



for landscapes & livelihoods

RANGELAND RESTORATION

model summary + toolkit guide



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INTRODUCTION

This draft model has emerged from five years of intensive implementation and research work in four wards of the communal tenure landscape of the Matatiele Municipality, located in the upper uMzimvubu catchment, in the northern Eastern Cape (erstwhile Transkei) of South Africa.

The model provides guidance on an approach focussed on facilitating the restoration and adaptation of appropriate governance systems, and the enabling environment, to manage rangelands in a more sustainable manner, in order to secure water, food, and climate change resilience for the long term benefit of people and nature. This is CBNRM (Community Based Natural Resource Management) in a REAL sense.

The basic principle is that healthy rangelands will produce increased quality livestock, which, with improved market access, will improve returns for stock-owning rural livelihoods, with a positive feedback loop for better rangeland stewardship to support this stock, resulting in improved basal cover and grassland biodiversity, with improved ecosystem services. Livestock can thus double as livelihood assets as well as a tool for landscape management and restoration.

A development intervention model was defined by the partners as a tested, offer-able intervention package, or a practically proven way of doing something in a development

intervention context. The partners' collective has attempted, through a series of workshops, field exchanges and consolidation sessions, to collate the wide spectrum of information, tools, methodologies, references, records and draft guidelines into sorted components for easier reference.

The toolkit describes how to apply the model's components. It is presented as a compendium of experiences, methodologies, tools and references which have guided the Matatiele intervention: the latter has been implemented by an alliance of four local NGOs¹ under the banner of the Umzimvubu Catchment Partnership, making use of funds from the Department of Environmental Affairs Natural Resource Management programme, along with support from the Critical Ecosystem Partnership Fund (CEPF) and other donors via Conservation International.

The approach is the result of an initial vision developed by the Umzimvubu Catchment partnership in 2012 for restoration of the Umzimvubu catchment, based on the overarching hypothesis that improved stewardship and livelihoods are inextricably linked (fig 1):

A healthy Umzimvubu Upper Catchment ecosystem will improve the grazing potential for livestock and the quality and quantity of water available and thereby enhance food, water, and economic security in the face of climate change; The state of these ecosystems lies in the hands of people who live within them who will restore or conserve rangeland

and freshwater systems when it is beneficial to them and they have the tools to do so;

Livestock ownership comprises on average between 50 and 82% of most village households (local research; Beyene et al, 2014) and plays a pivotal role in the lives of poorer more vulnerable communities: the potential for improving rural livelihoods through a livestock focussed intervention is thus high, and is well aligned with the National Development Programme's goals of tackling poverty.

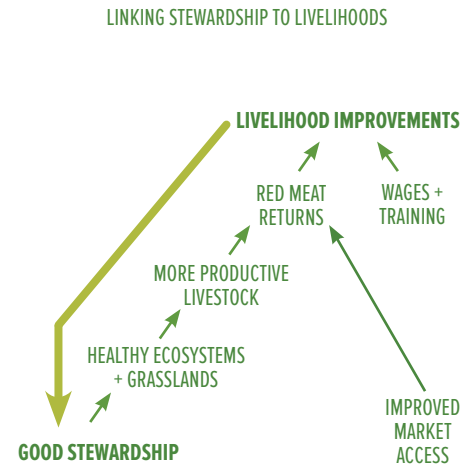


Figure 1: feedback link between stewardship and livelihoods

A complex, multi-faceted initiative is likely to be named according to viewpoint. This model has been identified by various popular names, such as 'Livestock for Livelihoods', 'Landscapes for Livelihoods', 'Livestock for Landscapes', 'Lekker Livelihoods', 'Looking back to secure the future' or the 'Meat Naturally Initiative', the latter coined by one of the chief partners, Conservation SA. For the purposes of the current draft of the model, we will refer to it as the 'Landscapes for Livelihoods' approach.

The toolkit is the packaged presentation of the model's key design, elements and tools, primarily aimed at or government and NGO implementing agencies, including project facilitators, field staff and extension officers, trainers of field staff, and project managers. Community beneficiaries, for example livestock farmers, may also find some of the tools useful. However, identifying implementing agencies as the primary targeted toolkit users means that the language and presentation modalities are designed primarily for implementing agency staff, rather than for community beneficiaries.

The model, outlined in figure 2 below, can be seen as a really good dish, and the toolkit the recipe for making this really good dish. The tools, references and strategic considerations are the ingredients: chefs can select smaller nuances like flavours and toppings, but the recipe has certain non-negotiables which will ensure a great dish or a big flop. These fundamental elements are outlined further below.



MODEL PARADIGM

The philosophy underpinning the approach is one of eroded governance systems leading to erosion of physical landscapes and livelihoods. The draft model is outlined in figure 2, providing an overall context and objectives for the approach, based on achieving the dual objectives of improved livelihoods and healthy ecosystems.

The application of the model is then described in a toolkit matrix which comprises three streams:

- Social, Institutional and Marketing (enabling environment and governance)
- Landscape Restoration and Production (active facilitation and technical elements)
- Broader contextual factors (killer assumptions and considerations)

The ‘toolkit’ is the spectrum of available tools and methodologies for replication of the model, based on the matrix as a guiding framework which provides strategic considerations, steps, tools and references for 11 different components which comprise the three streams. The toolkit is outlined in a matrix table, which unpacks the 11 components and provides a list of strategic considerations, proven tools and methodologies, and a variety of references for each component.

Prospective planners, decision makers and implementers and are encouraged to explore the full range of information under each component, and make use of those most appropriate to their situation.

Figure 2: LANDSCAPES FOR LIVELIHOODS MODEL OUTLINE	
MODEL ELEMENTS	SPECIFIC UCPP RANGELAND RESTORATION PROGRAMME
CONTEXT	Communal rangelands where degradation has occurred and livestock farming is underperforming (The tools or micro-methodologies developed may have applicability over wider contexts: this model was developed for a primarily grassland biome.)
OBJECTIVES	<ol style="list-style-type: none"> 1. Environmental: to restore and maintain degraded/stressed communal rangelands in the Umzimvubu catchment and other applicable landscapes. 2. Socio-economic: to generate increased and sustainable benefits for livestock farmers and communities in targeted areas 3. Climate change resilience: to improve climate change resilience for communities reliant on land and livestock productivity.
USERS	<ul style="list-style-type: none"> • Other practitioners; development agencies, e.g. NGOs • Policy and decision makers • Donors
COMPONENTS + ELEMENTS / SUB-SYSTEMS	<p>Social and Institutional</p> <ul style="list-style-type: none"> • Stakeholder engagement/gaining broad based perspective to next steps • Livestock owner and community organization • Capacity building • Agreements—formal vs informal • Localising the recurrent costs <p>Technical</p> <ul style="list-style-type: none"> • Grazing planning • Rangeland rehabilitation • Livestock Health and Nutrition • Incentives • Skill development for Herding for Health • Fire management and skill development • Measuring our impact in a way that is also visible for supporting uptake/sustainability • Market access—dealing with distance, health, classification <p>Issues and gaps</p> <ul style="list-style-type: none"> • Stock theft management and skill development • Dealing with cross-border issues (fire and theft) • Risk management (Insurance opportunities by whom?)
Tools / Micro- methodologies	A wide range of previously existing tools and methodologies was drawn from, and various new tools modified or developed from these and by field and management staff. These are listed in the matrix and provided in the electronic toolkit collection.

