TSITSA PROJECT

TSITSA PROJECT QUARTERLY REFLECTION REPORT

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Tsitsa Project Reflection Report Q1 2020

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INTRODUCTION

The Tsitsa Project (TP) is a multi-stakeholder initiative centred on a partnership between the Department of Environment, Fisheries and Forestry (DEFF), Rhodes University (RU), LIMA Rural Development Foundation (LIMA), Fort Hare University (FHU) and University of the Free State (UFS). The universities of Stellenbosh and Wits are nominally involved with student representatives but do not have full partner status. While these three organisations are the core partners in the TP, the project works with a wide range of other stakeholders including local catchment residents, traditional authorities, implementers of restoration activities, municipalities, government departments, partner universities, and so on. The TP seeks to enable and support sustainable landscape management, sustainable livelihoods and the development of polycentric, participatory governance in the Tsitsa River catchment area, in the rural Eastern Cape of South Africa. The project is ambitious in scale and scope, and is intentionally seeking to "do things differently" in the way it approaches research, implementation and capacity building activities. A set of guiding principles has been developed to guide the project in its endeavours, and these make explicit the project's commitment to working collaboratively, reflexively, adaptively, and in a way that supports learning and social change processes.

Purpose of this report: a key process, outcome and output of PMERL

How can an organisation learn from its activities? How can it adapt its policies and practices to changing and complex contexts? How can it support its participants to do effective, impactful and enjoyable work?

The Participatory Monitoring, Reflection and Learning (PMERL) framework of the Tsitsa Project addresses these questions and is a core enabler of the project's intention to "do things differently".

One of the key challenges facing the leaders and advisors of the TP is the amount of documentation and knowledge being generated in the TP: collating, reading and making sense of all of this while continuing with the everyday activities of managing and running the TP is a difficult task. The PMERL team offers support to the leadership in synthesising and making sense of the outputs and processes of the TP. Moreover, the synthesised lessons and recommendations are aimed at encouraging not just the leadership but the wider project participants to reflect on the impact of their work, inform their planning and decision-making, and hopefully bring about an appreciation of the meaningful nature of their work. In a large and ambitious project in which many people are going 'beyond the extra mile' to contribute, this kind of motivation is important. At the same time, reflections also need to point to areas that are challenging or problematic, and need further attention or even a sharp change of direction. PMERL therefore also serves a critical purpose in building accountability and defensibility into the project by supporting rigorous and systematic analysis of evidence in the project.

This is the first ***quarterly*** reflection report produced by the PMERL team - with the intention to make synthesis, reflection and feedback on what is happening in the project more regular, allowing for more timely response and adaptation, especially in these uncertain times. The report does not provide details on administrative and financial management, but does report and reflect on the objectives, activities and events of the project. It offers an overview and synthesis of these to guide planning, decision-making, management and praxis in the TP going forward.

Where are we coming from?

In an effort to ensure that recommendations and findings from previous reflection reports and workshops are used going forward, we include here key insights from the meta-reflection workshop held in March (Box 1).

Box 1: Insights and feedback from the meta-reflection process

1. The single most common feedback was the critical need to **bring a wider range of TP partners and stakeholders** into PMERL and the meta-reflection processes.
2. A key suggestion to support the first point was to **develop a more participatory and iterative meta-reflection process over the year**, based on quarterly synthesis by the PMERL team, followed by quarterly reflection events. Another related suggestion was to provide practical training and guidance for CoPs and others to draw out lessons learnt and highlight key reflections in monthly, quarterly and annual reports. This could assist the PMERL team in identifying the key lessons (see for example Livelihoods & Well-being Annual Reflections 2019 – 2020 by Laura Conde-Aller).
3. PMERL's key role as **seeing and listening to participants** has emerged from this Meta-Reflection process:
    a. **Seeing:** The meta-reflection process should be used to recognize and "see" people and their work, i.e. to acknowledge and celebrate achievements and milestones and encourage people in their work.
    b. **Listening:** PMERL is recognised as a listener: people are sharing their ideas, frustrations, and questions about the project through the meta-reflection process and they rely on PMERL to share those with the relevant people in the project.
4. The M-R workshop highlighted **the critical importance of a 'Part 2' Adaptive Planning Process (a step in SAM) to respond to Meta-Reflection findings** for us to adapt our praxis, and set targets for the new year 2020-21 (See Table 9).
5. The meta-reflection process, and work of PMERL more broadly, needs to help **improve communication and feedback about key findings from research, monitoring, etc.** with the wider TP network more effectively, i.e. the report and findings need to be practical, accessible and usable for multiple users.
6. We need to use our **objectives tree, principles, indicators, ToC, and other frameworks more actively and explicitly in PMERL and SAM processes** as tools to guide reflection and evaluation.
7. Meta-reflection events are an important **opportunity to gather people together to 'catch up', 'hang out' and 'reconnect':** providing this space for social-relational connection is another key purpose of PMERL in the project which the meta-reflection process is supporting. This should be actively extended to the wider TP network.

The PMERL team recognises that there is much room for improvement in the process, to get better integrated and ongoing feedback from the diverse stakeholders in the catchment as highlighted by points 1, 2, 4 and 5 (Box 1). Multiple feedback loops are needed for integrated planning and strategic adaptive management. With this in mind, planning of a wider Tsitsa Project "reconnect and reflect" event is underway. This event will serve the dual purpose of including a wider range of TP partners and stakeholders in our sense-making processes, and providing an opportunity for people to reconnect and share their experiences (point 7 - especially important now due to the COVID-19 restrictions on travel and personal contact).

In further response to point 2, reflection reports will now be produced quarterly instead of annually, based on analysis and synthesis of reports and reflections produced by stakeholders and data gathered through ongoing monitoring. This will hopefully allow for greater responsiveness and is (fortuitously) an appropriate response to the increased uncertainty brought by the COVID-19 pandemic.

In response to point 6, we have included in this report a table linking outcomes and work this quarter to the TP objectives. This we hope to make a regular feature.

METHODOLOGY

Data for this report were collected from a variety of activities and outputs in the wider Tsitsa Project (Table 1).

Table 1: ***Sources of data and information analysed for this Reflection Report.***

Livelihoods:
Livelihoods CoP Quarterly Report (Q1 2020)
Citizen Monitors Final Report 2019 -2020
GreenPreneurs Final Report
Annual Implementation Report: Mini-catchment Village-level Integrated Planning 2019/2020
Women Capabilities Framework Report (Step 1 & Step 2)
Gender Equity:Women Capability Index_STEP 3: Building a Capability Set
Gender Equity: Women Capability Index STEP 4: Weighting and Aggregation of Capabilities
Gender Equity: Women Capability Index Final Report
Governance:
Governance CoP Quarterly Report (Q1 2020) including report of CLO activities
Student Progress Report - Anthony Fry
TP Governance Plan (updated March 2020)
Governance CoP Learning Words Rollout Report
Learning Words Together Towards Participatory Land and Water Governance
Older reports not included in the previous Meta-Reflection Report:
Postdoc Report - Athina Copteros
Report on Participatory Governance Community Work Sessions
Detailed literature-based plan of how to integrate biophysical methods, data and results in practice

Sediment and Restoration: Sediment & Restoration CoP Quarterly Report (Q1 2020), including Citizen Technicians' Report Biophysical Monitoring Report 2 of the Upper Tsitsa Catchment T35A-E (Feb 2020) Student Progress Report - Putuma Balintulo Student Progress Report - Laura Bannatyne
Grass and Fire: Grass & Fire CoP Quarterly Report (Q1 2020)
Climate Change: Local Government Climate Change Response Workshop Report
Systems Praxis: Systems Praxis CoP Quarterly Report (Q1 2020) MSc Research Proposal - Megan McCarthy PhD Research Proposal - Adela Itzkin
Community Engagement and Project Management: Catchment Coordinator Quarterly Report (Q1 2020) LIMA Senior Social Facilitator weekly reports x24 Updated Community Engagement Plan Project Coordinator Quarterly Report (Jan-May 2020) including record of project-wide emails CoP Coordinators' Meeting Notes (Feb, Mar, Apr, May 2020)
Knowledge and Learning: Knowledge and Learning CoP Quarterly Report (Q1 2020) Updated Communication and Advocacy Strategy Updated Branding and Communication Strategy BTO Report - Monitoring System Workshop (Mar 2020) TP Meta-Reflection Workshop Notes and Way Forward (Mar 2020)

This report is based on qualitative data collection and analysis across a variety of data sources, aiming for an integrative analysis of insights and reflections on project outcomes and processes in a process similar to that described by Bazeley (2011). Data were analysed in a two-step process (Table 2). Step 1 was the first level of data filtering, synthesis and identification of themes. The documents were divided among two PMERL team members who read through the data sources, making notes on insights relevant to five themes (identified ahead of the process):

- Knowledge outcomes and processes
- Organisational outcomes and processes
- Social-ecological outcomes and processes
- The Tsitsa Project objectives
- Challenges experienced

This was followed by a cross-cutting synthetic analysis (Table 1).

Table 2: Steps taken in the analysis of data.

Step	Analysis activity, purpose and scope	Guiding framework
1	Reading and reflecting: to get an overview of all material and begin filtering and synthesising. Focus on each individual data source, working sequentially through the full set.	Identify a wide range of emergent themes, insights and reflections, focusing broadly on TP outcomes and processes, founding principles and objectives.
2	Cross cutting synthetic analysis: to focus the analysis and identify specific lessons and narratives relating to project outcomes and processes, founding principles and objectives. To work in an integrative manner across data sources, identifying over-arching findings.	Identify specific outcomes, allowing themes to emerge within the three categories, and then organising these more specifically into sub-categories/themes.

PROGRESS FOR THE QUARTER

Overview of activities and outputs: March – May 2020

Key focus areas for the project this quarter were: integrated planning, knowledge products, outcomes and processes, and responding to COVID-19 disruptions - including keeping in touch with our stakeholders in the catchment.

The outputs of the Tsitsa Projec for the quarter are listed in Table 3. While outputs are a useful way of capturing a snapshot of what the project has produced, and usually provide detailed evidence of the projects' activities, they give limited insights into the outcomes and learnings from the project. For this report the outputs offer a useful source of data from which to draw out more detailed lessons learnt, reflections and outcomes. The *knowledge, organisational, and social-ecological outcomes and processes* reported below provide more nuanced insights into the work of the Tsitsa Project that draw on, reflect on, and make meaning of these outputs.

Table 2: Key outputs of the Tsitsa Project March-May 2020

Peer-reviewed publications	**In preparation:** 1. Systems Praxis and Governance CoPs: "A Systemic View of the Governance Capabilities Pathway" (to be submitted to *Sustainability Science*). 2. Fry, A., Cockburn, J., Mtati, N. and Palmer, C. "Action research in a transdisciplinary catchment rehabilitation project, reflections on praxis". 3. Systems Praxis CoP: "A system dynamics evaluation of the long run impact of the Ntabelanga dam on a communal rangeland system in the Eastern Cape" (to be submitted to *Socio-Economic Planning Sciences*).

	4. Itzkin, A., Clifford-Holmes, J. and Scholes, M. "Thematic analysis of key issues and data connectivity in the Tsitsa project". **Accepted for publication:** 1. Cockburn, J., Cornelius, A., Copteros, A., Libala, N., Metcalfe, L., van der Waal, B. and Rosenberg, E. (2020). A relational approach to landscape stewardship: new perspectives for multi-actor collaboration. *Land*, 9. 2. Rosenberg, E. and Kotschy, K. (2020). Monitoring and Evaluation in a Changing World: The Skills Needed for a New Approach. *African Evaluation Journal*.

