



TIME2GRAZE WORKSHOP

Towards Rangeland Decision Support Tool

September 2026

1. Background

Transforming rangeland governance and livestock systems across East and Southern Africa through climate-smart innovation.

Challenge

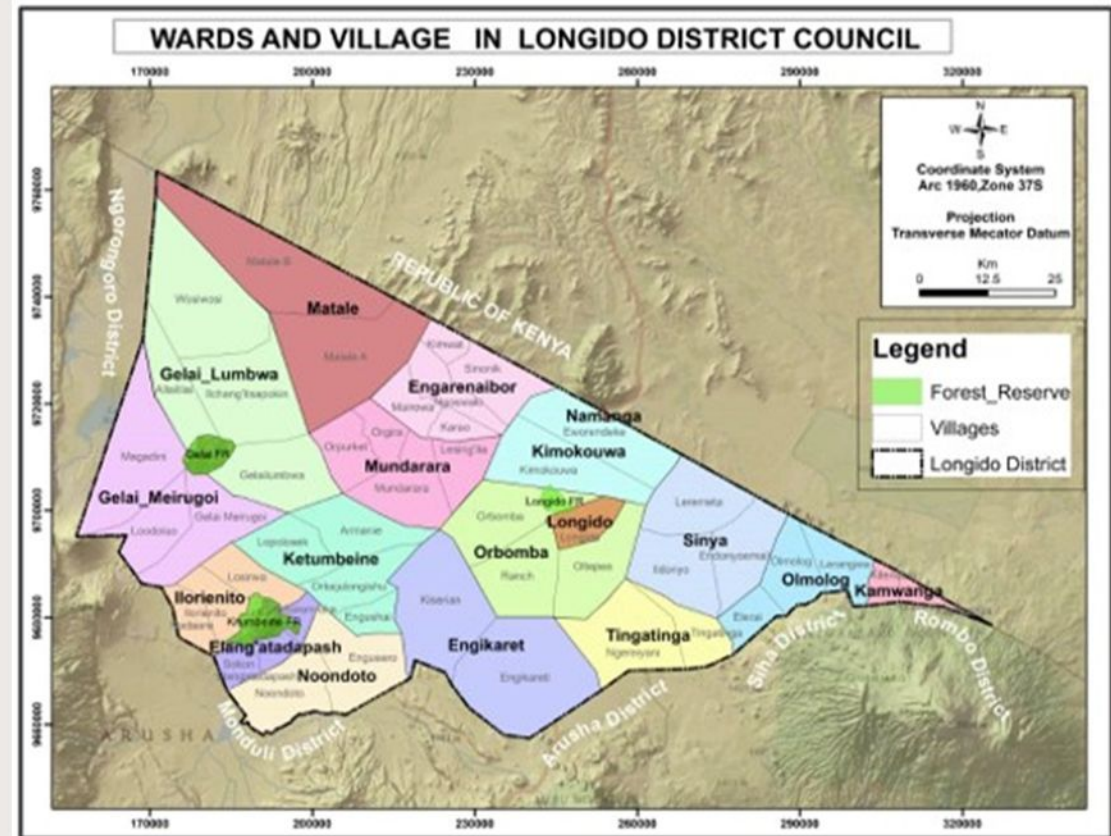
Persistent rangeland degradation, climate variability, declining pasture productivity, and livestock system inefficiencies drive greenhouse gas emissions and threaten pastoral livelihoods.

Solution

Deploys community-co-designed Decision Support Tools providing real-time forage estimates, rotational grazing guidance, and weather alerts.

Delivered via USSD/SMS in local languages, embedded within existing extension systems.