SOME FUNDAMENTAL CONCEPTS OF THE MODEL: A HOLISTIC LANDSCAPE MANAGEMENT PERSPECTIVE

The model grew out of an attempt to rebuild local governance and land management systems to underpin and sustain active landscape restoration efforts and investments. It drew extensively from local experience, as well as from the Holistic land and livestock management (HLLM) concept developed by Alan Savory in Zimbabwe and the USA. HLLM is a response strategy designed to address increasing land degradation, especially in rural areas where there is still a high dependence on the productive potential of the land and the overall environment.

The concept is based on the premise that with proper livestock management, land degradation can be reversed and the desired impacts, including the recharge of water resources and an increase in biodiversity resources, will be a reality. There is a need to change the mindset, especially of the authorities, that overgrazing is a function of time, not animal numbers; this is important especially in rural settings where communities are not willing to part with their livestock, mainly for cultural reasons. The HLLM approach ensures that local capacity is built to improve livestock management practices, to ensure that the livestock contributes to the reversal of the land degradation, and decrease dependency of the rural communities on outside resources. All the major components including exploration of the issues, planning, implementation, monitoring and evaluation are done with full participation of the local land user communities, so that they can decide when the time is right for them to scale up, and what the resource requirements are in order to attain sustainability.

The success of this model acknowledges the influence which Alan Savory and the Savory Foundation have had on our thinking.

Stewardship

Multi-functional landscapes are tangible working social-ecological systems. For example, in rural villages multiple landscape functions typically overlap and co-exist, such as residence, cultivation, free range pastoral livestock production, cultural and religious activities, tourism, and trading, while also providing ecological goods and services like water, grazing, grass-cover enabling rainfall absorption ('water factories'), biodiversity, and water and carbon cycles. Management of multi-functional landscapes requires balancing ecological and social priorities and actions of multiple, diverse actors in seeking collaborative solutions that bring long-term ecological function and social justice.

The evolution of the western European concept of stewardship was traced from earlier spiritual and secular conceptions to those under 19th century industrialisation, 20th century environmentalism, and 21st century sustainability and subsequently resilience thinking. Resilience thinking, which has already spawned a substantial body of literature², roots into the context of rapid global environmental change and uncertainty, hence environmental stewardship aims to adapt to or mitigate the effects of stresses, to promote proactive policies, and avoid

or escape unsustainable social-ecological traps. Stewardship goes beyond sustainability in raising questions of environmental and social justice and management, such as who or what should benefit, and to whom are environmental stewards accountable?

A common-language definition of 'stewardship' relevant for this model is "taking care of something valuable". An example was the traditional 'maboella' controlled grazing custom. Because of the way earlier stewardship notions presented people as dominating nature for their benefit, as well as the connotations with formalised biodiversity stewardship, several partners expressed their preferred comfort with the term 'custodianship'.

There is often contestation between priorities, especially when confronted with already degraded landscapes. For example, stabilising uncovered rangeland through planting patches of kikuyu grass may be the easiest and most cost effective way of restoring the water infiltration function and preventing soil erosion, although kikuyu inhibits biodiversity and is invasive in some landscapes. Biodiversity may re-surface as a top priority following basic rehabilitation. Another example was the conflicted response in Mzongwana when use of more remote and previously under-utilised (due to stock theft) grazing lands led to losses of livestock to wild animals; what helped was discussion with livestock farmers highlighting the role of predators in a functioning ecosystem.

Community Mobilisation

Many approaches and tools exist for stakeholder identification, consultation, analysis and communication and awareness raising: the important thing is to use a method or tool that works best in your specific implementation context. Where it is important to understand power dynamics, stakeholder mapping or „Power mapping“ (in which the power of stakeholders is indicated by their size on the map, and power relationships between stakeholders are represented by stronger or weaker lines) may be useful. It is important to include people from the ward committee AND the Traditional Authority in project steering committees, in order for them to report to their respective leadership structures. Normal good practice is to conduct social and environmental baseline surveys, to gather data on the status quo of demographics and social trends, and to develop a good GIS database of plant infestation and grazing area maps, CBAs, wetlands, rivers etc, as a base for the social data overlay. This can assist with identifying specific intervention targets such as alien clearing and grazing.

Livestock owners and community level institutions are particularly central stakeholder groupings. In discussion of engaging with livestock owners, it is helpful to assist communities to understand the laws of the country and the bylaws of their region. It is essential to determine and communicate the niche or role of NGOs / consultants in relation to government bodies and other stakeholders.



Implementing agents need to identify long term support needed and who leads it, with what resources. Implementers need to ensure that the principles within which we operate are well understood e.g. science and water, and linking those to resources that people use every day. A key step is allocating respective individual and collective responsibilities of the livestock owners and of overall community institutions. With regard to monitoring, it has to be clarified what will be monitored by the implementing agent, and what by the community: this will be based mostly on capacity once the monitoring variables have been identified.

Agreements, Incentives + Sanctions

A key driver for catalysing and sustaining stewardship activities is a shift in consciousness and in the way land and resources are managed. This requires appropriate incentives for participants to make these behaviour changes, and the exchange of incentives for behavioural shifts requires some sort of agreement, the primary element of which is a transaction between equals, which balances needs with deliverables in an equitable, effective and sustainable manner.

Identification of problem factors, risks and threats which are leading to degradation of landscapes such as overgrazing, insecurity of tenure, is done through community mobilisation as described above, and incentives should be identified through this process. Caution should be given to introduction of potentially perverse incentives which lead to dependence



or could backfire on the long term sustainability of a conservation intervention.

Agreements can be between a conservation entity and a land-user group, or between the conservation entity and individual land users or community members. The land user group can also develop sub-agreements between itself and individual farmers and land users. The latter is seen as preferable in the context of the rangeland-type programmes whereby a Grazing or Livestock Association enters into agreement with a conservation entity, and the Association then holds its members accountable, with monitoring support from the conservation entity, for compliance with agreed conditions. Withholding of support can be done between the two groups, with more responsibility for members' compliance placed with the Association, who can put pressure on deviant members.

Incentives are provided in the form of services or inputs, as motivation for certain conservation-related activities or practices, or withholding from these practices, based on an agreed commitment by both parties to the negotiated agreement.

It is vital to recognise traditional practices in the process of consultation and in establishing appropriate incentives and agreements: restoring good governance is often the key to restoring healthy landscapes. The community mobilisation phase is vital to identify the useful, acceptable or damaging

practices, and their causes, and determine a process which leads to benefits for all of the participants and both parties to the agreement.

Incentives can take the form of provision of services (e.g. training, subsidised inoculations, equipment, etc) as well as market access (auctions, opening up value-chain and accessing buyers, providing accreditation for compliance with industry standards to make products more attractive, etc) to

improve the value and return from products developed through better stewardship practise. Wages should be used with circumspection, as they can create expectations which may result in later challenges. Wage incentives can provide a valuable catalyst for kick starting participation and mobilisation, but should be embedded as an initial phase within a longer term sustainability strategy.

Remember: agreements should always be seen as a transaction between equals.