Conference presentations	1. Bannatyne, L., Foster, I.D.L., Meiklejohn, K.I. and van der Waal, B. *Determining sub-catchment contributions to the suspended sediment load of the Tsitsa River, Eastern Cape, South Africa*. European Geophysical Union (EGU) General Assembly Session SSS2.5 (Soil erosion and driving factors of soil carbon distribution: A worldwide threat). EGU, Vienna, Austria (online), 5 May 2020.
	2. Le Roux, J. and van der Waal, B. *Gully erosion susceptibility modelling for avoided degradation planning.* European Geophysical Union (EGU) General Assembly Session SSS2.8 (Soil erosion and conservation). EGU, Vienna, Austria (online), 5 May 2020.
	3. Rosenberg, E. Two online ELRC seminars on evaluation in complex systems, in the context of education for sustainable development, drawing on experience from the Tsitsa Project (open to partners and colleagues within the ELRC's network):
	    1. Evaluation for Learning in Complex Systems
	    2. Evaluation in and of Education for Sustainable Development

Internal project reports and outputs	**See Table 1,** PLUS: 1. Update of progress against TP objectives, with lessons and findings from the Meta-Reflection Report included (May 2020). 2. A degradation avoidance/ restoration/ rehabilitation decision tree. 3. Biophysical monitoring database & updated rainfall and hydrology database (March 2020). 4. Node-scale restoration plans & costings for Lower Sinxaku, Upper Sinxaku & Sigoga (March 2020). 5. Restoration Booklet (Rehabilitation guidelines and field guideline) (April 2020). 6. Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (N. Huchzermeyer, April 2020).

Significant internal events hosted by the Tsitsa Project	1. Monitoring System Workshop (3 March 2020, Makhanda). 2. Meta-Reflection Workshop (12 March 2020, Makhanda). 3. C-Team Meeting (25 March 2020, Zoom). 4. Enhanced Integrated Planning Meeting and Feedback from Adela Itzkin (26-27 May 2020, Zoom).
Significant external events in which TP members participated e.g. catchment learning exchanges, conferences, etc.	1. European Geophysical Union (EGU) General Assembly (5 May 2020, Vienna, Austria [online]). 2. WEF Nexus Summer School Series. 3. Webinar on de-agrarianisation in the Eastern Cape and Europe hosted by SIANI (Swedish International Agricultural Network Initiative). The talk "Changing land use patterns in communal areas of South Africa: Drivers, consequences and policy implications" by Sheona Shackleton was of particular relevance to the TP. 4. South African Monitoring and Evaluation Association (SAMEA) webinar on M&E of complex humanitarian and development interventions, in the context of a changing world. 5. Programme on Ecosystem Change and Society (PECS) webinar series: a. Engaging with interpersonal challenges of collaboration by Rebecca Freeth (Reos Partners). b. Transformative Conservation As An Emerging Imperative For The Local Commons In Africa: Insights From The Kafue River Floodplain, Zambia by Bimo Nkhata (Independent Institute of Education in Johannesburg, South Africa).
Capacity development events hosted by the TP	No capacity development events took place this quarter.

Students graduated (Apr 2020)	1. **Sean Herd-Hoare** (MSc) Seasonal trends of rainfall intensity, ground cover and sediment dynamics in the Little Pot River and Gqukunqa River catchments, South Africa (Supervisors: Dr Bennie vd Waal, Dr Kaera Coetzer and Prof Ian Meiklejohn). 2. **Gareth Snyman** (MSc). An investigation into the fire regimes of the upper Tsitsa River catchment (Supervisor: Dr Bennie van der Waal). 3. **Hanli Human** (MEd). Developing social indicators for the evaluation of natural resource management programmes using a capability approach in the Eastern Cape, South Africa (Supervisor: Prof Eureta Rosenberg). 4. **Nosiseko Mtati** submitted her M.Ed thesis for examination in February. There were some unfortunate delays in the examination process because of COVID-19 affecting examiners' productivity. However, the examiners reports have now all been received and Nosi can take the next steps to finalise her thesis. The title is: Towards realising the benefits of citizen participation in environmental monitoring: a case study in an Eastern Cape Natural Resource Management Programme (Supervisors: Prof Eureta Rosenberg and Dr. Jessica Cockburn).

Progress against TP objectives

Significant progress has been made by the TP team in aligning with and implementing the objectives of the project. The objectives of the TP are the key components of the project's aspirations and guide the TP team towards achieving the desired the overall Tsitsa vision, i.e. to enable and support sustainable landscape management, sustainable livelihoods and the development of polycentric, participatory governance in the Tsitsa River catchment area.

A summary of progress for the quarter is given below, with further details given in Appendix 1 (including elaboration of the objectives and sub-objectives, previous progress and progress for the quarter).

Headline Objective 1: Founding Principles

Title of objective	Progress this quarter
1.1 Social-ecological principles and resilience thinking	• Governance and Systems CoP collaboration around systematizing the governance capabilities pathway (workshop and paper). • MSc Research Proposal - Megan McCarthy (A system dynamics approach to the management of Invasive Alien Plant Species in the Tsitsa River catchment area, South Africa). • Social-ecological principles and resilience thinking exemplified by the integrated planning process. • Publication: "A system dynamics evaluation of the long run impact of the Ntabelanga dam on a communal rangeland system in the Eastern Cape, South Africa". • Plans in place to upload system dynamics models to the TP website. • Meta-reflection workshop (March 2020).

	• Monitoring system workshop (March 2020).
1.2 Transdisciplinarity	• Ongoing through TP Quarterly Reflection reports. • These principles taken into account in design of the upcoming introductory course "Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management Contexts". • Literature review by Libala & Copteros (Dec 2019) covering transdisciplinarity and knowledge integration ("Detailed literature-based plan of how to integrate biophysical methods, data and results in practice").
1.3 A collaborative, reflexive, and adaptive orientation.	• Meta-reflection workshop (March 2020). • Quarterly reflection reports and workshops planned for 2020/21 to allow for more regular reflection and adaptation (starting this quarter). • CoP coordinators' meetings now held monthly to promote better integration and awareness between CoPs of what other CoPs are doing and planning. • Margaret has assumed the role of looking out for the wellbeing of the TP team during lockdown, encouraging people and maintaining a sense of what is happening and a sense of being a team. • **Project responses to COVID-19 disruptions**.
1.4 Expansive learning and capacity development.	• CoPCoordinators' meetings now held monthly. • Margaret meets regularly with LIMA (Chris) and DEFF (Sarah). • Enhanced Integrated Plan 2-day workshop (May 2020) and process. • Core group of members from CoPs established to work on EIP, and 2 meetings held (Jun 2020). • CoP contributions to nodal plans for the longer-term future AND for the next round of bidding by implementers (for next year). • Quarterly reflection reports and workshops planned for 2020/21 to allow for more regular reflection and adaptation (starting this quarter). • KL Support person appointed Apr 2020 (Wandile Paulose Mvulane). • Training of Trainers Course: Introduction to Environmental Learning developed and submitted for accreditation. Adapted for distance learning due to Covid-19 contact restrictions. • Planning underway for next module of TP Monitors course (Listening and Speaking) by the Governance CoP, which will be adapted for distance learning. • Publication: Cockburn, J., Cornelius, A., Copteros, A., Libala, N., Metcalfe, L., van der Waal, B. and Rosenberg, E. (2020). A relational approach to landscape stewardship: new perspectives for multi-actor collaboration. Land, 9. (In press).
1.5 Polycentric governance.	• Plans in place to upload models to the Tsitsa Project website. • Governance CoP together with LIMA and the Catchment Coordinator have started to report on CLOs' activities. • Reflections on CLOs' progress towards becoming "participatory governance agents" included in this report. • KL CoP keeping track of learning and progress taking place through the Integrated Planning process. • Priority sites for restoration were determined by local residents.

1.6 Towards equitable participation.	• CLO reflections on their first 2 months in the project included in this report. • The Governance CoP report "Learning Words Together towards Participatory Land and Water Governance" contains relevant reflections and outcomes. • Eco-Rangers appointed at Qulungashe. • Monitors' WhatsApp group used successfully for communication and sharing of information related to COVID-19 and associated disruptions.
1.7 Scientific-technical foundation and evidence base.	• Further baseline data provided in Huchzermeyer et al. (2020) and Conde-Aller (2020) - see Annexures. • Ongoing synthesis of knowledge and evidence in this report and future Quarterly Reflection reports. • Wandile Mvulane appointed (Apr 2020) and working on developing a functional KM system, including updating the website and a single TP Google Drive. • Biophysical monitoring database & updated rainfall and hydrology database (March 2020). • Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (Apr 2020). • Two publications in press and four under development, plus four conference presentations. Reflections suggest that the COVID-19 lockdown has enabled some researchers to focus more on writing and on synthesizing the evidence base.

Headline Objective 2. Ecological Infrastructure and Services - the Biophysical

Title of objective	**Progress this quarter**
2.1 Functional ability of landscape.	• Student Progress Report - Putuma Balintulo (Vegetation and soil recovery over time following clearing of the invasive Australian Acacias in Eastern Cape). • Biophysical monitoring report and database (Feb 2020). • Updated rainfall and hydrology database. • Google Earth platform for the TP. • Degradation avoidance/ restoration/ rehabilitation decision tree. • Student Progress Report - Laura Bannatyne (The implications of uncertainty associated with suspended sediment monitoring and yield estimation for catchment management decision-making).
2.2 Resilience.	• Assessment of land degradation in T35A-E against the SDG 15 indicators.
2.3a Prioritisation and design of practices.	• Enhanced Integrated Planning workshop (May 2020) and process. • Mapping of headman boundaries.
2.3b Impact of practices.	• Enhanced Integrated Planning workshop (May 2020) and process. • Sean Herd-Hoare (MSc completed): Seasonal trends of rainfall intensity, ground cover and sediment dynamics in the Little Pot River and Gqukunqa River catchments, South Africa. • Gareth Snyman (MSc completed): An investigation into the fire regimes of the upper Tsitsa River catchment. • MSc Research Proposal - Megan McCarthy (A system dynamics approach to the management of Invasive Alien Plant Species in the Tsitsa River catchment area, South Africa). • Siphakamise Nghobane (LIMA) attended an IDP meeting.

2.4 Monitoring.	• Further baseline data provided in Huchzermeyer et al. (2020), which also includes protocols for monitoring the biophysical indicators (in collaboration with PMERL team). • Adela Itzkin's PhD thesis is addressing issues of measurement scales.

Headline Objective 3. Livelihoods and well-being

Title of objective	Progress this quarter
3.1 Livelihood strategies.	• Land cover changes since 1990 analysed by Nicolaus Huchzermeyer. • Womens' Capability Assessment completed. • CLOs have been appointed and have enhanced communication in the catchment. • Discussion started with PMERL team about climate change adaptation indicators.
3.2 Aspirations and opportunities.	• Anele Ntshangase MSc Thesis second phase data collection designed to explore citizen understanding and values ascribed to Ecological infrastructure.
3.3 Participatory planning.	• No progress.
3.4 Integration.	• Greenprenuers registered their business as grass planting, catering and shed under the trading name "Mchatha Primary Co-operative Limited". • Eco-rangers appointed at Qulungashe.
3.5 Monitoring and Evaluation (of well-being and capability).	• The Women's Capability Index was completed.