Na	Land Category	Area km2	%
1	Village land/ GCA	7887.16	97.6
2	Reserved land /forestry	109.34	1.3
3	General land	84.5	1.1
	TOTAL	8,180	100

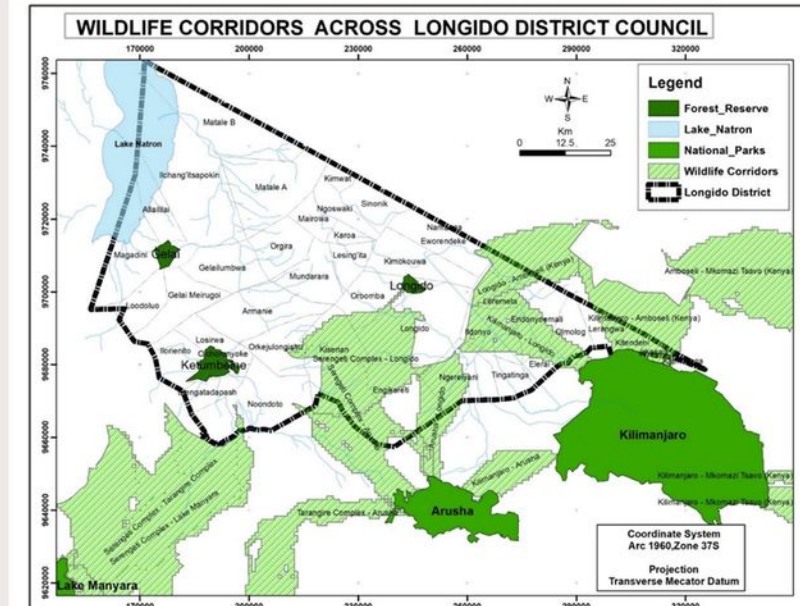
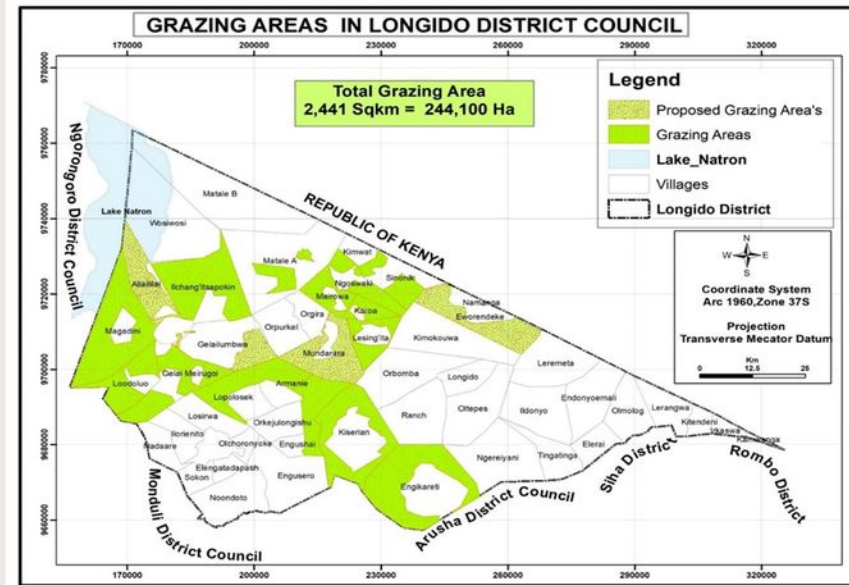
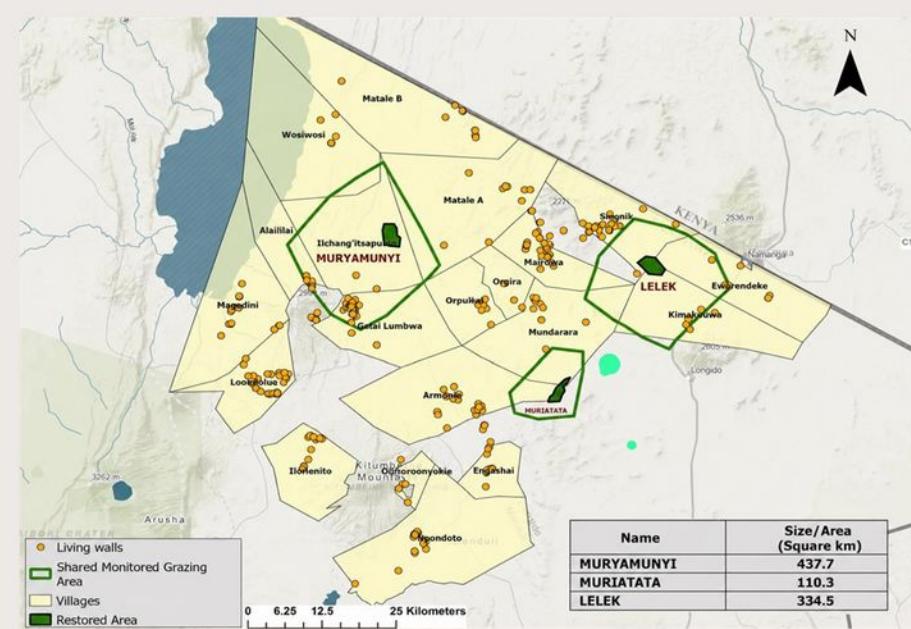


