conflict with governments from Ethiopia, Kenya and Tanzania

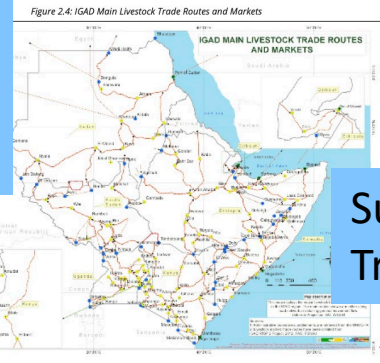


PRM reinstated in 248,814 hectares: 163,185 ha (Kiteto, Tanzania & 85,629 ha Baringo, Kenya. Scoping Senegal, Mali, Tunisia.

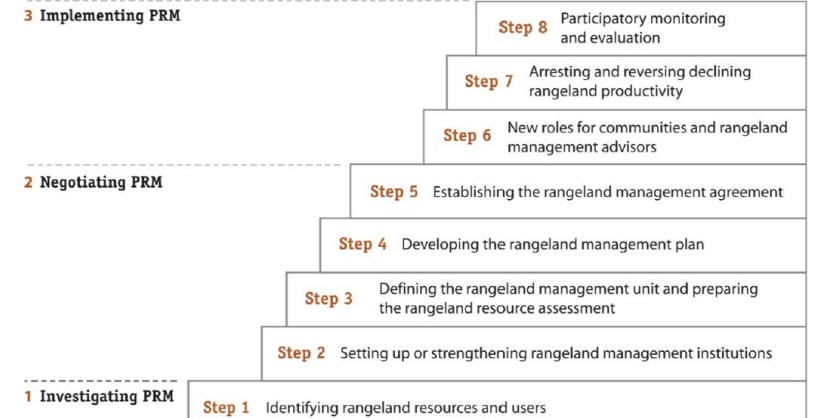


GoE with support from IGAD upscaling WPLUP on 3,449 ha (Dollo Odo)

Government representatives from Tanzania (Charles Mkalawa and Obed Katonge), Ethiopia (Bogale Terefe) and Charles Kagema) with IGAD Transhumance expert Japheth Kasimbu the Livestock and Climate panel on land use across administrative borders.