Headline Objective 4. Institutional Actors and Governance

Title of objective	Progress this quarter
4.1 Current and desired governance arrangements.	• Governance Plan updated. • Progress Report - Ant Fry (Leverage Points for Improved Participation in Rural Land and Water Governance). Project aims to identify leverage points to practically support the emergence of participatory governance in the Tsitsa catchment. • Enhanced Integrated Plan workshop (May 2020) and process.
4.2 Political ecology/economy.	• Report on Participatory Governance Community Work Sessions: CLO reflections show that CLOs have made progress towards being participatory governance agents in the catchment, even though there are shortcomings with regards to resources.
4.3 Internal governance and management of overall expanding scope of the Tsitsa Project.	• LIMA joined the CoP coordinators' meetings and this has allowed better communication and feedback between the organisations. • Margaret and Nosi met with LIMA in March to resolve confusion over Sipha's role. • Margaret Wolff, Sarah Polonsky (DEFF) and Chris Jackson (LIMA) have been meeting monthly to discuss what is happening in the project. • Sarah has introduced the Tsitsa and Thicket projects to the Climate Change group within DEFF (Hlengiwe and Olga). • Various opportunities to engage with others in the catchment (MEC for Public Works wanting to engage with PG Bison and youth, Van Tol from UFS, Nosi invited to attend Muncipal District Forum and a wetland day by Elundini Municipality).

4.4 Project-related ethics.	• Joint general ethics application submitted by KL and Governance CoPs.

Headline Objective 5. Realising Agency and Collective Action

Title of objective	Progress this quarter
5.1 Principles.	• Updated Community Engagement Plan. • Matheboho Ralekhetla (PhD) currently studying capacity development for agency. • Womens' Capability Index completed.
5.2 Prototype (pilot) projects that exemplify this goal.	• After a series of consultations and meetings, Greenprenuers registered their business under the trading name "Mchatha Primary Co-operative Limited". • Communication and Advocacy Plan updated (Mar 2020).

Headline Objective 6. Knowledge Flow, Communication and Advocacy

Title of objective	Progress this quarter
6.1 Scientific-technical databases, libraries and decision support systems.	• Wandile Mvulane appointed (Apr 2020) as added capacity to help with the website and data management. • Mini-models developed so far are to go on the website. • Data products, booklet and decision tree produced by the SedRest CoP are all helpful for knowledge flow, communication and advocacy. • Biophysical monitoring database & updated rainfall and hydrology database (Mar 2020). • Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (Apr 2020). Incorporates local plans and green-preneurs data linkages also. Need to sharpen up mWater data this year and include restoration sites.
6.2 Community strategies.	• Updated Communication and Advocacy Plan. • Updated Branding and Communication Strategy.
6.3 Lobbying/Advocacy.	• Margaret plays an important communication and advocacy role: Building relationships with other organisations and people (e.g UCP, SANBI, DEFF CC division, Tony Knowles etc.), seeking funding, and meeting with the DEFF project manager and LIMA.

Indicator data

This is the first Tsitsa Project reflection report in which we formally present indicator data. The project-wide indicators for the TP (Table 3) were chosen through a collaborative process with researchers and communities (see Huchzermeyer et al., 2019 and Human, 2020 for further details).

Table 3: Tsitsa Project indicators divided into three categories: Process, outcome and impact indicators. Relevant background data is identified in column 1.

[Background]	Process	Outcome	Impact
Land use/cover	Opportunities – satisfaction with communication	Sense of cooperation – satisfaction with levels of cooperation	Wellbeing – a good life in the catchment
Population	Opportunities – knowledge exchange opportunities	Sense of inclusion – satisfaction with voice	Wellbeing – need to leave the catchment
Census data	Capacity – participation in capacity development	Agency – ownership of decision-making & planning	Sustainable livelihoods – residents earning an income
Fire dynamics	Sense of cooperation – satisfaction with TP relationships	Agency – self-employment	Healthy ecosystems – suspended sediment
Water quality	Safety – security initiatives	Polycentric governance – women & youth participation	Healthy ecosystems – dry season baseflow
Etc.	Safety – livestock theft	Polycentric governance – land user participation	Healthy ecosystems – landscape function
	Healthy ecosystems – river health	Sustainable land-use management - participation	
		Access to NR – potable water	
		Access to NR – grazing	
		Access to NR – arable land	
		Access to NR - other	
		Healthy ecosystems – alien woody cover	
		Healthy ecosystems – grassland condition	

The TP monitoring system (Figure 1) includes three main sources of data: **biophysical monitoring data** collected by the Biophysical Monitoring Group in the Rhodes University Geography Department (Sediment and Restoration CoP), **research data** collected by students and university-based researchers, and **citizen data** collected by the four different types of monitors or "community researchers" based in the catchment. While some elements of the monitoring system have been established for quite some time (research, Citizen Technicians and Citizen Monitors), the system is still emerging into a coherent whole. The indicators and indicator protocols[1] were finalised in January this year. Community Liaison Officers (CLOs) and Eco-Rangers were only recently appointed and have not yet started formal data collection against the indicators.

Box 2: Sources of indicator data for this report

- ✓ Huchzermeyer et al. (Feb 2020). Biophysical Monitoring Report 2 of the Upper Tsitsa Catchment T35 A-E.
- ✓ Bannatyne (Apr 2020). The implications of uncertainty associated with suspended sediment monitoring and yield estimation for catchment management decision-making. PhD Progress Report, Apr 2020.
- ✓ Conde-Aller (Feb 2020). Gender Equity: Women Capability Index Final Report.
- ✓ Ralekhetla et al. (Dec 2019). Participatory governance community work sessions to indicate progress toward informed participatory governance agents.

These reports are attached as Annexures.

[1] detailing what data should be collected, how, when, how often, where and by whom - available at https://drive.google.com/drive/folders/1wmE8GrqvlgAxDn11PPgU3WKTNpLmDWmt?usp=sharing

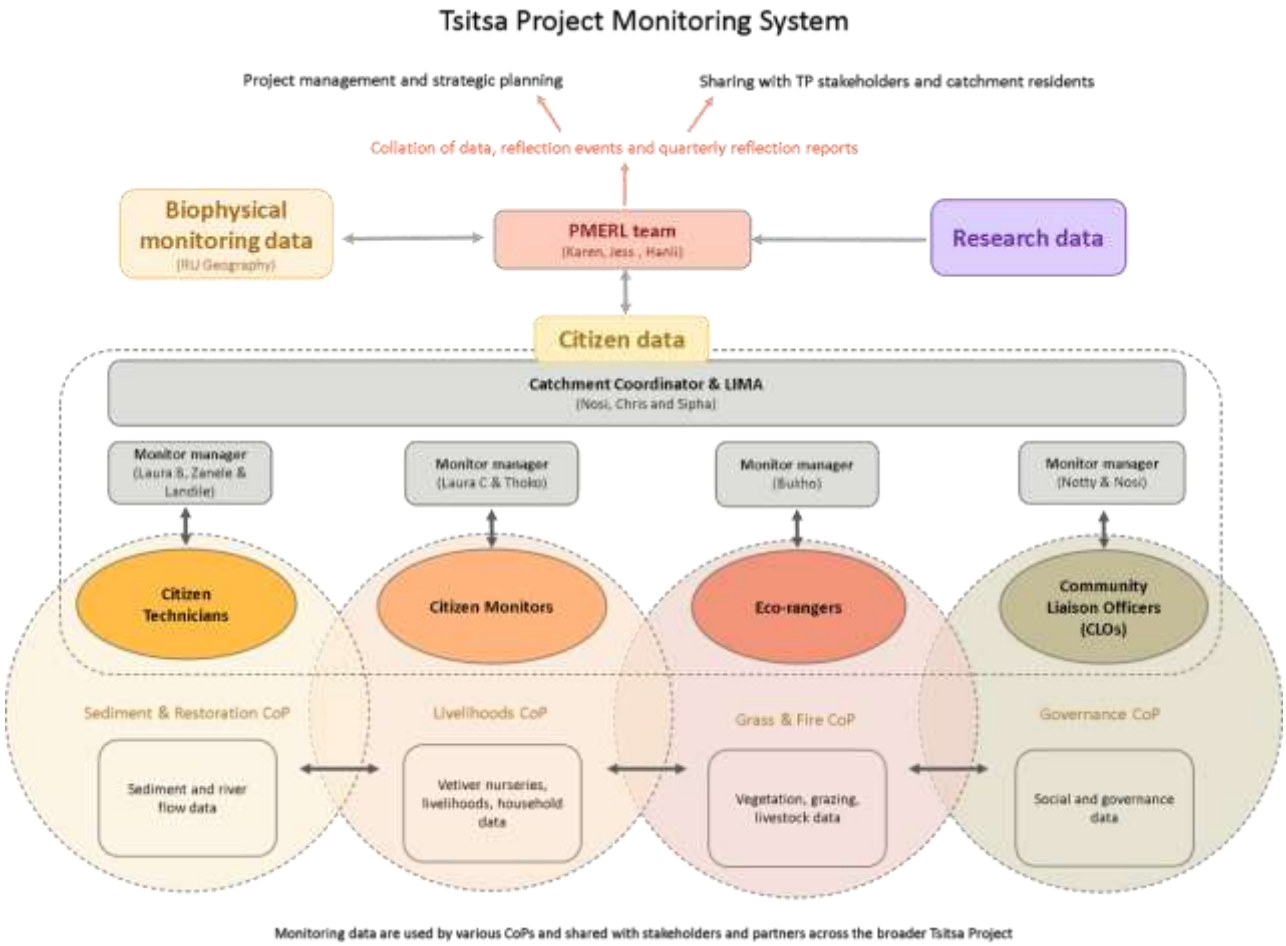


Figure 1: Overview of the Tsitsa Project monitoring system (diagram developed during the monitoring system workshop in early March 2020).

Unfortunately all monitoring and field-based activities came to a halt in late March due to the national COVID-19 lockdown. We therefore report here data collected during 2019 and early 2020 which was not included in the previous Meta-Reflection Report, and which will serve as a useful baseline against which future progress can be compared.

Data relevant to the various indicators is summarised in Table 4 below. Note that not all the data presented here was intended to address the TP indicators directly and therefore was not collected according to the TP indicator protocols. Nevertheless, we feel it provides a good starting point.

Table 4: Indicator data for the Tsitsa Project, reflecting baseline data collected during 2019 and early 2020 (Black text = Womens' Capability Index data; brown text = CLO data; shaded cells = biophysical data).