1. Background



Leveraging Land for Life Foundations

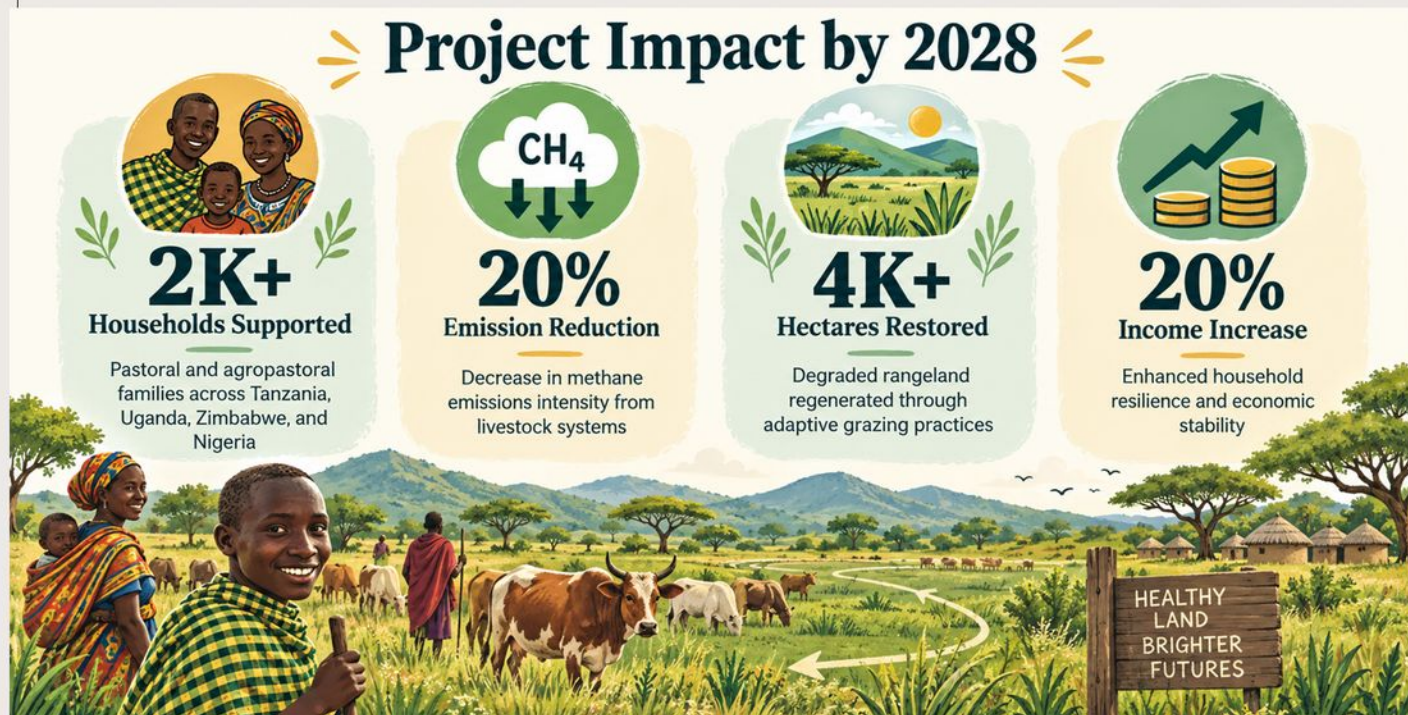
Time2Grazze builds directly on the achievements of the Land for Life (L4L) project in the Lelek and Mburiatata rangelands within SOKNOT. L4L established critical foundations including:



1. BACKGROUND

FOUR CORE OBJECTIVES

- 1. Unlock Climate-Smart Forage Knowledge** - Operationalize Decision Support Tools.
- 2. Drive Emission Reduction & Restoration** - Reduce methane intensity and Restoration.
- 3. Strengthen National Frameworks** - Embed forage knowledge tools within national climate resilience and livestock strategies.
- 4. Catalyze Global Influence** - Contribute to 16+ NDC stakeholder engagements and establish sustainable funding pathways



1. BACKGROUND

STRATEGIC FRAMEWORK

WWF GLOBAL RM2030 OBJECTIVE 4

- Reducing emissions & building resilience

TCO-OSP GOAL 4

- By 2040, Resilience of targeted communities, species and ecosystems against climate change is improved in priority landscapes.

SOKNOT OUTCOME 2.4.1

- Households in targeted communities perceive improved climate change adaptation and mitigation capacity.

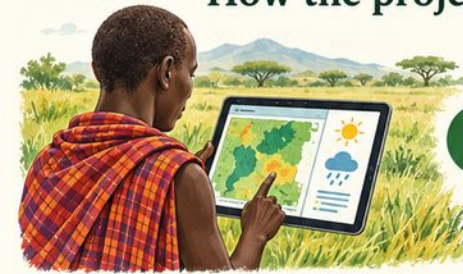
PIR 2.4.1.2

- 10% of targeted HH and all climate action champion groups reached with adaptation strategies, technologies and mitigation initiatives.

TIME2GRAZE IMPLEMENTATION PATHWAY



How the project delivers the link



1

Climate-smart forage intelligence

DSTs using biomass maps, pasture growth data, localized weather alerts and grazing advisories.



2

Adaptive grazing & restoration

Rotational grazing guidance improves pasture use, rangeland condition and livestock productivity.



3

Lower emissions intensity

Better forage use and healthier herds support methane intensity reduction in livestock systems.



4

Governance & scale

MoLF, NCMC, Longido LGA, LOKEEN and communities co-own evidence, learning and rollout.



FIELD



PICTURES





Time2Graze DST

Transforming rangeland governance and livestock systems across East and Southern Africa through climate-smart innovation