Restoration

This component looks at how to modify the way the land is used through influencing people's behaviour on the landscape, their management of livestock on it, and the use of mechanical techniques to aid recovery of degraded areas to a more naturally functional state. It has to be based on

increased awareness of root causes of problems, as well as capacity to tackle them effectively, and should be informed by consultation done through the mobilisation phase.

Livestock are known to be engineers of ecosystems in terms of creating micro-habitats for plants and animals (Derner et al., 2009) as well as modifying soil moisture and structure characteristics (Stavi et al., 2009). Holistic planned grazing provides a natural, mechanical, low cost method of managing plants and sustaining soil through regeneration of cover, via trimming, mulching, manuring, and breaking up capped surface to allow infiltration of rainfall. Simultaneously, livestock health is improved through improved plant production, and they can be used as low cost crop field preparation rather than ploughing and purchase of fertiliser. This requires a common herd which is managed on a planned grazing system to allow plant recovery in grasslands (Stinner et al., 1997). Our own pilot studies have shown that planned grazing and herding of cattle on land post AIP-clearing (alien invasive plants) results in increased grass growth and suppression of AIPs due to hoof action and other factors involved in bioturbation, with minimal follow up visits and costs. Additional research on bioturbation and restoring natural groundcover has been identified as a priority in managing landscapes threatened by alien invasive plant spread.

The following guiding principles apply to planning and facilitating restoration activities within this model:

- Landscapes can be: 1) degraded and uncovered i.e. no grass / basal cover, or 2) degraded but with some basal cover. Treatment will vary according to the nature of degradation.
- Implementers also need to align their clearing techniques with the intended end land use for that land: e.g. grazing, safety, water infiltration. People are more likely to support rangeland than river clearing.
- Rehabilitation activities require incentives, normally wages, grazing, and livestock auctions. Invasive alien plant (IAP) clearing is a step in restoration, not an endpoint.
- It is important to identify your clearing targets for best return – look at controllable patches with a high recovery potential, and agree on areas with land users.
- Take into account the different uses of wattle in communities. They tend to look at areas that are less dense as it's more economical.
- Participatory mapping should be done with communities, and with municipalities. The restoration activity areas should be incorporated into the municipality Spatial Development Framework (SDF).
- Any clearing has to be done in conjunction with the grazing plan – you can't have one without the other,

this is a non-negotiable, so that over time you see a progression of more grass, less aliens, better animal condition.

- The main tools for post-clearing rehabilitation are cattle, fire, and rotational grazing.

Rehabilitation is to an ecological functioning state. Restoration is to an approximate original undisturbed state. Incentives are required to encourage different behaviour in order to reflect different, and improved, land use impact sand outcomes.

Market Development + Links

The UMZIMVUBU programme model has potential to be linked into a national or transnational social enterprise, constituted and registered as a for-profit Meat Naturally (Pty) Limited Company (MN Pty), that would provide environmental stewardship, jobs and increased natural meat production. Key features would be upscaling impact, and building in capacity for covering marketing support costs internally and sustainably. In moving from the local to the national/transnational level, MN Pty would target regions where there is overlap of areas with higher densities of invasive alien plant (IAP) and bush encroachment, poverty (especially in communal lands which have 47% of South Africa's livestock but only 5% of the red meat market), and threatened water resources (which may be linked to climate-change-related stress, as in Namaqualand).

The MN Pty is built on and would itself contribute to upscaled application of the Landscapes for Lekker Livelihoods rangeland restoration/livestock production model. Replication would include training of other NGOs, networking, and growing and establishing livestock producer organisations. Livestock producer organisations would affiliate to the Grass Fed Association of South Africa (GfSA), which was established through the Red Meat Producers Organisation in 2014. GfSA affiliation would guarantee the traceability of meat from the rangeland or farm to consumers, and that the meat is produced without growth hormones and antibiotics. Supplier agreements or contracts would be established between livestock producer organisations and MN Pty, which would include required GfSA protocols. There may also be contracts between farmers, GfSA and retailers.

The MN Pty would raise government funding to fund production and landscape restoration products and services to communal lands livestock producers, including grazing planning, equipment and veterinary services, ecoranger training, and ecoranger supervision and management. Training would be given to Department of Environment Affairs (DEA) Implementing Agents (IAs), who would engage in catalysing and mobilising communities, and capturing lessons learned for adding to and improving the MNI/ Landscapes for Livelihoods toolkit and curriculum. There would be potential shareholding for long-term financing for community farming groups to assist with internalising



currently or initially subsidised costs.

To provide consistent but flexible market access, the MN Pty would use revenues generated through economies of scale, through sales support services including mobile auctions in regional nodes, establishing marketing contracts and distribution, and auditing of GFSA protocols. Participatory democratic governance would be expressed through representation of Livestock producer organisations and NGOs on the MN Pty board of directors.



“Communal lands have 47% of South Africa’s livestock but only comprise 5% of the red meat market”

UMZIMVUBU RANGELAND & LIVELIHOODS RESTORATION PROGRAMME: MEAT NATURALLY

LIVESTOCK SALES	SALE #1 WARD 14 ONGELUKSNEK 6/2014	SALE #2 WARD 14 ONGELUKSNEK 4/2015	SALE #3 WARD + MAFUBE 5/2015
No Of Stock Offered	129	182	65
No Of Stock Sold	76	146	26
No Of Stock Not Sold	53	36	39
% Sold	58.91%	80.22%	40%
Highest Price	R 10,050.00	R 8,400.00	R 7,700.00
Lowest Price	R 3,100.00	R 2,500.00	R 2,600.00
Ave R/Kg Sold	R 11.24	R 11.37	R 11.20
Total Sale Turnover	R 471,800.00	R 871,650.00	R 125,000.00
No Of Sellers	66	105	15
No Of Buyers	4	6	1
No Households	27	36	15
Average Income /Hh	R 13,105.56	R 32,283.33	R 8,333.33
No Of Villages	9	11	4

INCOME & DIRECT BENEFITS	WARD 5 & 7 MZONGWANA	WARD 8 MAFUBE	WARD 12 & 13 NKAU, MPHARANE	WARD 14 THABA CHICHA	WARD 21 MVENYANE	%
Alien Team Wages	R 904,000	R 1,100,000		R 1,967,000	R504,000	34%
Ecorangers Wages		R 800,000		R 950,000		13%
Fire Team Wages			R 3,000,000			23%
Training & Inputs	R 300,000	R 500,000	R 1,550,000	R 1,000,000	R225,000	19%
Livestock Sales		R 120,000		R 1,343,450		11%
	R 1,204,000	R 2,520,000	R 4,550,000	R 5,260,450	R 729,000	

TOTAL VALUE OF DIRECT BENEFITS TO 685 HOUSEHOLDS IN MATATIELE MUNICIPALITY = R 13,263,450

600 ha CLEARED = R5,232,500
POTENTIAL GRAZING @ R6500/ha

> 5000 HOMES & 80 000 ha PROTECTED FROM FIRE*

520 JOBS CREATED AND
PEOPLE UPSKILLED

VALUE OF ECOSYSTEM GOODS & SERVICES RESTORED AND RETAINED: water worth R27 million/annum





Sustainability

Initial stakeholder engagement processes should provide an understanding of what kind of land use people want, so this informs implementation planning and it gets integrated into municipal SDFs. At this point, we have plenty of lessons learned rather than tools about sustainability. The Umzimvubu collective defined sustainability as “the operation of the system by communities / beneficiaries, without donor finance, with optimisation of socio economic benefits that enjoys the support of all stakeholder groups”. What is required to move responsibility and initiative from the local IA to beneficiaries is capacity, willingness and knowing where we are heading with stakeholders, having a clear vision.