Indicator	Results	Collected in
Wellbeing - A good life in the catchment	• Food security: 42% of respondents found it hard to feed their families several times in a month and 26% experienced some food shortage in a month. • Hygiene: 86% of respondents could take care of their desired hygiene. • Access to health care: 54% of the respondents were satisfied with access to health care. • Emotional wellbeing: 76% of respondents had had stress during the week and 74% enjoyed reasonable time to relax, spend time with family and meeting friends. • Capacity: 56% of the women were unable to look after their families as they would like to. 72% indicated that their house was not adequate for their family (small, leaking roof, cracked walls, etc). • Personal freedom: 22% of respondents indicated that they did not want to change anything in their lives.	Nov 2019
Wellbeing - Need to leave the catchment	• 86% of participants' dependents were not employed locally and had left the villages to find work; only 2% were employed full-time. • 60% of the women interviewed were not satisfied with their current level of education and felt that education opportunities and information were not at all accessible to them (76%). • Aspirations: 76% would like their children to complete tertiary education, but only 30% felt confident that their children will reach tertiary level. • 56% felt unable to look after their families as they would like to.	Nov 2019
Sustainable livelihoods - Residents earning an income	• Employment: 76% of respondents were unemployed, 12% were employed part-time and 10% employed full time. • Income: 62% of respondents depend on child support grants, 22% on old age pensions and 12% on disability grants. • Piecemeal employment: 24% of respondents had done piece jobs in the last 6 months.	Nov 2019
Sense of cooperation - Satisfaction with levels of cooperation	64% indicated that people from their village are jealous and 90% indicated that the community was not working together to achieve common goals.	Nov 2019
Sense of inclusion - Satisfaction with voice	• Personal freedom: 72% felt able to express their feelings and 66% felt they are not oppressed by their peers. • Appreciation: 58% of the respondents felt respected in the community. Despite this, being a woman prevented them from making communal decisions (66%) and being heard by local authorities (52%). • All 5 CLOs who responded to the question felt listened to when they spoke (by TP team or local community), but they also mentioned occasions where they had not felt as if their feedback was taken seriously.	Nov 2019 Nov 2019
Agency - Ownership of decision-making and planning	• Personal Freedom: 64% of respondents indicated that they had enough freedom to make their own decisions regarding their everyday activities. Those who wanted to	Nov 2019

	change things (58%) recognised that change had to come from within. 22% and 38% provided that the government and God play an important role in their lives and 16% provided that their husbands played an important role in their lives. • Household decision making powers: 54% and 42% of the respondents provided that they were able to make minor and major household decisions. 12% indicated that decisions were made jointly. • Two CLOs felt comfortable to exercise agency in their tasks, 2 felt moderately comfortable, and 1 felt slightly comfortable. When asked to motivate their response, most expressed that chances to make decisions had been limited so far, but felt they could make decisions if given a chance. One mentioned that they were still a trainee and mainly did as they were told.	Nov 2019
Agency - Self-employment	• Entrepreneurship: 72% of respondents were not involved in small business due to the lack of start up capital, 64% perceived that there are no options to support entrepreneurship, 12% were involved in selling livestock and 14% in selling vegetables.	Nov 2019
Polycentric governance - Women and youth participation	• Associations: Main social groups such as funeral saving, church, saving, farming and cultural groups were dominant and only 18 % of the women respondents were not part of any. • One CLO was highly satisfied, 2 satisfied, 1 moderately satisfied and one slightly satisfied with their experience of participation. The one who was slightly satisfied felt they did not have enough knowledge to participate.	Nov 2019 Nov 2019
Polycentric governance - Land user participation	Women felt that being a woman prevented them from making communal decisions (66%) and being heard by local authorities (52%).	Nov 2019
Sustainable land-use management - Participation	No data.	
Access to natural resources - Potable water	Source of water: 80% local stream, river or spring and 38% from water tanks. Water quality and quantity was unreliable (average 44%).	Nov 2019
Access to natural resources - Grazing	No data.	
Access to natural resources - Arable land	52% had access to food gardens and 26% to both food gardens and fields.	Nov 2019
Access to natural resources - Other	96% of the respondents buy food. 18% combine their food supply with home grown vegetables, 24% with chickens and small livestock and 10% with livestock such as cattle and sheep.	Nov 2019
Opportunities - Satisfaction with communication (from TP)	CLOs would like more timely communication about uncertain events like late payments, events that they are to organise, and cancellation of meetings. Some work also needs to be done in terms of some people being more approachable than others.	Nov 2019
Opportunities - Knowledge exchange	Access to communication technology and mobility: 92% of the respondents had access to cell phones and a few (16%) had owned a car.	Nov 2019
Capacity - Participation in capacity development	• TP workshops and informal knowledge-based sessions had only reached 14% of the respondents. Respondents indicated that the main benefit gained from such	Nov 2019

	opportunities was access toemployment with the NRM implementers. • One CLO felt highly comfortable in their understanding of the TP, three were comfortable, while one was slightly comfortable. However, they did not yet feel confident to explain in detail or answer peoples' questions.	Nov 2019
Sense of Cooperation - Satisfaction with TP relationships	• 3 CLOs felt respected and 2 felt highly respected in the different spaces that the CLOs have engaged with the TP research team, management, and local communities. Examples given of respect included time managed well, prayer at the beginning and end of meetings, inclusion of elders and youth, the use of different languages, opportunities tolead tables during workshops and formal introduction to everyone at events by RU and LIMA. • One CLO did not feel supported in taking up roles within the project. One was slightly satisfied, one moderately satisfied, and two satisfied. To motivate their responses, they mentioned that they had not yet received all the resources promised, such as cell phones and stationery. However, some acknowledged that they have access to resources at events and totransport refunds. One felt they were free to ask questions whenever they found anything unclear. Another concern was the long distances that some had to walk in order to invite people within scattered areas.	Nov 2019
Safety - Security initiatives	No data.	
Safety - Livestock theft	No data.	
Healthy ecosystems - Alien woody cover	13917 ha (uncondensed area) - dominated by silver, black and green wattle followed by Eucalyptus and poplars)	2018
Healthy ecosystems - Grassland condition	Of 8 monitoring sites: • Veld condition score: 2 sites in moderate condition, 4 sites in poor condition and 2 sites in very poor condition. • Grazing capacity: 2 sites with moderate capacity, 6 sites with poor capacity.	Apr 2019
Healthy ecosystems - Suspended sediment	The small Tsitsana and Hlankomo catchments, and the Inxu and Gqukunqa catchments, contribute large amounts of suspended sediment relative to their size (tracer studies).	2019
Healthy ecosystems - Dry season baseflow	Observed baseflows since 2015 have mostly been below the Environmental Flows requirement (benchmark) for drought conditions (1.6 $m^3.s^{-1}$), and considerably below the maintenance year baseflow requirement (4.3 $m^3.s^{-1}$).	1952-2020 (DWS data)
Healthy ecosystems - Landscape function	No data available.	
Healthy ecosystems - River health	Of 11 monitoring sites: 4 sites in good condition, 2 sites in fair condition, 3 sites in poor condition and 2 sites in very poor condition (SASS v5 data).	Apr 2019

Box 3: Land degradation (Sustainable Development Goal 15 indicators)

SDG 15 is relevant to the work done by the Tsitsa Project: To "Protect, restore and promote **sustainable use of terrestrial ecosystems**, sustainably manage forests, combat desertification, and **halt and reverse land degradation and halt biodiversity loss."**

Target 15.3: By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, droughts and floods, and strive to achieve a land degradation-neutral world.

Indicator 15.3.1: Proportion of land that is degraded over total land area. Sub-Indicators are trends in land cover, land productivity and carbon stocks.

The Biophysical Monitoring Group used the international standards to determine the condition of the catchment in relation to SDG 15. **Trends.Earth** is a product of the Land Degradation Monitoring Project which uses global data sources to assess land degradation at several scales. See Huchzermeyer et al. (2020).

Aggregation of SDG 15.3.1 sub-indicators by Trends.Earth

	Area (sq km)	Total land area (%)
Total land area	2016.5	100.00
Land area **improved**	272.5	13.51
Land area **stable**	1 022.0	50.68
Land area **degraded**	722.1	35.81
Land area with **no data**	0.0	0.00

With **36% of the land area degraded, 51% remaining stable and only 14% improvement**, the Tsitsa Catchment paints a sad picture in terms of restoration and meeting the SDG goals. The degradation is closely linked to the loss of grasslands as well as the low productivity in parts of the grasslands. By targeting these two aspects the land in catchments T35 A-E can be improved. Many of the areas recorded as "improved" are planted forests and alien vegetation (linked to improved land productivity and higher soil organic carbon). However, this improvement is not necessarily a benefit to the ecosystem services within the catchment.

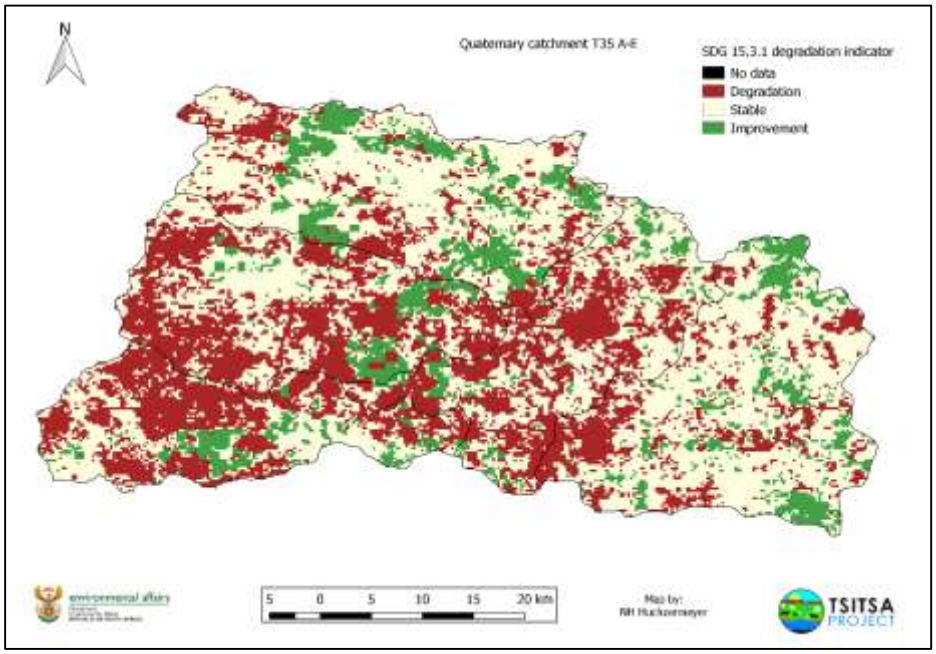


Figure 1: : Land areas in Catchment T35 A-E that have remained stable, are degraded or have improved according to SDG indicator 15.3.1.

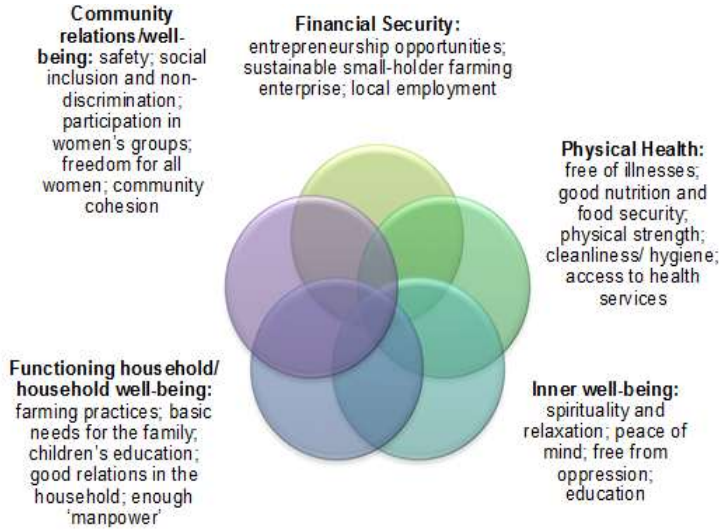
A note of caution:

The use of vegetation-indices to remotely-sense degradation is not adequate for interpreting the SDG 15.3.1 productivity indicator. These methods are designed for a very coarse (global) scale. **Therefore, the current work that the Tsitsa Project has done to build baseline data at a catchment and site scale is very important to monitor changes in degradation. It is imperative to continue with the biophysical monitoring on the ground to help supplement the remotely sensed data.**

Box 4: Womens' Capability Index

The Womens' Capability Index (Conde-Aller, 2020) focused on developing a set of capability dimensions for women in the Tsitsa Catchment. Participatory methods were used to elicit local values and perceptions of well-being and ill-being using Focussed Discussion Groups (FDGs) attended by 67 women. Interviews were also conducted on 50 randomly selected women from Lower Sinxaku, Elangeni, Lower Tsitsana and Hlankomo traditional administrative areas to check and expand on the discussion that emerged from the FDGs.

The capability indicators summarise five different dimensions of quality of life and well-being:



The index is an important tool for understanding the needs and aspirations of women in the catchment. The findings of the Womens' Capability Assessment can help shape women's capacity development initiatives and vulnerability reduction strategies.