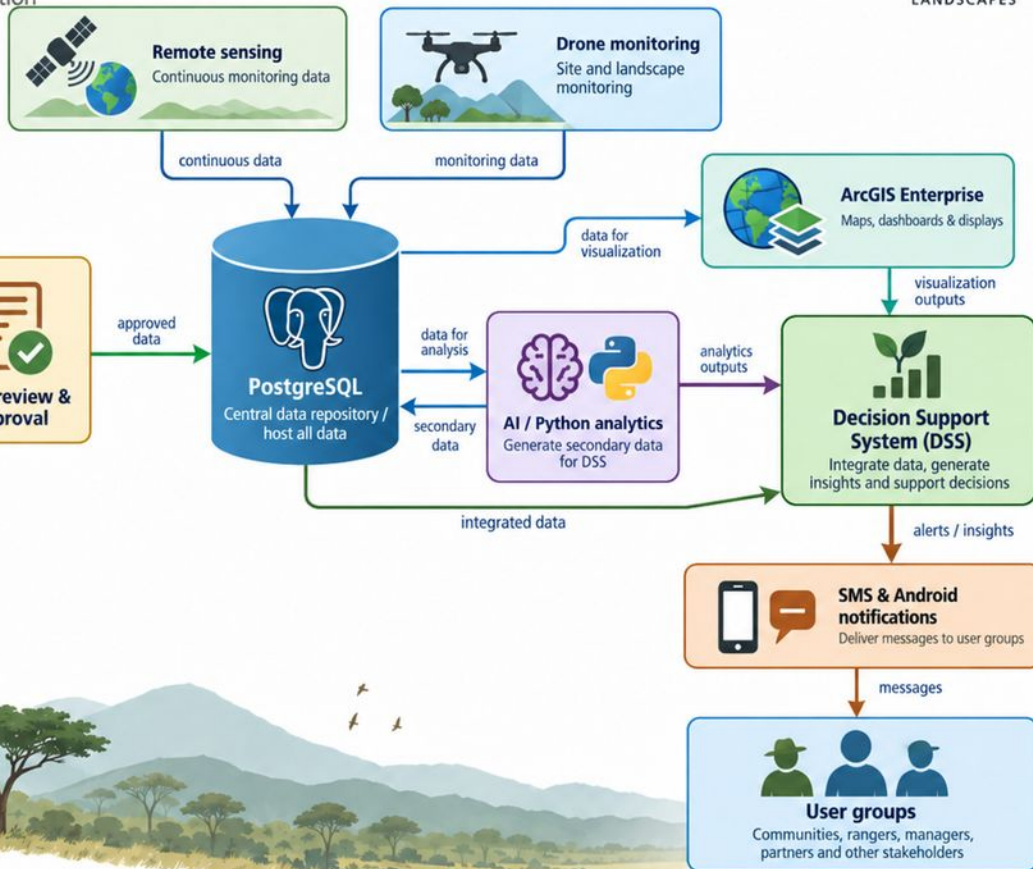
PEOPLE



WILDLIFE



THRIVING
LANDSCAPES



Data for healthier ecosystems
and brighter futures