We also need to understand what the functions and responsibilities of government stakeholders are so we can communicate expectations of them fulfilling their role. The model of conservation agreements has worked everywhere else in the world, here there is an expectation of incentives to achieve changed behaviour. A healthier interaction mode could be “I’ll help you with YOUR journey”, rather than GIVING something. Another key to sustainability is to get departments to buy into programmes in terms of their design, e.g. EPWP is not sustainable, so when the budget runs out then the project ends. The department should have stronger sustainability too. Agreements come out of negotiation processes, negotiations are the only way you can get through addressing contentious issues

Ecorangers

Ecorangers are essentially the community based facilitators of the restoration and red meat supply process, selected by the beneficiary community based on required criteria, and equipped with a basic set of skills to support the rangeland management and red meat supply activities within their community.

An ecoranger is a local person who has some experience of working with livestock, and is then supported with an increased suite of skills to be able to assist their community in sustaining the herd management and related activities, according to the type of grazing management system selected by the community, and ensuring a sustainable, traceable supply of livestock for the grassfed red meat market.

Ecorangers should ideally be selected by the beneficiary community as trust worthy stock keepers, who are then provided with opportunities to develop a range of relevant skills to support their functions, including basic ‘para-vet’ functions and livestock husbandry, alien plant control, environmental awareness, citizen science, first aid, auction support, etc. They should assist with ensuring that demarcated rest areas / camps are kept free of livestock during the growth season, a traditional system in the Matatiele area known as ‘maboella’, which is long respected but recently broken down due to limited herding skills and co-operation amongst stock owners.



While these 15 elements must be included or implemented, it was noted that the content within the elements is flexible and will always need adaption for the specific implementation context, and implementation processes are always organic rather than linear.



THE TOOLKIT MATRIX: A MAP OF WHAT, WHEN + HOW

The eleven key components into which the toolkit has been 'sorted' according to the three core streams are outlined in figure 3 RHS - pg 17:

This is detailed further in the attached TOOLKIT REFERENCE MATRIX (ANNEX 1) which provides context, strategic considerations, key tools and methodologies for implementation of each component, some sequencing recommendations, as well as a list of resources and references for further guidance.

The toolkit matrix makes reference to various tools, papers and readings: despite attempts at being as comprehensive as possible, this is far from exhaustive due to the enormous spectrum of available literature. The Toolkit guide is thus also accompanied by an ELECTRONIC COMPENDIUM OF TOOLS & REFERENCES as an accompaniment to this toolkit guide. This is summarised in ANNEX 2.

Sequencing

The suggested steps for each component are provided in the toolkit matrix. The overall order for implementers to make use of the process is broadly according to the order of the streams, where social and institutional elements are addressed to provide a sound foundation for tackling the more physical interventions of landscape restoration and livestock management.

Figure 4 below provides a general sequencing guideline, acknowledging that each situation and process will be unique: implementers should first gain a full understanding of the spectrum of issues, expectations, resources, aspirations and capacity, and be flexible and responsive to local opportunities and challenges

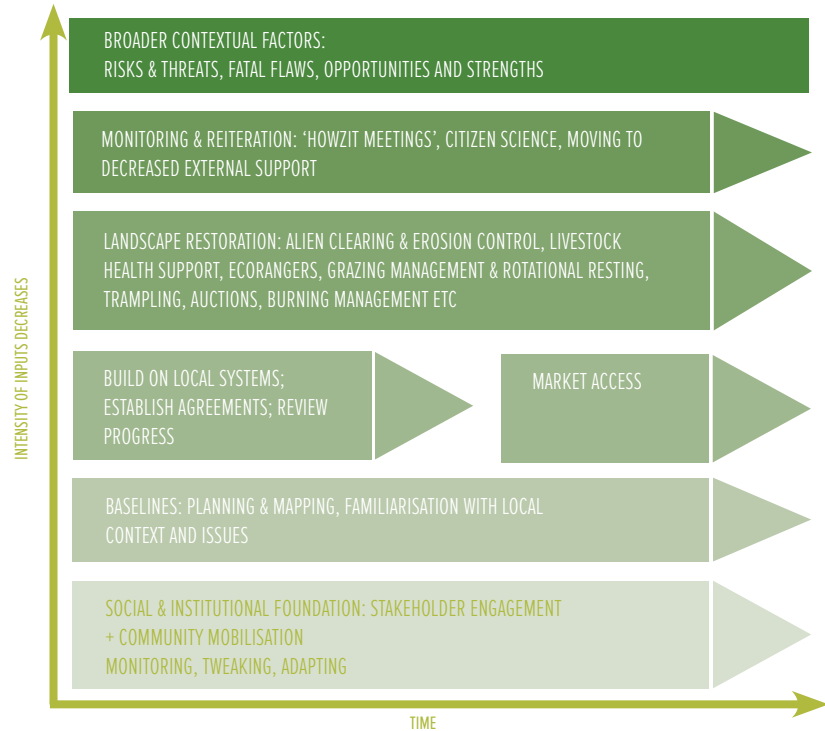


Figure 4: schematic guide to sequence of implementing model components

Fig 3: RANGELAND RESTORATION TOOLKIT STRUCTURE OUTLINE	
COMPONENT	KEY ELEMENTS
STREAM 1: SOCIAL, INSTITUTIONAL & MARKETING ELEMENTS	
1: STAKEHOLDER ENGAGEMENT	Community mobilizing and capacity building (including stock owners and leadership)
2: MARKET ACCESS	Enabling incentives; sharing health perceptions; condition and grading requirements
3: ESTABLISHING AGREEMENTS	Mutual obligations, ensuring commitment, clarifying expectations for all parties
4: SUSTAINABILITY & RESILIENCE	Building on traditional and accepted systems; financial management; independence from project support
STREAM 2: LANDSCAPE RESTORATION & PRODUCTION	
5: RANGELAND REHABILITATION	Alien clearing techniques for grassland recovery; rotational resting; restoration techniques; mapping and monitoring
6: ECORANGERS AND ROTATIONAL GRAZING	Training; herding and livestock husbandry skill sets; careers for ecorangers; links with rangeland rehabilitation component 5
7: LIVESTOCK HEALTH	Nutrition; healthcare, inoculations and 'paravet' functions and training (linked with component 6)
8: FIRE MANAGEMENT	As threat and as tool; control and management; prevention and response
STREAM 3: BROADER CONTEXTUAL FACTORS	
9: STOCK THEFT	Improving security, reducing risks for stock owners
10: CROSS BORDER ISSUES	Illegal grazing, stock theft links, international liaison committees
11: CLIMATE CHANGE TRACKING & RESILIENC	Vulnerability and stresses, water security, awareness, external threats beyond local control

PIC XX ecorangers and site supervisors are key for facilitating restoration and livestock- based activities within beneficiary groups' landscapes, and ensuring continuity of such activities on a sustainable basis beyond funded project interventions.