Box 5: CLO reflections November 2019

Community Liaison Officers (CLOs) were hired as agents of participatory governance development in September 2019. They are meant to bridge the gap between the community and the Tsitsa Project. They cover the following themes: land and water governance; communication and community engagement; and citizen science (social and environmental monitoring). They work with all the CoPs to engage local citizens in TP related activities such as workshops, imbizos, and other natural resource management planning meetings, and assist the Catchment co-ordinator in keeping up with activities taking place in their areas. They also communicate and coordinate activities with community members. In essence, CLOs are the engines of community engagement within the TP.

In November 2019, a reflection session was held with the CLOs to assess their **progress towards becoming informed participatory governance agents** after two months in the job. This included written anwers to the questions listed below as well as a focus group discussion. At that stage, they had engaged in the coordination of a roadshow, three learning words workshops, and one science management meeting.

SYNTHESIS OF OUTCOMES, PROCESSES AND LEARNING

In this section we present the **knowledge**, **organisational** and **social-ecological outcomes** of the Tsitsa Project for the quarter, and also focus on noting important processes and learning taking place.

Knowledge outcomes and processes

It is evident from Table 1 and Table 2 that the output of knowledge products from the Tsitsa Project, in the form of reports, publications, presentations, theses and datasets has not (yet) been affected by the disruptions of COVID-19. In fact, the lockdown situation has possibly provided opportunities for more focused work on such products - as mentioned by several members of the project team. This section highlights what is new and what it means for our understanding of the social-ecological system in which we operate - the Tsitsa catchment and the broader governance and institutional context.

Land degradation, vegetation cover and sediment dynamics

Several pieces of work have increased our understanding of the interplay between vegetation cover, sediment dynamics and land degradation in the catchment.

Work done by the Biophysical Monitoring Group on indicators of land degradation (Huchzermeyer et al. 2020; see Box 3) produced an overview of changes in land cover, land productivitiy and soil carbon in the catchment (T35 A-E) over the last few decades.

- **Land cover** - Significant areas of grassland were lost between 1990 and 2018 (Figure 2), mainly through conversion to planted forests, which increased from 3% to 9%. Other noteworthy changes were conversion of grasslands into natural wooded land and thicket/dense bush (most likely alien vegetation) and into eroded and barren land. Loss of grasslands to eroded lands was particularly evident in the lower catchment (T35 E). A positive change, possibly due to better mapping accuracy, was a change of grassland into wetlands.
- **Land productivity**: Areas of woody vegetation showed stable and increasing productivity (2001 to 2015), whereas a large proportion of the grasslands declined in productivity (Figure 4). Of the total land area, 13% improved in productivity, 49% remained stable and 38% declined and can be classified as degraded in terms of productivity. Annual productivity fluctuates from year to year, most likely with variations in average rainfall. Grasslands on the whole exhibit lower productivity than areas dominated by woody vegetation.
- **Carbon stocks:** Soil organic carbon (SOC) is important for healthy soils and plant production. Approximately 6% of the land area has seen an improvement in soil organic carbon, 87% has remained stable and 7% has seen a reduction, with most of the losses and gains occurring in the eastern half of the area (T35 A, D and E; Figure 3). Loss of SOC is usually due to land management practices which reduce vegetation cover. Erosion acts as a pathway for carbon to be leached out of the soils and transported away. The derivation of SOC data for the Tsitsa catchment is important because these data were not previously available.

The above work was important for connecting the work of the Tsitsa Project to the Sustainable Development Goals (SDGs), which is important for placing the work in a global context and may also be important for future funding. The work led to valuable learning about the use of remote sensing data to measure land degradation. A review cited in the report (Prince 2019) concluded that the use of vegetation indices to remotely-sense degradation is not adequate for interpreting the SDG 15.3.1 productivity indicator, because of the coarse scale, the lack of understanding of how different plant functional groups reflect on remotely sensed vegetation indices and the lack of understanding of how productivity is transformed to valuable goods and services. Using remote sensing techniques such as Trends.Earth may therefore lead to unrealistically high levels of degradation being calculated. It is therefore essential to have baselines and reference conditions at the catchment and site scale that specify the productivity of particular areas in the absence of anthropogenic land degradation. It is imperative to continue biophysical monitoring on the ground to supplement the remotely sensed data.

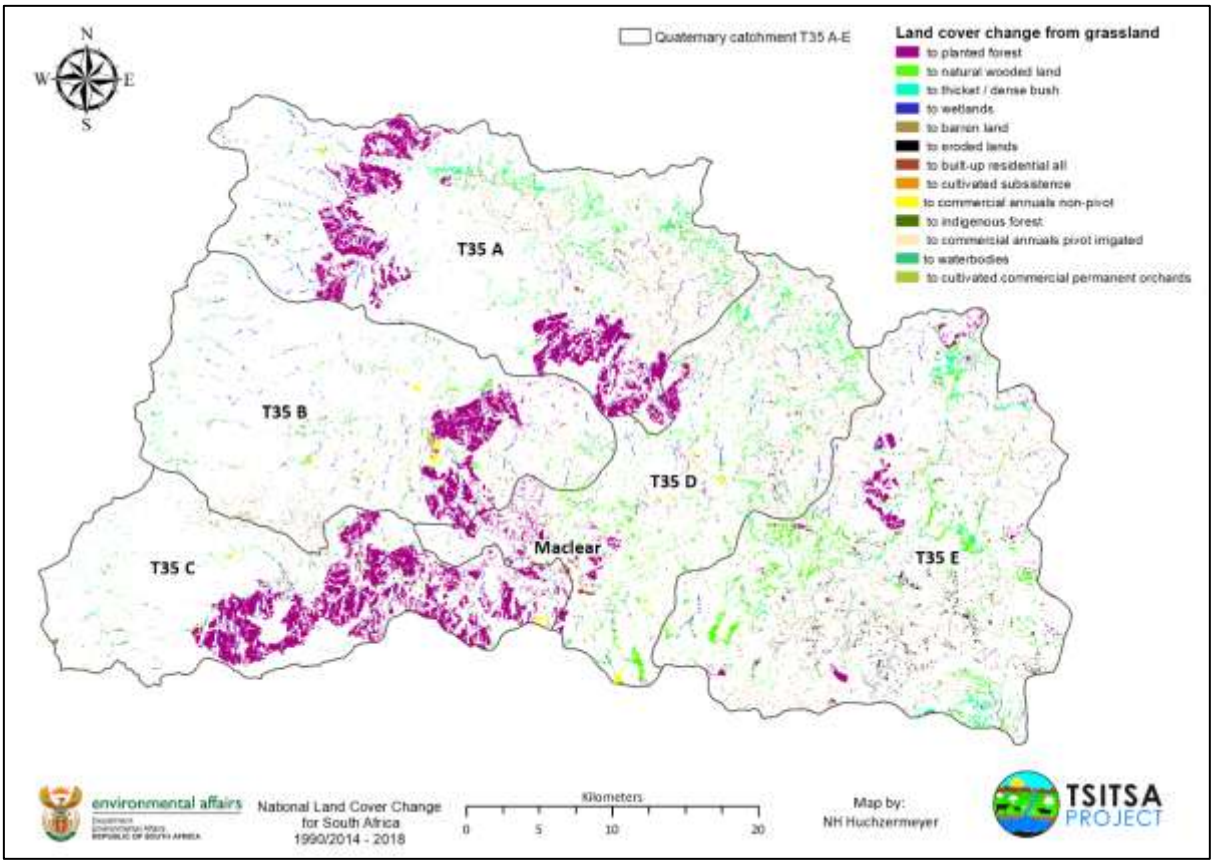


Figure 2: Loss of grassland in catchments T35 A-E between 1990 AND 2018.

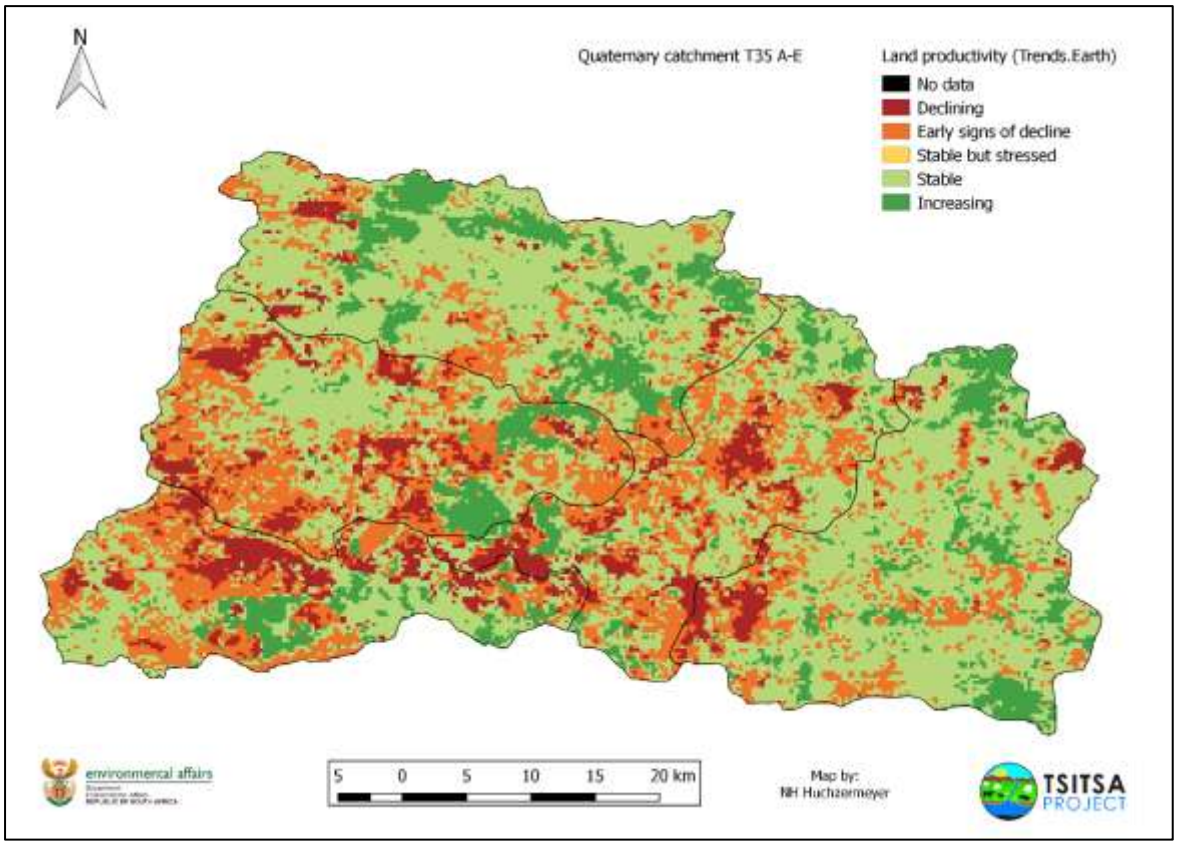


Figure 4: Productivity in Catchment T35 A-E from 2001-2015 (Net primary production, or rate of biomass accumulation).