CONSERVE · MONITOR · UNDERSTAND · ACT

2. WHAT ARE YOU DEVELOPING ?



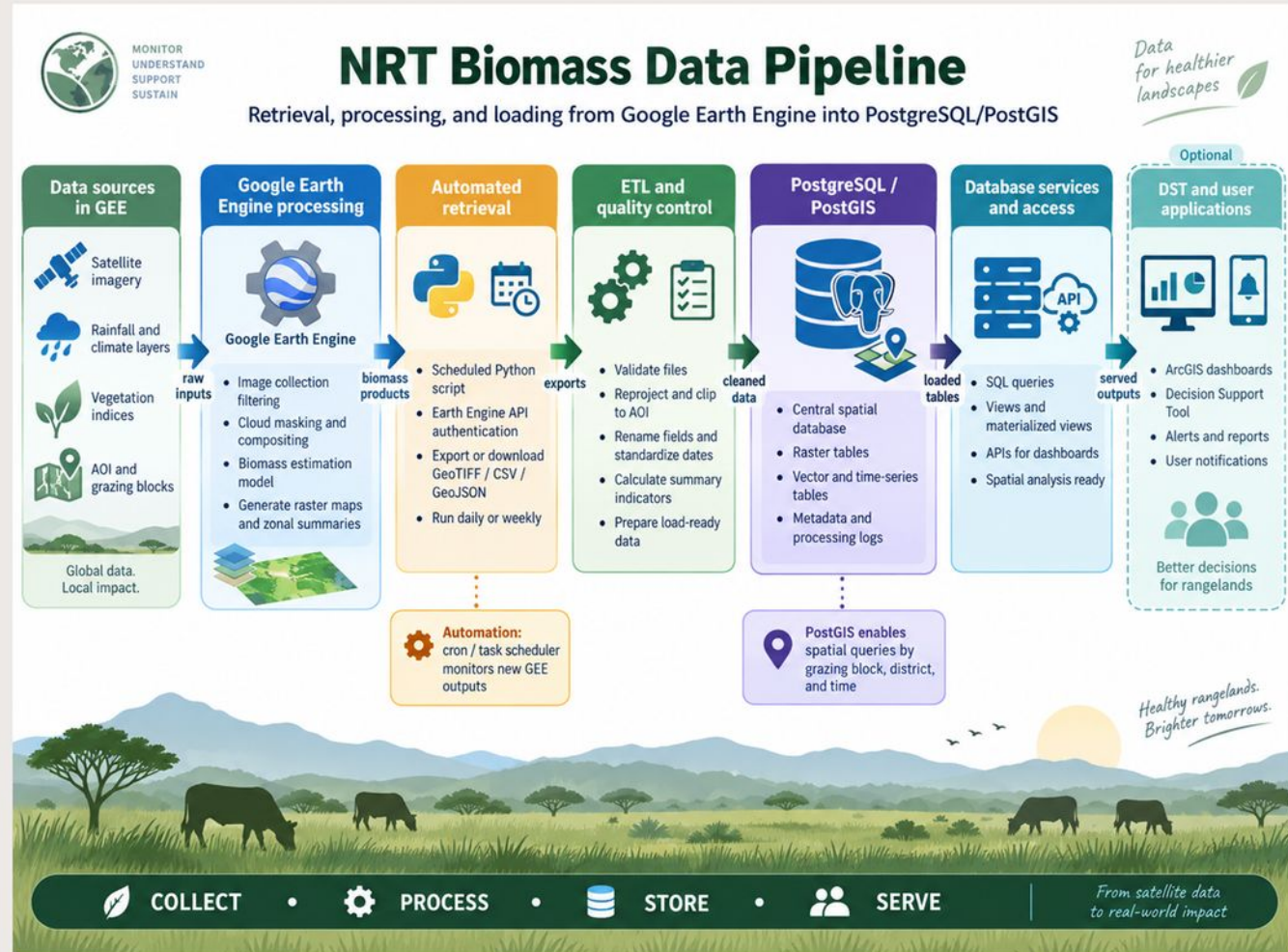
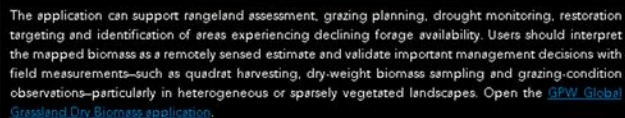
TIME-2-GRAZE PORTAL