Figure 3: rangeland restoration toolkit structure outline

TOOLS + METHODOLOGIES

The tools and methodologies for facilitators provide a skill set which will enable implementers to get started and to provide support for ‘unrolling’ the toolkit for the eleven components listed under each Stream.

An almost unlimited spectrum of tools and micro-methodologies is available to implementers and facilitators, ranging from PRA (Participatory Rural Appraisal) techniques developed in the 1980s, participatory citizen science awareness and monitoring, through to detailed scientifically based vegetation and livestock health recording techniques. Those which have proven useful in the experiences of the facilitators who developed this model have been collated into a collection / compendium, referred to under each component in the Toolkit Matrix in Annex 1, and are listed in more detail along with references and further useful reading and records in Annex 2. These are available in an electronic format or compendium, for which Annex 2 is a catalogue or reference guide.

The core methodology for catalysing the model is the ‘Community Mobilisation’ approach for facilitators, which is fundamental to introducing the model to a new community or interested group. This forms the ‘starter pack’ or introductory kit for component 1, within stream 1: “social, institutional and marketing elements”.

The approach makes use of several other pre-existing tools and techniques to equip facilitators to support integration of

the approach within a willing group: these are consolidated into a set of modules which focus on mobilisation of participant communities, through providing practical field-based interactive methods for understanding more about the enabling and limiting conditions facing the beneficiaries and their governance systems. The other support tools and micro-methodologies for facilitating the elements in stream 1 are listed according to their relevant components in Annex 2.

The technical element support tools under Stream 2 aim to equip facilitators with necessary skills to provide support for effectively implementing the more ‘hands on’ physical components, focussed on restoration and livestock husbandry activities, to provide support to both ecorangers as well as livestock owners and land users. LIMA and several other UCPP partners are exploring conservation agriculture options as a complimentary activity to augment the livelihoods of both stock owners and non-stock owning beneficiaries. The Savory Institute again provides excellent training on holistic grazing management, while there are several service providers who provide training in livestock husbandry and alien plant management.

Implementers must differentiate between training for their facilitators to equip them for effective outreach and mobilisation support, and training for beneficiaries and ecorangers. The Umzimvubu Catchment Partnership’s website has a cache of the documents comprising this compendium of tools, techniques, methodologies and

references for further reading an context, which are live linked from the catalogue in Annex 2. The compendium of tools is not exhaustive, nor limited to those listed here, and facilitators, planners and implementers are encouraged to explore further links and to share them through this basic compendium framework.



Effective equipping of such people through appropriate mobilisation, capacity building and training in appropriate skills, such as alien plant control, livestock management and citizen science monitoring, is crucial to the success of the “Landscapes & Livelihoods” rangeland restoration model



for landscapes & livelihoods

RANGELAND RESTORATION

annex 1



ANNEX 1: LANDSCAPES & LIVELIHOODS: TOOLKIT REFERENCE MATRIX for COMMUNAL RANGELAND RESTORATION MODEL

TOOLS, METHODOLOGIES AND REFERENCES can be found listed in ANNEX 2 per component, accessed from the electronic Toolkit Compendium

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 1: SOCIAL, INSTITUTIONAL AND MARKETING (enabling environment)							
<p>COMPONENT 1:</p> <p>STAKEHOLDER ENGAGEMENT</p> <p>COMMUNITY MOBILISING + CAPACITY BUILDING</p> <ul style="list-style-type: none"> including livestock owners 	<ul style="list-style-type: none"> Traditional authorities have custodianship of communal lands Commercial farming covers approximately 15% of the landscape ECPTA Protected Area in the area Municipal + departmental officers have mandates but not much happening UCPP exists to unite stakeholders Rural communities with varying educational and organisational levels People generally aware of wattle threat from WfW presence Livestock owners have varying numbers of stock Some owners pay herders, others share paid herder Livestock co- operatives largely (? Associations?) 	<ul style="list-style-type: none"> Involve both traditional and elected leadership, noting both want recognition + ownership; needs good diplomatic skills Build on existing institutions + identify local initiatives to build on Ensure stakeholders continually involved in all activities to secure support: can be a foundation for resources + sustainability. Can help with reducing staff turnover to keep communication flowing Pre-existing relationships help establish trust, crucial because maintain livelihoods. Livestock = identity Areas where tenure of user-boundaries easier to organise Involve livestock owners to build on historic grazing area boundaries and systems which they know, reviving 'maboella' – ask questions, understand sources of issues and challenges, build on models Role of women can be enhanced through involvement throughout whole community and process 	<ul style="list-style-type: none"> UCPP MoU template Awareness events Case study of effectiveness as communication tool UCPP website Vubuzela newspaper Mobilisation toolbox from Motseng and HLLM lessons Inter-community exchange learnings and site visits 	<ol style="list-style-type: none"> Identify stakeholders <ul style="list-style-type: none"> Roles and interests Contributions + benefits IAPs Identify available resources <ul style="list-style-type: none"> Financial Human Logistical Mobilisation e.g. livestock owners, capacity building according to identified needs Explore, prioritise and refine objectives and activities <ul style="list-style-type: none"> Context and scope Establish, joint goals and milestones Continuous engagement Acting together Detailed planning and implementation Refine and upscale <ul style="list-style-type: none"> Improve pathways to achieve sustainability Value addition 		<ul style="list-style-type: none"> Identify synergies with all stakeholders Focus group discussion Household situation analysis 	<p>Reference & Facilitator training materials:</p> <ul style="list-style-type: none"> Participatory planning for improved rangeland planning, Motseng Community, September 2012 (ERS) Participatory Community Engagement Process: Restoration of degraded grazing land and building livestock enterprises through improved rangeland custodianship (ERS) Problem tree poster and session steps HLLM modules by Savory Institute

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 1: SOCIAL, INSTITUTIONAL AND MARKETING (enabling environment)							
<p>COMPONENT 2:</p> <p>MARKET ACCESS</p> <ul style="list-style-type: none"> • ENABLING INCENTIVE • HEALTH PERCEPTIONS • CONDITION & GRADING 	<ul style="list-style-type: none"> • Local and limited sales • Mainly for traditional purposes (lobola, funerals, amasiko) • Speculative buying of stock with lower prices • Transport on poor roads, high distances 	<ul style="list-style-type: none"> • People DO WANT to sell into formal market, given understanding of choices • Buyers do want to buy rural stock • Branding assists stock theft control: SAPS can track and return stolen animals if branded • Animal grade is important • Marketing angle 	<ul style="list-style-type: none"> • Tracking treatment of animals (linked with component 2.3, livestock health) • Facilitating auctions and transport provided by buyers • Facilitating 1-on-1 sales • Facilitating branding 	<ol style="list-style-type: none"> 1. Identification of buyers and sellers for auction 2. Find out how existing sellers want to sell (prices) 3. Get at least three buyers with dates for the auction 4. Register buyers <ul style="list-style-type: none"> • Copies of their IDs • Residential addresses • Capacity of the buyer (private or business) 5. Find the demand for animals 6. There should be at least 50 animals to buy to make sale feasible 7. Confirm buyers and sellers 8. Correct paperwork for sellers <ul style="list-style-type: none"> • Copy of ID • Certificate of ownership 9. Check whether animals received vaccination 	<ul style="list-style-type: none"> • Cash returns from improved livestock productivity 	<ol style="list-style-type: none"> 1. Record-keeping (livestock & sales) 2. Animal-loading (48hrs) 3. Payment procedure 4. Follow-up surveys <ul style="list-style-type: none"> • Track households selling and prices received • Marketing costs for owners and buyers, and best timing of auctions 	<ul style="list-style-type: none"> • Equipment • Mobile livestock handling • Scale • Recording tools • Register of stock owners and buyers • Template of the receipt at the auction • Template of household earnings • Templates of agreements • Templates for reflection and/or lessons learned • Certificates of ownership • Vendors' list/sales sheet • Previous record of sales