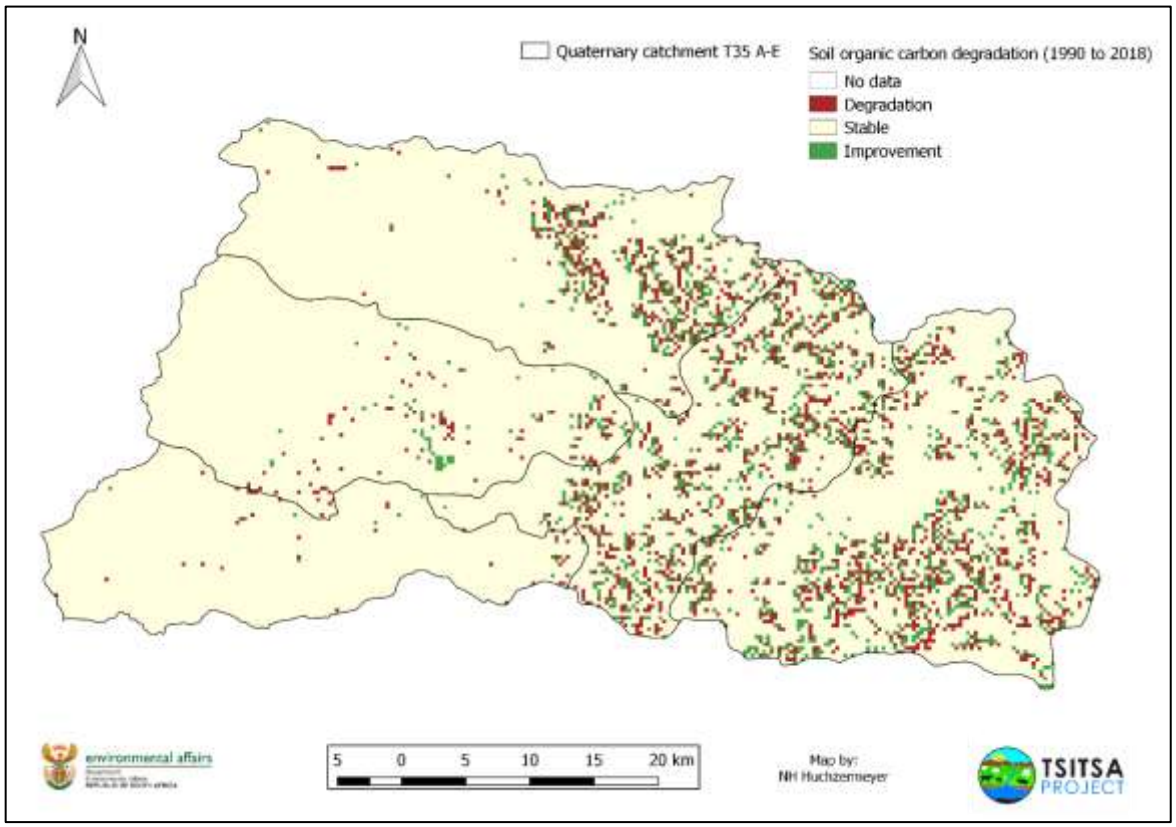


Figure 3: Positive and negative changes in soil organic carbon in catchments T35 A-E from 1990-2019.

The completed MSc theses of Sean Herd-Hoare and Gareth Snyman also contributed to further understanding of the relationships between vegetation cover and sediment dynamics:

- Comparing two sub-catchments with different land management strategies (one dominated by commercial livestock farms - Little Pot River catchment and one dominated by communal rangelands - Gqukunqa River catchment), Sean Herd-Hoare found that mean monthly NDVI values (a measure of vegetation growth and vigour), biomass and vegetation cover increased throughout the wet season of 2018-2019 in both catchments. NDVI, biomass and vegetation cover were higher on south-facing slopes than north-facing slopes in both catchments for the majority of the wet season. However, NDVI may not be as good a predictor of vegetation cover and biomass in this grassland environment as previously thought, echoing the conclusions of Huchzermeyer et al. (2020) above.
- The largest erosive rainfall, daily rainfall and daily sediment events occurred from January to March each wet season in both catchments. Rainfall intensity and sediment fluxes were weakly related; the larger daily sediment fluxes in each catchment often did not result from an erosive rainfall event on the same day but rather from multiple days of rainfall resulting in saturated soils and runoff, leading to surface and sub-surface erosion.
- The Gqukunqa River had significantly higher daily sediment fluxes than the Little Pot River despite similar NDVI and rainfall intensities, due to the dispersive soils in the Gqukunqa River catchment.
- Gareth Snyman's findings were summarised in the previous Meta-Reflection report. His research successfully characterized the different fire regimes occurring in the upper Tsitsa River catchment: high frequency of large, intermediate-low intensity fires in the commercial areas and low frequency of small, low frequency fires in the communal areas. Rotational grazing and vegetation type allow for larger, more frequent fires in the commercial areas.
- The importance of the connection between vegetation cover, rainfall and erosion is seen in the finding that the only time fires may be seen as a threat to erosion is when they burn vegetation before intense rainfall events, leaving the ground bare.
- The effects of fire on grassland soils were found to be minor and it was concluded that fires are not affecting land degradation, but that they can be better used as a land management tool in the communally farmed areas of the catchment if implemented correctly.

Laura Bannatyne's PhD study built further understanding of sediment dynamics in the catchment through completion of her work on sediment tracing to assess the relative contribution of the different sub-catchments to suspended sediment (SS) load in the rivers. The results suggested that the small Tsitsana and Hlankomo catchments appear to be "punching above their weight" in terms of relative SS contribution to the system, as perhaps do the Inxu and the Gqukunqa.

The study contributed to important learning around deriving and benchmarking estimated SS loads - there are no relevant African or Southern African examples to guide statistical approaches or to act as benchmarks for the Tsitsa sites. This has not been done here before.

Box 6: Community Researcher Projects

Community researcher	Project title/focus
Chris (CLO)	Historic land management practices to curb erosion and donga formation.
Sibongile (CM) and Grace (CT)	Dongas, impacts on livelihoods and solutions to address dongas.
Ntombikayise (CLO), Babalwa (CT) and Mzekelo (CLO)	Uncontrolled fires and grazing land. Record all fires happening in the community and the governance processes employed to assist with fires. Conduct interviews on fire happening in the community.
Athi (CLO)	Uncultivated land in Upper Tsitsana. Already has a good contextual understanding - deepen investigation by conducting interviews to understand why the community is no longer cultivating.
Thandokazi (CLO) and Akwakho (CM)	Impact of dongas on personal safety. Interested in the movement and location of dongas. Create a map of the area, measure the distance these dongas are to the households, and monitor their movement and how fast they grow.
Nolitha (CT)	Uncultivated fields. Conduct interviews to determine why communities are no longer cultivating fields.
Bedi (CM)	Over grazing and dongas.
Lehana (CM)	Soil erosion and stone rolling. Could collaborate with Thankdokazi. Investigate stone packing practices as a means to curb the impact of stone rolling.
Sam (CM)	Soil erosion and water flow.
Sinethemba (CT)	Impact of dongas and wattle on houses. Impact of wattle roots on housing structures. Identify areas affected by wattle, measure damage and trees. Could interview affected people about the percieved impacts and actions.

The TP community researchers (Community Liaison Officers, Citizen Monitors and Citizen Technicians) have planned various research projects as part of the Monitor Capacity Development Course (Box 6). These projects will add to our understanding of the interplay between soil erosion and current and historical practices around cultivation, grazing and fire management. Unfortunately the projects have not moved past the planning phase due to COVID-19, and their future viability remains to be determined. Nonetheless, this is a significant step for the project towards integrating local and possibly also indigenous knowledge into our understanding of the catchment and SES dynamics, something which has been pointed out as a gap for a long time already.

Invasive alien vegetation

Two student MSc project proposals address the impacts of clearing of invasive alien species:

- Putuma Balintulo's project "Vegetation and soil recovery over time following clearing of the invasive Australian Acacias in Eastern Cape" will contribute important knowledge about the impacts of alien clearing, which will provide a basis for better monitoring of interventions by EPWP teams and TP monitors.
- Megan McCarthy will produce a system dynamics model of the use of invasive alien plant species by communities, which can provide recommendations on how to balance control of

these species with the needs of local people. This is a social-ecological systems problem, where social and ecological aspects are interwoven.

Chief Moshoeshoe was happy with the plan to introduce bio-control for Wattle species, and he also emphasised the importance of Wattle clearing since it spreads rapidly year after year.

People of the Tsitsa catchment

- The Womens' Capability Index work described in Box 3 has laid a solid foundation for the understanding of womens' needs, aspirations, fears, and motivations in the catchment area. This study identified five dimensions of local womens' quality of life with the aim of deepening understanding of how to foster equity in access to ecosystem services, enhance local valued livelihood options, and promote wellbeing of vulnerable groups such as women. Some of the results of this study are featured under Indicators (Table 4), and the final report on the Womens' Capability Index is attached as an Annexure to this report.
- Feedback was received from the CLOs that communities are not happy about workshops being run in areas where no restoration activities are taking place. We need to be careful not to raise expectations and then nothing happens. One of the issues here is that the TP timelines do not match the DEFF tender timelines (and therefore the implementer's timelines).

Figure 5: Women using beans to indicate therelative importance or influence of thevarious dimensions of wellbeing and quality of life during focus groups in September 2019.

The work of the Senior Social Facilitator from LIMA, Siphakamise Ngobhane, in meeting and building relationships with Headmen from the catchment should be commended. This complements the extensive relationship-builiding that has been done over the past year by the Catchment Coordinator, Nosiseko Mtati.

Capabilities research

Equitable participation and inclusion are key principles in the Tsitsa Project. As stated so powerfully in the Governance CoP's Learning Words Rollout Report:

> "Every project ends. Even the decadal Tsitsa Project, for the restoration of the Tsitsa River catchment landscape, and the emergence of sustainable rural livelihoods, will end. At the end of the project even outcomes of evidently recovering ecological infrastructure and improving livelihood are not enough. A decade is a long time for a government-funded research and practice intervention. But a decade is not a long time in terms of landscape restoration and changed behaviour among habitually disempowered people. For the full potential of restoration to be realized restorative behavior must persist into the decades that follow."

This is a reminder of the importance of helping catchment residents to expand their agency and become "participatory governance agents" for the long-term transformation that is the goal of the project. The Capabilities Pathway developed by the Governance CoP (Figure 6) imagines the capabilities an individual would need to have in order to actively participate in governance processes, from knowing about the TP and NRM through to being involved in the decision making processes related to land and water in their communities.

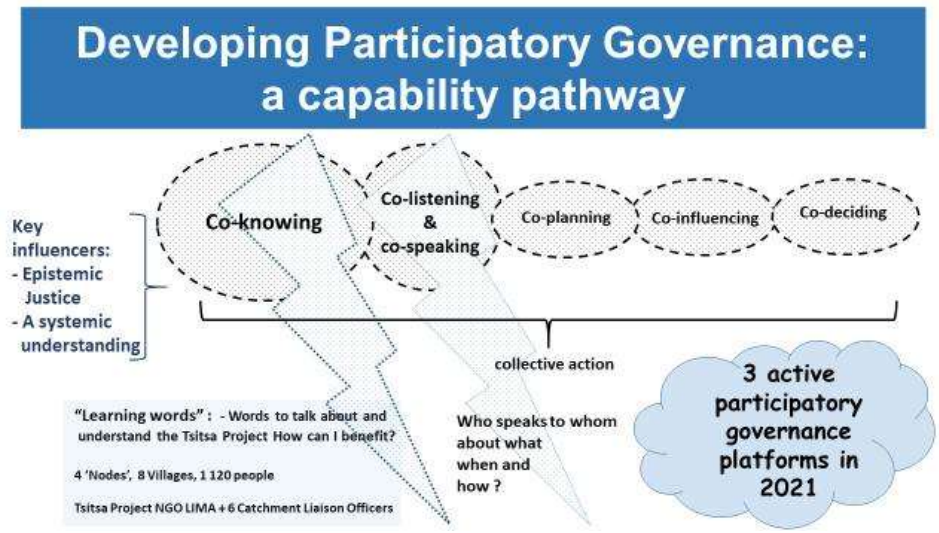


Figure 6: Capability pathway for enabling collective action and agency.