Supporting IGAD's Transhumance protocol

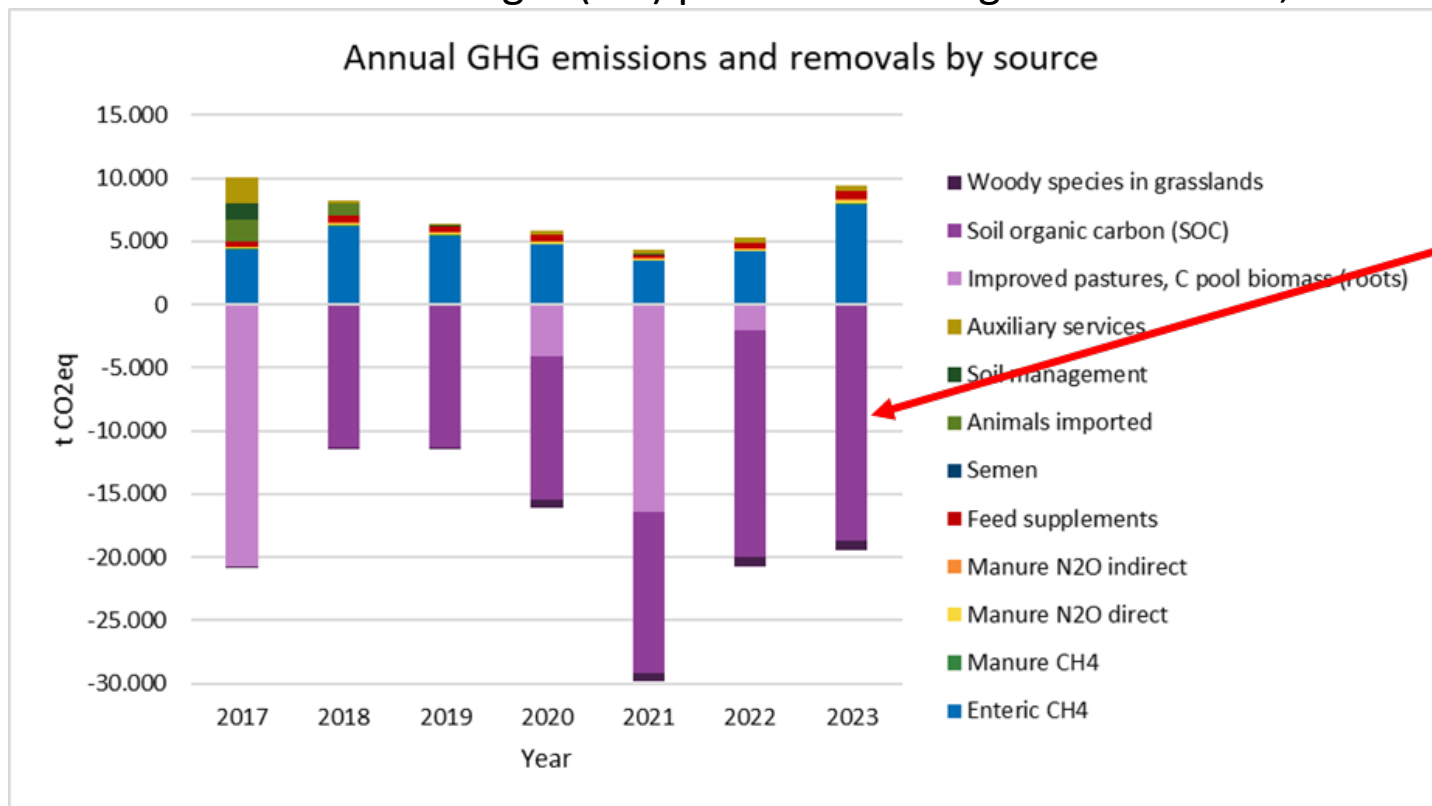


Anticipated HoA EU proposal to include PRM



# Key Results Story: Negative carbon footprint of a cattle breeding farm of 7,500 ha in Colombia, planted with our pasture *U. humidicola* CIAT679

Functional unit: Live weight (LW) produced during 2017–2023: 5,840 t



**Carbon-intensity: 8.4 kg CO<sub>2</sub>eq kg<sup>-1</sup> LW**

✓ 46% lower than breeding farms in the region.

**Soil carbon sequestration potential: 2.5 t CO<sub>2</sub> ha<sup>-1</sup> y<sup>-1</sup>**

✓ Deep root systems and high root turnover

**Negative carbon footprint: -17.0 kg CO<sub>2</sub>eq kg<sup>-1</sup> LW**

✓ Carbon sequestration is higher than GHG emissions.

✓ Opportunity to access C markets and expand to 180k ha

**&Green provided a loan of \$7,6 Mi USD**



# Gender responsive and transformative approaches (GTAs), intersectionality of gender, youth and climate adaptation

WP1 On farm technologies:

- Labor saving RLE technologies & tradeoffs: fodder production and mechanization for fodder preservation
- Gender responsive knowledge networks to scale knowledge

WP2 products to mitigate risk: Build gender capacity of livestock insurance service providers to target women in different household arrangements

- Gender responsive service provision and bundled service design

WP3 Rangeland governance and management

- Piloted community conversations in Kenya
- Plan to develop this approach and GTAs in PRM. Explore radio.

WP4 & 5:

- Development of a women's empowerment in pastoralism index (WEPI).
- Pastoralist youth forum with Climate Smart Agricultural Youth Network
- Collaborating with FAO-WeCan initiative.

# Challenges

## Financial

- Significantly lower budgets than anticipated and changes made including at end of 2023 post-spending.
- This has limited scope of the initiative including geographically, meant dropping of some activities and makes recruitment of PhDs difficult.
- Limits opportunity for Mazingira Center to fulfil its optimal contribution.

## Improving center collaboration

- Challenged by way initiative was designed and pressure of first year.
- Developing more integrated initiative, working for greater transparency, joint working and shared vision.
- Understanding and developing joint products across initiatives without duplication.

## Partnerships

- Slow to develop partnership agreements including with NARS. Began with established partners. Now need to develop new ones.
- Need to develop more partnerships with bilaterals to cover funding deficit – challenging to find the time.

# Priority activities and events

## Priority activities

- Strengthening management and integration of the initiative through research streams, clusters, country coordination, & gender.
- Establishing improved M&E system including biophysical and socioeconomic baselines; and working with UC Davis on a study on impact of PRM on collective action – result of SPIA matchmaking
- Strengthening partnerships including with national government and research centers – formal agreements.
- Linkages with bilaterals programs and projects.
- Development of innovations, innovation packages and scaling.
- Strengthening communication – regular and targeted.

## Events

- Global Landscape Forum Finance, March 2023
- AIM4Climate May 2023 – the initiative is an AIM4Climate innovation sprint runner
- UNFCCC COP 28 – aim for strategic engagement.





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