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 1: SOCIAL, INSTITUTIONAL AND MARKETING (enabling environment)							
COMPONENT 3: ESTABLISHING AGREEMENTS	<ul style="list-style-type: none"> • CI has globally used agreement approach for accountability • New tool never used to define obligations in region before, but emerging as successful 	<ul style="list-style-type: none"> • Can mobilise volunteers • Formally clarifies expectations • Not really consulted until times of trouble • Timeframe 6 months too short to implement properly • Need to have agreements for quiet season as well??? • Short term agreements help to build trust into longer term goals + allow for learning to be integrated into next agreement • Embed conservation agreements into greater community land resolutions contracts Ensures long term commitment – people don't take all the benefits at once • Stage incentives with conservation actions 	<ul style="list-style-type: none"> • CSP agreement manual • Existing agreements from different communities at different stages + situations (Motseng year 1, Letlapeng year 1, Motseng year 2, etc) 	<ol style="list-style-type: none"> 1. Stakeholder identification, consultation and negotiation 2. Identifying needs to set the main goal 3. Pilot agreement to test effectiveness 4. Reflect on the effectiveness of the pilot agreement 5. Individual signing of the contracts, then progress to group signing 	<ul style="list-style-type: none"> • Securing benefit flows through formalised contractual respective responsibilities and rights 	<ul style="list-style-type: none"> • Internal enforcement of rules 	Reference: <ul style="list-style-type: none"> • CSP agreement manual • Reference & adaptive use: • Existing agreements from different communities at different stages + situations (Motseng year 1, Letlapeng year 1, Motseng year 2, etc) • Draft Conservation + Agriculture Agreement Biodiversity + Red Meat Cooperative (BRMC)

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 1: SOCIAL, INSTITUTIONAL AND MARKETING (enabling environment)							
COMPONENT 4 SUSTAINABILITY + RELIANCE	<ul style="list-style-type: none"> • Currently livestock owners pay some herders; many earning EPWP wattle wages plus livestock sale income • Have some basic financial management + training (savings groups) • Access to Lesotho herders who are cheap labour, competition for trained herders • State vet services are free but inconsistent + thus unreliable, sometimes too late • Some owners willing to pay for private vets + treatments • Sustainability requires independence from paid wattle clearing wages 	<ul style="list-style-type: none"> • Approach livestock and cropland owners to mobilise volunteers + ensure better foundation for sustainability + resilience as they will get long term benefit from rangeland restoration + improved livestock and crop sales • In 2 years livestock sales realised R1,3 million vs wages R1,8 million. Should transition over time • Start transition as part of sustainable strategy – during the implementation phase • Partnerships can help build resilience to institutional + implementing challenges 	<ul style="list-style-type: none"> • Analysis of wages vs livestock sale income • Save Act group process • Paravet training course • Training tools / agents 	<ol style="list-style-type: none"> 1. Training and internalising <ol style="list-style-type: none"> a) staff management b) legislation c) record-keeping 2. Selling the model (to donors) 3. Building business sustainability (could have added costs for the sellers) 4. They have the option of market accessibility 	<ul style="list-style-type: none"> • Sustainable benefit flows to livestock owners + communities through increased sustainable production, market access + improved social institutional resilience 	<ul style="list-style-type: none"> • Internal enforcement of rules 	Reference: <ul style="list-style-type: none"> • CSP agreement manual • Reference & adaptive use: <ul style="list-style-type: none"> • Existing agreements from different communities at different stages + situations (Motseng year 1, Letlapeng year 1, Motseng year 2, etc) • Draft Conservation + Agriculture Agreement Biodiversity + Red Meat Cooperative (BRMC)

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 2: LANDSCAPE RESTORATION AND PRODUCTION (active intervention & facilitation)							
<p>COMPONENT 5</p> <p>RANGELAND REHABILITATION</p> <ul style="list-style-type: none"> • ROTATIONAL RESTING OF GRAZING AREAS • POST ALIEN CLEARING RESTORATION • PATHS AND DONGAS RECLAMATION 	<ul style="list-style-type: none"> • Mainly communal lands in upper catchment with varying levels of degradation (zones of heavy and lower utilisation) • Extensive alien infestation reducing range capacity • Governance mainly under traditional structures with communal tenure 	<ul style="list-style-type: none"> • Pick your battle zones in terms of most likely to restore and maintain • Build on traditional practice and realisation of need to maintain rangeland through appropriate incentives • Motivate resting through providing winter feed source and/or access to supplements • Reduce livestock movement (lower impact on paths, village zone and animal energy reserves) 	<ul style="list-style-type: none"> • Appropriate clearing techniques to allow grassland recovery • Solar-powered night kraaling system to kick-start recovery through 'bioturbation' • A frame contour tool • Worksite management process (adapted for field teams) • GIS and GPS software & skills • Link with herding- based grass monitoring • Readings and references on clearing rehabilitation and rangeland restoration 	<ol style="list-style-type: none"> 1. Agreement in principle with community: inextricably linked with mobilisation, clearing and rotational rest grazing plans and herding 2. Resource mapping to identify target zones and ranking for treatment as layer over clearing and grazing plans 3. Different rehabilitation treatments for different basal conditions: <ul style="list-style-type: none"> • bare cleared areas: use night kraaling as kickstart, linked with herding plan and hand pulling seedlings for follow up maintenance; also re-seeding and exclusion • degraded grassland: appropriate rest and graze within rotational herding plan • mechanical packing for gulleys and small dongas 4. Link rehabilitation to herding according to grass, status and good science / best practice 	<ul style="list-style-type: none"> • Improved livestock productivity and returns • Collective kraaling to control wattle regrowth and land degradation 	<ul style="list-style-type: none"> • Project effectiveness: Mapping for baseline & progress • Cleared hectares with rates • Rehab status & change e.g. % of ground cover in post- cleared areas • Ecosystem effectiveness: • Annual veld baseline transects • Quarterly EGS toolkit • Seasonal exclusion cages • Link with herding scientific monitoring 	<p>General + Field Reference:</p> <ul style="list-style-type: none"> • Induction manual for alien clearing aimed at basal cover rehabilitation • Best practice clearing method cards and photos • Posters e.g. livestock + livelihoods • Bioturbation posters (GSSA & A3) • Rotational resting (GSSA: R.L-O SANBI; HLLM toolkit)