HOME FIELD SPACE TRACK DST ABOUT

Pastoralist communities in Longido are expecting to have timely and practical information on pasture condition, biomass availability, water access, grazing pressure, livestock movement, climate variability, early warning risks and adoption of improved rangeland management practices. The project will generate this information through a combination of community field monitoring, local government extension systems, baseline and follow-up assessments, and technical data products from project partners.

Administrative				
1	4	8	14	30
District	Divisions	Wards	Villages	Sub-Villages
Rangelands				
Grass	Shrub	Invasives	Erosions	
XXX	XXX	XXX	XXX	
Ha	Ha	Ha	Ha	
Livestock				
~XX	~XX	~XX	~XX	XXX

- An API if it exist apart from GC/GEE APIs.
- Unlimited access to GEE.
- Models for DST ?



4. LEARNING

Other projects:

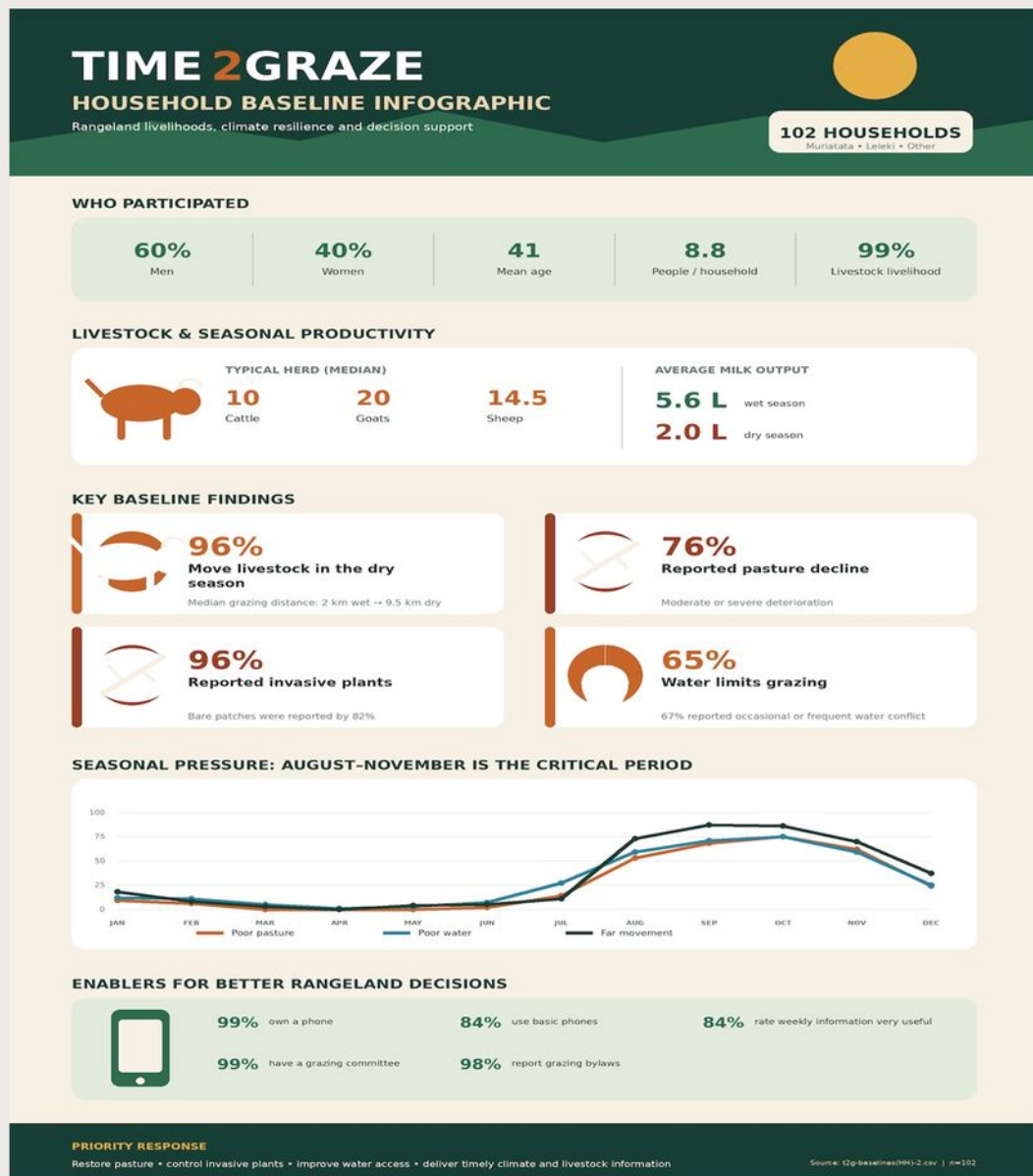
- Existing/traditional rangeland management.
- Restorations:
 - Invasives and alien species control.
 - Gullies filling.
 - Water source protections.
- NbS/NbE.

Baseline:

- Grazing patterns.
- Productivity patterns.
- Water challenges.

Activities:

- XXXX



5. Path

1. Where we are now

- Prototype concept and data pipeline developed.
- NRT biomass and other relevant data sources identified.
- Initial ArcGIS dashboard and Decision Support Tool ideas defined.

2. Build the minimum viable workflow

- Automate retrieval of NRT biomass data from Google Earth Engine.
- Load processed data into PostgreSQL/PostGIS.
- Set up a basic ArcGIS Enterprise dashboard.
- Define a small set of core indicators for decision support.

3. Test with a pilot area

- Select one landscape or grazing block for initial testing.
- Validate biomass outputs using field observations.
- Assess data quality, spatial accuracy, and update frequency.
- Agree on practical biomass thresholds for alerts and decisions.

4. Co-design decisions with users

- Engage grazing committees, rangers, livestock keepers, and managers.
- Identify the key management questions the DST should answer.
- Design simple maps, charts, indicators, and alert views.
- Define who should receive information, what they should receive, and when.

5. First real use case

- Biomass in Grazing Block A falls below an agreed threshold.
- The DST identifies Grazing Block B as having better forage availability.
- An alert or recommendation is sent to the relevant user group.
- The grazing committee or local manager reviews the information.
- A management decision is made, for example, recommending movement of livestock from Block A to Block B.
- The decision and subsequent rangeland condition are monitored.

6. Learn and scale

- Review whether the DST information contributed to a useful decision.
- Collect feedback from users.
- Improve biomass thresholds, indicators, and analytical workflows.
- Refine SMS, Android, and dashboard notifications.
- Add additional data layers such as rainfall, water availability, livestock density, and vegetation condition.
- Expand the DST to additional grazing blocks, landscapes, and user groups.
- Use lessons from the pilot to establish a scalable Time2Graze decision-support system.