An evaluation of epistemic justice revealed that feeling respected and understanding the content are two crucial aspects for participatory stakeholder engagement (Ralekhetla, 2019). This is the foundation of the Learning Words process. Workshops were conducted primarily in isiXhosa, which has been a big step in the right direction. These workshops have created a platform for the CLOs to practice facilitation and translation, and the increased availability of these skills in the catchment is a very positive development.

In a good example of cross-CoP collaboration, the governance CoP and Systems Praxis CoP worked together to make the capability pathway less linear and more systemic, leading to a publication.

The Womens' Capabilities work also used a capability approach to understand wellbeing, another core goal of the Tsitsa Project, as a multidimensional and complex human state (see Box 3). This aligns well with the work of Hanli Human in her M.Ed thesis, which also used a capability approach to identify peoples' valued "beings and doings" during the process of developing the social indicators for the TP (see Table 3). However, the PMERL team noted the absence of any reference to womens' reproductive rights.

Knowledge sharing processes in the catchment

Although events in the catchment were severely curtailed by the COVID-19 pandemic, the following avenues for sharing knowledge across sectors and organisations were noted:

- Municipal Integrated Development Planning (IDP) processes provide an opportunity to connect with what is happening in the catchment e.g. water shortages, updates on dam construction, electricity, roads etc. LIMA attended a meeting on 3 March 2020 at Elundini Local Municipality to review and plan for the IDP. However, they noted that nothing was said about the Ntabelanga Dam or the shortage of water in villages. There are also opportunities to influence IDP processes by promoting better integration between sectors in disaster management, rural development and climate change adaptation (noted as lacking at the Local Government Climate Change Response Workshop held on 21 January 2020).
- The process of mapping Headman boundaries has been a valuable knowledge sharing process. The Basotho traditional area welcomed the idea of boundaries as an enabler of future decision-making.

Knowledge management

On 26 May 2020, Adela Itzkin presented a thematic analysis of key issues, interconnectivity and data availability in the Tsitsa Project as part of the Integrated Planning Workshop. The purpose was to provide the broader TP team with feedback on a round of key informant interviews undertaken as part of her PhD research. This research aims to develop an integrated social, ecological and hydrological observation system for the catchment by developing and tracking how a set of Essential Variables (EV) work through a combination of models to support each other. The use of the EV approach will identify the smallest possible set of variables that captures key system dimensions. Key points relating to knowledge management processes and learning were:

- The co-development of a shared catchment vision and objectives framework during a large two-day process that included 'people from across the catchment, both communal and commercial' was reported in the Governance Plan 2019-2020 (Palmer et al. 2019). It is unclear whether this vision has been incorporated into the project more broadly.
- Informants were divided over the level of data interconnectivity in the project. Some felt that integration is currently poor (n=2) or not great (n=2) and more needs to be done (n=5). Others were more positive, stating integration of data is improving (n=4), that there is a

clear intention to integrate (n=2) and even that the level of integration of data is 'good' (n=2). This suggests that integration of data needs more attention.

- The most frequently mentioned tool to integrate data was 'workshops and meetings', with science-management meetings (n=5) and CoP coordinator meetings being most frequently mentioned (n=3). This supports the PMERL team's findings around the value of "broad TP" meetings for learning and collaboration (see the following section and the 2019-20 Meta-Reflection Report).

A valuable tool for data integration produced this quarter is the Google Earth platform for the Tsitsa River catchment developed by the Sediment and Restoration CoP. The database includes boundaries, biophysical data, actors and important people, community input and integrated planning. This tool is accompanied by an outline of the different forms of data and their respective sources. The team plans to update the database as the project develops. Detailed instructions and introductory videos have been shared with TP members.

We are pleased to report that we gained additional human resource capacity to support knowledge management in the project (see below) and that there has been progress on updating the website and structuring a single TP Google Drive to make data and information more accessible to everyone.

The following additional points relating to knowledge flow and feedbacks within the project emerged:

- The need to ensure that we share monitoring data with communities so that it is not just "extractive".
- The importance of having someone to analyse and manage data collected by community-based monitors (currently lacking for the Citizen Monitors). Roles and responsibilities around CLO reporting were discussed and resolved at the Monitoring System workshop in March, with a useful distinction emerging between two different kinds of reporting: contractual reporting (timesheets etc., managed by LIMA), and conceptual reporting (monitoring results, activities, reflections, managed by "monitor managers" in the various CoPs).
- The importance of monitoring and reflection data meaningfully feeding into decision-making and planning processes was highlighted during the previous Meta-Reflection report process, and a table of recommendations for praxis was developed as a result. This has been continued in this report, and reporting timelines have been adjusted this year to ensure that they align better with planning cycles. We have also added a review of progress against the TP objectives - sparked by the review led by Rozanne Bester and Margaret Wolff in preparation for the Integrated Planning Workshop, which seemed like a useful process.

Organisational outcomes and processes

New Knowledge Management and Mediation capability: Wandile Paulose Mvulane joined the Tsitsa Project in April 2020 in a Knowledge and Learning Support role. He is from Johannesburg, but currently working remotely from Flagstaff, Eastern Cape. Before joining the TP, he was an intern in the City of Johannesburg, Environment Infrastructure Service Department Climate Change unit doing general administration, assisting in stakeholder engagement, climate change data collection and analysis and for the development of the Climate Action Plan. Wandile's research aims to foster climate change adaptation, sustainable development and ways in which we can create inclusive, just and resilient communities. Beside work, he loves hiking and taking photos of landscapes and their people.

The role played by LIMA in building relationships: Inclusion of LIMA reporting into the PMERL process this quarter added an important source of field-based information and highlighted the important role being played by Siphakamise Nghobane, the LIMA Senior Social Facilitator, in building relationships in the catchment.

Branding and communication: The TP Branding and Communication Strategy was updated, and reporting templates standardised so as to reflect a unitary TP brand. The updated Community Engagement Plan contains a set of useful questions for PMERL to keep track of. How these relate to the social indicators needs further investigation.

Roles of the Project Coordinator: The important role being played by the Project Coordinator in securing future funding for the work of the TP was evident. This included ongoing building of relationships in the region and with potential partners for future project configurations. Margaret also played an important role this quarter in keeping TP members updated with what was happening and supporting and encouraging the team (see under Challenges).

Social-ecological outcomes and processes

In this section we highlight progress with respect to the results of the Tsitsa Project on the ground in the catchment, including social, ecological, and social-ecological outcomes. Since many of the eventual intended outcomes will take several years to achieve, we have paid attention to documenting early steps towards these outcomes.

Regarding the processes supporting these early social-ecological outcomes, we still have some way to go in specifying the pathways of change that lead to the desired outcomes. Systems thinking and systems approaches can play an important role here. The vision of the Tsitsa Project summarises the intended social-ecological outcomes:

- to support **sustainable livelihoods** for local people
- through **integrated landscape management**
- that strives for **resilient social-ecological systems**
- and which fosters **equity in access to ecosystem services.**

As described by the project's headline objectives, **promoting agency and collective action** is seen as an important pathway towards these outcomes, along with promoting polycentric governance and knowledge flow, communication and advocacy. Since the governance and knowledge aspects are covered in the previous two sections, this section focuses mainly on progress with promoting agency and collective action as well as on the tangible social and ecological changes happening in the catchment as a result of the Tsitsa Project's work.

The following were important outcomes and processes in the catchment this quarter:

- **Greenprenuers registration**: After a series of consultation and meetings, Greenprenuers registered their business as grass planting, catering and shed under the trading name "Mchatha Primary Co-operative limited".
- **Rangeland management and grazing**: The Grass and fire CoP uses the communal rangeland stewardship model to reinstate sustainable traditional rangeland management systems. The approach has 3 streams, with eleven elements that need to be followed to effect sustainable rangeland management. Community buy-in was obtained through engagements and there is currently a process of prototyping a conservation agreement through livestock associations in the Sinxaku area, which allows for seasonal resting and grazing. LIMA met with Lower Sinxaku community members to finalize the livestock conservation agreement. The agreement was collected from the community and it will formatted by the team sent back to the community to be reviewed. Significant progress has been made as there is a large area of grazing land that has been set aside to be rested for winter grazing, and LIMA has also mapped out grazing camps and headman boundaries in Sophonia West.
- **Conservation agreements and appointment of Eco-rangers**: Eco-ranger interviews in the node (Sinxaku area, Qulungashe) were conducted. When the conservation agreement is finalized, Eco-rangers will make sure that the areas are well protected; they are currently looking after areas were restoration is already taking place. *Meat Naturally* is to do a feasibility study and start assisting with the mutual discussions around conservation agreements. This may include a "demo day" (e.g. sheep shearing, vaccination, or a small auction).
- **Vetiver grass monitoring**: The Citizen Monitors' work on monitoring vetiver grass has helped them understand in varying degrees the importance of conservation and sustainability.
- **Progress of CLOs towards becoming agents for participatory governance in the catchment**: The reflections of the CLOs on their first few months in the job (see Box 5 and indicator table) were helpful in further guiding their capacity development.

A big success this quarter has been the development of an **online course entitled "*Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management Contexts: Introductory Course*"** (also referred to as the 'Training of Trainers' course). The purpose of the course is to inform and strengthen the practice of community and adult educators, trainers and facilitators in NRM contexts with introductory-level theory and expanded facilitation, teaching, engagement and basic intervention design methodologies. The course will be delivered online between September 2020 and April 2021. The application for formal accreditation for the course was submitted to the Rhodes University Institutional Planning Unit on 31 May 2020. Factors noted as contributing to the progress of the course were the enthusiastic and talented core team of course teachers and mentors, the

generous insight and contributions from Prof. Rosenberg and regular budgetary advice and inputs from the Project Coordinator.

The **Enhanced Integrated Planning process** through which the Rhodes University TP team are collaborating to translate the vision of the project - the "Tsitsa way" - into the way restoration work is done on the ground by the DEFF teams, has been a powerful way of integrating across the research and practice aspects of the TP. Engaging with specific node-level plans has improved researchers' understanding of what implementers do and their organisational structures and processes. There is an opportunity to collaboratively build stronger links with implementers, to integrate capacity development, learning and climate change adaptation into restoration work on the ground, and to start "interweaving" TP and DEFF monitoring and reporting processes.

CHALLENGES IN IMPLEMENTING THE TSITSA PROJECT

Key principles in the Tsitsa Project include a commitment to social-ecological systems and resilience thinking and a collaborative, reflexive and adaptive orientation. These principles could not be more relevant at present, given that this reporting period coincides with the arrival of the Coronavirus pandemic and the start of the Level 5 lockdown in South Africa on 26 March 2020. This effectively stopped all fieldwork, community engagement and restoration activities in the catchment and created a great deal of uncertainty about how the future would unfold. Everyone involved in the TP - researchers, residents, traditional leaders, municipalities and all other stakeholders - has had to adapt to new ways of working and communicating, and to adapt their planned activities.

Impacts of and responses to COVID-19

The Covid19 pandemic and the resulting lockdown came with key challenges for the project, but at the same time there were some important learnings and responses. One of the responses was the use of online platforms to conduct meetings, keep in touch with residents in the catchment, to do work and to share information. Margaret noted the need to connect with the Systems Praxis CoP about possible models to identify feedback loops, where we're at, and what are the gaps in our responses to the new context.

Below are some of the key challenges that were highlighted in this reporting period, and work and responses that have fostered positive work energy.