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 2: LANDSCAPE RESTORATION AND PRODUCTION (active intervention & facilitation)							
<p>COMPONENT 6</p> <p>ECORANGERS & ROTATIONAL REST</p> <ul style="list-style-type: none"> TRAINING ECOSYSTEM, LIVESTOCK + HERDING SKILL SETS CAREERS FOR ECORANGERS 	<ul style="list-style-type: none"> Traditional herding custom still exists Practices have changed in response to different factors: fire, wattle encroachment, stock theft 	<ul style="list-style-type: none"> Challenge to change traditional herding practices Cattle become conditioned to route Facilitating access to inputs is an incentive for buy-in to herding programme 	<ul style="list-style-type: none"> Rotational grazing + resting plan (linked with rangeland rehab) recruitment, training + employment of Ecorangers Night kraaling using electric fence Tent, torches etc for night watch Ecorangers working with individual herders Herding skills: when to move animals 	<ol style="list-style-type: none"> Recruit, select, train, job descriptions for Ecorangers Engage community livestock owners Identify grazing blocks and herding system Communicate start date or bring livestock Daily record keeping of animal count 	<ul style="list-style-type: none"> Access to inputs & services (vet medicines, paravet services, nutritional supplements, marketing) Reduced stock theft and predation 	<ul style="list-style-type: none"> Track and monitor compliance and perceptions of livestock owners Grass availability (boot-height) Body condition score 	<p>Operational costs:</p> <ul style="list-style-type: none"> Airtime provision for rangers General + field reference PPT illustrating rotational grazing Grass book+ alien species book Field recording Herding template for record- keeping
<p>COMPONENT 7</p> <p>LIVESTOCK HEALTH</p> <ul style="list-style-type: none"> NUTRITION HEALTHCARE: PARA-VET + INOCULATIONS 	<ul style="list-style-type: none"> Sourveld limits productivity Livestock owners often have limited knowledge and use of inputs 	<ul style="list-style-type: none"> Make most efficient use of inputs Recognise traditional treatments and use of herbs 	<ul style="list-style-type: none"> Health programme including inoculation before collective herding (also an incentive) to reduce parasite load Collective management of herd 	<ol style="list-style-type: none"> Establish livestock association Training livestock owners <ul style="list-style-type: none"> Nutrition Health Management Condition scoring + link to production Demonstrate improved management Liaise with AHTs about state services Support collective action Keep records Register brands Ear tagging Community animal health workers LA generating funds from services Gaining access to neighbouring land 	<ul style="list-style-type: none"> Subsidised vaccination programme Winter fodder from rested veld Grazing in nature reserve 	<ul style="list-style-type: none"> Household livestock records Sale records Body condition score / BCS Records of mortality + calving rates Socio-economic impact 	<p>General + Field reference + recording:</p> <ul style="list-style-type: none"> Body condition scoring, sheet and document and ppt, INR 'Guidelines to Ensure Your Animals Are Healthy', KZN DAEARD & MRDT, 2011 Sale record template (sales) Household livestock templates Template for experiments

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 2: LANDSCAPE RESTORATION AND PRODUCTION (active intervention & facilitation)							
COMPONENT 8 FIRE MANAGEMENT <ul style="list-style-type: none"> AS THREAT, AND AS TOOL CONTROL & MANAGEMENT PREVENTION & RESPONSE 	<ul style="list-style-type: none"> Burning to stimulate early regrowth Runaway from planned and accidental fires / negligence and arson Burning to deter predators Cross border fires in high winds Have well developed consulted collaborative fire management strategy for subregion along watershed 	<ul style="list-style-type: none"> People have real reasons and beliefs for burning, and alternatives have cost implications Plenty of local knowledge on burning tactics and fire control; this must be worked in 	<ul style="list-style-type: none"> Fire management strategy doc MDTP Awareness and training on fire prevention and control (FireWise) Equipment for local fire fighting Awareness on impacts of unmanaged rangeland burning 	<ol style="list-style-type: none"> Identify as an issue Field exercise Identify key areas Broad reconnaissance 3. Identify available resources 4. Awareness and basic fire-fighting training 5. Plan and implement fire protection/ management strategies <ul style="list-style-type: none"> Include complementary organisations and community <ol style="list-style-type: none"> Review and refine steps 3, 4 and 5. 	<ul style="list-style-type: none"> Reduced human, livestock and grazing losses More and better quality grazing being made available 	Surveys <ul style="list-style-type: none"> Focus group discussions Household situation analysis Field Fire frequency Monitor areas burnt and when Research	General + Field Reference: <ul style="list-style-type: none"> Posters for awareness Fire management document (LIMA - Lumko) Manuals
STREAM 3: BROADER CONTEXTUAL FACTORS							
COMPONENT 9 STOCK THEFT	Big problem in area, huge threat to farmers' security, unwilling to take risks and invest in stock	<ul style="list-style-type: none"> Indaba's about stock issues Involvement of community / SAPS policing forums e.g. Mzongwana area Risk management e.g. Santam insurance model from Namaqualand 	Branding to assist claiming stolen stock		<ul style="list-style-type: none"> Livestock security, production & income Livestock owner security 	Stock theft records	

Streams + Components	Context for UCPP	Strategic Considerations + Lessons For Sharing	Tools + Tested Micro-Methodologies	Sequenced Steps	Incentives	Monitoring	Resources + References
STREAM 3: BROADER CONTEXTUAL FACTORS							
COMPONENT 10 CROSS BORDER ISSUES	<ul style="list-style-type: none"> Upper catchment located along border with Lesotho Illegal grazing and theft Fires come over border 	<ul style="list-style-type: none"> MDTP useful communication agent BCOCC (Border Control Co-ord Committee) + District Liaison Committee helpful in past for addressing issues at ports of entry Khutlalathaba arrangements for cross border engagement 			<ul style="list-style-type: none"> Reduced threat from cross border stock theft + fires 		
COMPONENT 11 CLIMATE CHANGE TRACKING + RESILIENCE	<ul style="list-style-type: none"> Stresses from climate change: rainfall, temperature, drought, biodiversity, livestock and human health, incomes Vulnerability assessment completed for ANDM General community awareness EBA and CC are flavour of the month 	<ul style="list-style-type: none"> Water security issues are a good way to mobilise local government, building on flavour of the month theme of climate change resilience 	<ul style="list-style-type: none"> Climate diaries Heat stress monitoring EWT's EGS monitoring and evaluation / change tracking tool 	Include resilience indicators in baseline survey	<ul style="list-style-type: none"> Sustainable benefit flows to communities through improved ecosystem + social resilience 	<ul style="list-style-type: none"> Monitoring of resilience indicators, such as heat stress 	Reference + field tool