Time2Graze DST: Path to First Use

Bullet summary of the six stages

Healthy
rangelands
brighter tomorrows



1 Where we are now

- Prototype concept and data pipeline
- NRT biomass and other data sources identified
- Initial dashboard / DSS ideas



2 Build the minimum viable workflow

- Automate GEE data retrieval
- Load data into PostgreSQL / PostGIS
- Set up basic ArcGIS dashboard
- Define a few core indicators



3 Test with a pilot area

- Select one landscape or grazing block
- Validate biomass outputs with field observations
- Check data quality and update frequency
- Agree thresholds for alerts



4 Co-design decisions with users

- Engage rangers, grazing committees, and managers
- Decide what questions the DST should answer
- Design simple map, chart, and alert views
- Clarify who receives messages and when



5 First real use case

- Biomass in Grazing Block A drops below threshold
- DST shows better forage in Block B
- Alert sent to the user group
- Local manager or grazing committee recommends shifting livestock movement



6 Learn and scale

- Review whether the decision was useful
- Improve thresholds and workflows
- Add more landscapes and data layers
- Expand reports, alerts, and user groups



From data to better grazing decisions



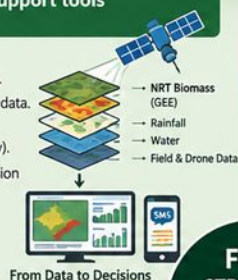
FY27 Activity Plan: Inputs and Recommendations

Time2Graze – Transforming rangeland governance and livestock systems across East and Southern Africa through climate-smart innovation



2.3 Integrate biomass data into decision support tools for pastoralists

- Establish full operational pipeline (GEE → processing → PostgreSQL/PostGIS → DST → alerts & recommendations).
- Validate NRT biomass data using field observations and drone data.
- Pilot and test the Time2Graze DST in selected grazing areas (including biomass thresholds, update frequency and usability).
- Co-design tools with pastoralists, grazing committees, extension officers and local government.
- Deliver information through dashboards, SMS and Android notifications.
- Integrate additional data (rainfall, water, field monitoring).



**FY27
STRONGER
RANGELANDS
BRIGHTER
FUTURES**

4.1 Elevate grassland conservation as a priority in global climate action

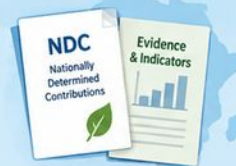
- Use Time2Graze evidence to demonstrate contributions to climate adaptation, mitigation, biodiversity and pastoral livelihoods.
- Advocate for inclusion of grasslands and sustainable practices at COP30 and subsequent COPs.
- Collaborate with partners, including GMH, to develop partnerships.
- Package evidence and lessons into policy briefs, case studies and communication products for national and global forums.



Grasslands for people, nature and climate

3.1 Integrate sustainable grazing practices into national climate commitments (NDCs)

- Refine documentation on how DST data informs national inventories and pasture land results.
- Engage key decision-makers and stakeholders to promote inclusion of sustainable grazing management in the next round of NDC commitments.
- Develop an evidence framework linking Time2Graze indicators to NDC, MRV and national rangeland monitoring indicators.



Evidence from rangelands for stronger climate commitments

4.2 Foster private sector and donor investment in sustainable grazing solutions

- Engage private sector actors, financial institutions and donors to mobilize investment in sustainable grazing solutions.
- Ensure pastoralists and farmers participate in defining investment priorities.
- Explore financing models for rangeland restoration, livestock services, digital advisory services, water infrastructure and climate-risk management.
- Use DST evidence to identify and prioritize investment areas.



Investment today for resilient rangelands tomorrow

Cross-cutting success factors



Partnerships and co-design



Data quality and validation



User adoption and capacity building



Automation and sustainability



Monitoring, learning and scaling

Mobility. Forage. Livelihoods. Resilience.

2. INPUTS



1. Decision thresholds and reliability

- Biomass thresholds should trigger alerts or management recommendations?
- How should thresholds vary by landscape, season, and grazing system?
- What level of field validation is needed before users can trust the outputs?
- How frequently can the biomass data be updated reliably?

2. Delivery and uptake

- What type of information should different user groups receive?
- What would make users trust and act on ?

3. Expected outcome of the discussion

- Agreement on priority biomass thresholds.
- Agreement on preferred information-delivery channels.
- Identification of validation requirements.
- Clear next steps for piloting the Time2Graze DST.



together possible™