for landscapes & livelihoods

RANGELAND RESTORATION

annex 2



ANNEX 2: LANDSCAPES FOR LIVELIHOODS TOOLKIT: CATALOGUE OF TOOLS + REFERENCES TO SUPPORT EACH COMPONENT

Component	Key Elements	Tools + Methodologies	References + Reading
STREAM 1: SOCIAL, INSTITUTIONAL + MARKETING ELEMENTS			
1. STAKEHOLDER ENGAGEMENT	Community mobilizing + capacity building (including stock owners and leadership)	<ul style="list-style-type: none"> Participatory community engagement process (ERS, 2015) The Problem Tree (Motseng 2014) Land Reform biodiversity stewardship initiative Introduction to Env stewardship (EWT) Records of Motseng mobilisation + monitoring meetings (collection of proceedings, ERS 2012-2015) UNEP refs and guides A3 Poster set for emerging model (UCPP 2014) 	<ul style="list-style-type: none"> Turner. 2012. Conservation + poverty alleviation, Waterton. 2015. Committing to place plus biology Stakeholders, partners + role-players in CBNRM T. Shata, 2015: PPT to SCCP on People + Conservation
2. MARKET ACCESS	Enabling incentives; sharing health perceptions; condition + grading requirements	<ul style="list-style-type: none"> Red meat Market +communal beef cattle supply (ref) 	
3. ESTABLISHING AGREEMENTS	Mutual obligations, ensuring commitment, clarifying expectations for all parties	<ul style="list-style-type: none"> Draft Conservation + Agriculture Agreement Biodiversity + Red Meat Cooperative (BRMC) Motseng draft livestock agreement 	
4. SUSTAINABILITY + RESILIENCE	<ul style="list-style-type: none"> Building on traditional + accepted systems; financial management; independence from project support; monitoring 	<ul style="list-style-type: none"> Financial Services + Livelihood Security for Poor + Vulnerable Groups (Save Act) Citizen science EGS monitoring toolkit (EWT) Monitoring recording form (ERS, 2015) 	<ul style="list-style-type: none"> Financial Services + Livelihood Security for Poor + Vulnerable Groups

Component	Key Elements	Tools + Methodologies	References + Reading
STREAM 2: LANDSCAPE RESTORATION & PRODUCTION			
5. RANGELAND REHABILITATION	Alien clearing techniques for grassland recovery; rotational resting; restoration techniques; mapping and monitoring	<ul style="list-style-type: none"> Using cattle as 'tools' for communal rangeland restoration (ERS, 2014) Rotational resting: a practical solution to maintain or improve communal rangelands Rotational resting: a practical solution to maintain or improve communal rangelands . Brigid Lett, Lumko Mboyi and Susan Carter-Brown (date) Trampling as a recovery tool (McLeod, 2015) PPT Motseng before and after poster, 2015 	<ul style="list-style-type: none"> Communal custodianship - alternative incentives for sustaining land restoration; Matela, S. McLeod, N. Frazee, S Changing tack: alternative management approaches for controlling the spread of invasive wattle in communal landscapes: N. McLeod Institute of Natural Resources, Lima Rural Development Trust; 3 NatureStamp
6. ECORANGERS + ROTATIONAL GRAZING	Training; herding and livestock husbandry skill sets; careers for ecorangers; links with rangeland rehabilitation component 5	<ul style="list-style-type: none"> Livestock herding – Matatiele area, July 2015 Consolidated observations and recommendations on the eco-ranger project: eco-ranger concept site visit held on 31st August in Ongeluknesk Motseng area, Matatiele, South Africa Ecorangers programme stewardship, July 2014 Ecorangers programme MDTP, July 2014 CSA and Ecorangers, Dec 2013 CSA and Ecorangers, March 2014 Motseng Land and Livestock management, start of grazing season, September 2015 	<ul style="list-style-type: none"> UCPP. 2014. ECORANGERS FOR LIVELIHOODS AND LANDSCAPES: Reflections from a year of implementation Ecoranger concept DEA MAREP PPT: N. McLeod, Oct 2015
7. LIVESTOCK HEALTH	Nutrition; healthcare, inoculations and 'paravet' functions and training (linked with component 6)	<ul style="list-style-type: none"> Guidelines to Ensure your Animals are Healthy, KZN DAEARD and MRDT 2011 Body condition scoring, Brigid Letty (Lima DEA Umzimvubu NRM LUI Project), May 2015 	<ul style="list-style-type: none"> Some thinking on community livestock management on natural veld.(ref)
8. FIRE MANAGEMENT	As threat and as tool; control and management; prevention and response	<ul style="list-style-type: none"> Veldfires presentation, Compiled JP du Plessis . July 2014 Fire Management in the Grassland Biome (ref) Fire ecology lecture fire—a key factor in the ecology and management of African grasslands and savannas S.W. Trollope, July 2014 	<ul style="list-style-type: none"> Assessment of Veld Condition Using the Adapted Point Centred Quarter Method For Bush Surveys. D. van den Broeck. P. de Bruyn. R. Goode. L.A. Trollope. W.S.W. Trollope. Fire behaviour a key factor in the fire ecology of African grasslands and savannas. W.S.W. Trollope & L.A. Trollope (date) Fire grazing interaction related to domestic livestock: Grazers in moist african grasslands (sourveld) Winston s.w. trollope & lynne a. Trollope Fire Management in the Grassland Biome (ref) Johannsen & Granstrom: fuel, fire & cattle. Journal of Applied Ecology, 2014

Component	Key Elements	Tools + Methodologies	References + Reading
STREAM 3: BROADER CONTEXTUAL FACTORS			
9. STOCK THEFT	Improving security, reducing risks for stock owners	<ul style="list-style-type: none"> • Participatory community engagement process (ERS, 2015) • The Problem Tree (Motseng 2014) • Land Reform biodiversity stewardship initiative, • Introduction to Env stewardship (EWT) • Records of Motseng mobilisation + monitoring meetings (collection of proceedings, ERS 2012-2015) UNEP refs and guides • A3 Poster set for emerging model (UCPP 2014) 	<ul style="list-style-type: none"> • Turner. 2012. Conservation + poverty alleviation • Waterton. 2015. Committing to place plus biology • Stakeholders, partners + role-players in CBNRM • T. Shata, 2015: PPT to SCCP on People + Conservation
10. CROSS BORDER ISSUES	Illegal grazing, stock theft links, international liaison committees	<ul style="list-style-type: none"> • Red meat Market +communal beef cattle supply (ref) 	
11. CLIMATE CHANGE TRACKING & RESILIENCE	Vulnerability and stresses, water security, awareness, external threats beyond local control	<ul style="list-style-type: none"> • Review of evidence on drylands pastoral systems + climate change: Implications + opportunities for mitigation + adaptation Edited by C. Neely S. Bunning and A. Wilkes • Converging Currents in Climate Relevant Conservation: Water, Infrastructure, + Institutions • John H. Matthews, Bart A.J. Wickel, Sarah Freeman • Namaqua District Maps. Stephen Holness • Skeppies: Building Resilience to Climate Change Skeppies Climate Monitoring through the Climate Diary Process: Method + lessons learned Compiled by Amanda Bourne, Climate Action Partnership, + Anna-Lize Terry, Conservation South Africa March 2011 • Adapting to climate change, Skeppies 	<ul style="list-style-type: none"> • China ecological footprint Biocapacity, cities + development Report 2010 • Hamann, M., V. Masterson, R. Biggs, M.Tengö, B.Reyers, L.Dziba, M.Spierenburg. 2012. Social-ecological scenarios for the Eastern Cape Province, South Africa 2012-2050. Stockholm Resilience Centre, Sweden • Forestry-based carbon sequestration projects in Africa: Potential benefits and challenges Rohit Jindal, Brent Swallow + John Kerr