Box 7: COVID-19 Challenges noted by TP members

- Difficulty accessing computers, software and data.
- Getting used to using online tools for remote working.
- Field workers could not do most of their normal activities.
- Postponement of events in the catchment.
- Staying in touch with residents and stakeholders in the catchment.
- Monitoring data collection and field trips could not take place.
- Planned conference attendances could not take place.
- Implementers are now burdened with more reporting, health and safety protocols, management of PPE etc. related to COVID-19.
- Psychological factors - emotional ups and downs, time management, anxiety, stress, lack of motivation, working too much.
- Difficulties in juggling home responsibilities, child care etc.

Box 8: Some positives associated with COVID-19

- All monitors and DEFF fieldworkers continued to be paid during lockdown. This is a big positive. Plans are being made to provide PPE and get the teams working again once all safety measures are in place.
- Online meetings and workshops were found to be "do-able" and not as difficult as expected. The two-day integrated planning workshop went surprisingly well.
- Lockdown provided opportunities for desktop work and many knowledge products were produced.
- Capacity development training courses were successfully moved online, which has the unexpected benefit of allowing a wider range of people to participate.
- There have been many webinars and online conferences on offer (improved carbon footprint).
- Margaret's emails to encourage and "keep the team together" have been helpful.
- The Catchment Coordinator was able to work with CLOs and CMs via WhatsApp. CLOs and CMs were able to send voice notes and videos describing how they are doing during the lockdown and the impact of COVID-19 on their everyday life. Furthermore, the Catchment Coordinator has been in touch with the traditional leaders and this has been appreciated.

Other challenges

TP Funding after April 2021

The financial year until March 2021 is secured. There is uncertainty of securing funding beyond March 2021. Margaret Wolff (the Project Coordinator), circulated an email on the 28th May 2020

updating the TP team on possible futures around the uncertainty of securing funding and guaranteeing continuation of employment for the TP.

> *"This letter is to give you some updates and possibly answer questions that you might be unsure how to ask. The rest of this financial year (till 31st March 2021) is secured because of the existing contract with DEFF, even though we have had a budget cut. From the next financial year (starting 1st April 2021), we are going to need to bid for another contract. The last thing we heard is that DEFF is working on the tender documents so we are hoping that we will be able to get a bid in for another three year contract without delays. The process is quite lengthy and any delays in the call to bid, will delay contract signing and this will have knock on effects to our funding at the start of 1st April 2021. We cannot give anyone currently working in both the Tsitsa and Thicket Projects any guarantees for 1st April 2021, but we can be honest and open about our Projects' position."*

Communication and community engagement

The stakeholder analysis done for the Updated Communication and advocacy plan found that communication lines in quaternary catchments T35 A-E were blurred and that follow up communication is often difficult. The updated plan recommended focusing on understanding the needs and concerns of different stakeholders and being aware of the communication challenges. Communication still came up as a challenge in the Meta-Reflection report in March 2020, but there is also a growing awareness that we are trying to get better at this. Key challenges that can hinder community engagement include:

- Power dynamics
- The generation of negative livelihood impacts
- Large spatial area
- Issues around stakeholder representation
- Stakeholder fatigue.

Challenges from the catchment

- The Livelihoods CoP noted that it was significantly impacted by the restrictions pertaining to the spread of COVID-19 in South Africa. The **inability to follow up on the progress made by the implementing agents and the vetiver grass SMME in Sinxaku**, has affected the consolidation and synthesis of lessons learned for this component of the project. Once the environmental monitors, field workers and implementers go back to site, we will be able to have a better idea on how the vetiver grass barriers survived during the past period (March to date).
- An assessment of Greenpreneurs in Elangeni/Lower Sinxaku, Lower Tsitsana and Batlokoa/Hlankomo was done by the RU team (Laura Conde-Aller, Kate Rowntree and and Sthokozile Yalo), in which it was found that **the dropping out of participating vetiver grass nursery households was due to a combination of biophysical and socio-ecological factors**. Access to water, poor soil, cattle trespassing and lack of restoration activities in the node impacted on the motivation of Greenpreneurs.

- The Citizan Monitors use the **mWater data management platform** for grass nursery surveys, which is mobile phone compatible. Sometimes due to slow internet the data collected is not fully uploaded to the platform or the platform does not install in the devices. The current available data has not been analysed. A **data manager and analyst are needed**.

CONCLUSIONS AND RECOMMENDATIONS

This first Tsitsa Project Quarterly Reflection Report is a key product of the PMERL system of the project which draws together evidence from across the project to reflect, evaluate and draw out lessons to inform future planning. The main focus has been a narrative account of the project's work over the quarter (March to May 2020), but we have also made an important start to including quantitative indicator data. It is important to acknowledge that a synthesis across a project of such large scope, scale and complexity will invariably be incomplete. We have done our best with the available resources and what has been reported to capture the diversity and depth of the project's work and to offer critical and helpful reflections.

While the guiding role of PMERL could not be more relevant during this time, it has become clear that there are time lags involved in reports and data reaching the PMERL team and the time needed to analyse these data. This limits the ability of the PMERL system to provide the sort of up-to-the-minute guidance that might be required at present. Ironically, the very event that has us scrambling for answers has also curtailed the vital flows of information from the catchment, for example through the community-based monitors and researchers. In such times, even quarterly reflection reports are not frequent enough! Nevertheless, a quarterly report is certainly better than an annual one.

Key recommendations around the response to COVID-19 include:

- The project needs to develop (possibly temporary) rapid communication and feedback loops that are more responsive to the ever-changing context. Regular "catch up" meetings and informal communications can help to spread information and allow a range of input on possible responses. Several processes were mentioned which have enabled more regular communication within the TP this quarter, including monthly CoP Coordinators' meetings (previously held quarterly) and regular meetings between the Project Coordinator, LIMA and the DEFF Project Manager. These opportunities for regular discussion and planning may be an important part of the response to an uncertain future. WhatsApp groups seem to have worked fairly successfully for communication with and between community researchers. Perhaps a good starting point for assessing where information flows need attention would be Nosiseko Mtati's diagrams of the relationships between the TP and the various stakeholders in the catchment.
- TP participants have found Margaret's emails to encourage and "keep team together"helpful and these have helped people to navigate the uncertain times - this should be continued.
- It may be useful to evaluate the sources of resilience to COVID-19 in the catchment as well as the points of weakness/vulnerability, to inform our work going forward.

In the 2019-2020 Meta-Reflection Report, we celebrated the shift to more meaningful practical impacts in the catchment, after a long period of building foundations of knowledge and relationships. Unfortunately, this has been put on hold for now and we are back to a focus on knowledge products and outcomes. While these can be celebrated, we will need to think carefully about how to adapt so as to both maintain the precious relationships we have built, and continue with our work in the catchment. Some promising starts have been made in this regard, for example through the (now online) social learning facilitation ("training of trainers") course and our engagement with the integrated restoration planning process, which is promoting better integration between the work of the TP and the DEFF implementing agencies in the catchment.

Important **knowledge outcomes** this quarter have been the generation of further baselines for biophysical monitoring, a better understanding of land degradation, vegetation cover and sediment dynamics, improved understanding of the capabilities needed by women and catchment residents to allow them to take part in participatory land and water governance, and several improvements in knowledge management products and processes. Although currently on hold, the inclusion of village-level research projects to be carried out by our community researchers is a highlight in terms of its potential for widening the sources of knowledge in the TP.

Organisational outcomes included addition of new knowledge management and PMERL capacity through the appointment of Wandile Paulose Mvulane as Knowledge and Learning Support Officer, and the inclusion of LIMA reporting into the PMERL process which added an important source of field-based information and highlighted the important role being played by LIMA in building relationships in the catchment. The TP branding and communication and community engagement strategies were updated, and reporting templates standardised so as to reflect a unitary TP brand. The important role being played by the Project Coordinator in securing future funding for the work of the TP was also noted.

Work on the ground before the lockdown led to some important **social-ecological outcomes**, including a draft livestock conservation agreement for Sinxaku (where a large area of grazing land has been set aside to be rested for winter grazing), mapping of grazing camps and headman boundaries, and appointment of the first Eco-rangers. Importantly, the project's social-ecological data are represented in numerical form against the TP indicators for the first time in a PMERL report. An important social-ecological outcome and process in which the Rhodes TP team has been engaged, was the development of the Enhanced Integrated Plan to guide longer-term work in the catchment along with specific node-level plans that will inform work done by the implementing agencies over the next three years. This process provided important opportunities for cross-CoP collaboration, for embedding capacity development, learning, and climate change into the restoration work, and could act as a practical laboratory in which to experiment with "interweaving" DEFF and TP activities more meaningfully.

The review of progress against objectives allows for a much more detailed tracking of progress (and gaps) than has been possible up till now, and we hope that others will find it useful.

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APPENDIX 1: DETAILED TABLE OF PROGRESS AGAINST TP OBJECTIVES

Headline Objective 1: Founding Principles

We aim to keep the original set of principles of interest alive, challenged, updated, and above all, implemented in the practical context of the Tsitsa Project. Sufficient consideration needs to be given to the concomitant use of synergies, interlinkages and balance between the seven elements below. Please note that the sub-objectives of this table are less developed than subsequent ones. Participants feel comfortable that keeping the high-level objectives in mind is often sufficient.

Title of objective	Statement of objective	Sub-objectives	Where we are at	Progress this quarter
1.1 Social-ecological principles and resilience thinking	1.1 Uphold the centrality of the social-ecological systems view in an appropriate, practical way in all our work. Understand and, where practical, use key concepts in resilience thinking[2] to strengthen our work and to relate it to vulnerability and risk. Further research and reflect on key topics in practical usage of these.	1.1.1 Promoting systems thinking in practice across the Tsitsa Project participation profile	One basic introductory Systems Thinking course for practitioners and project staff, and one advanced Systems Modelling course for project staff completed (2019). Played the Nexus Game 2019/2020 with stakeholders; introduced systems games to Monitor Capacity Development workshop 2019 and Basotho Grass and Fire workshop 2019.	Governance and Systems CoP collaboration around systematizing the governance capabilities pathway (workshop and paper). MSc Research Proposal - Megan McCarthy (A system dynamics approach to the management of Invasive Alien Plant Species in the Tsitsa River catchment area, South Africa). Plans in place to upload system dynamics models to the TP website. Social-ecological principles and resilience thinking exemplified by the integrated planning process.
		1.1.2 Scenario-ing skills	Dylan Weyers' PHD data on visioning and scenarios at village level (built capacity was lost with Dylan deregistering).	Publication: "A system dynamics evaluation of the long run impact of the Ntabelanga dam on a communal

[2] Apart from socio-ecological systems and systems thinking, this also touches on Resilience / The constructive role of overlap and redundancy / Transformation and transformability trajectories / The generalised adaptive cycle / Panarchy /Scale-dependence, mismatches & cross-scale connections / Alternative stable states / Thresholds / Complexity (generalised complexity as enunciated in the SA context (especially by the work of Paul Cilliers) / Preparedness and scenario-ing.

			Scenario analysis with the vetiver model to comment on the general sustainability of the endeavour in terms of supply and demand (2019).	rangeland system in the Eastern Cape, South Africa".
		1.1.3 Vulnerability Assessments	No progress	
		1.1.4 Uphold the centrality of the SES view in project-wide synthesis, monitoring and reporting	Meta-Reflection and Quarterly project-wide reflection reports reflect an SES view and SES outcomes. Monitoring system linked to TP change pathway to provide relevant SES data, to be reviewed annually.	Meta-reflection workshop (March 2020) Monitoring system workshop (March 2020) Integrated Planning process.
1.2 Transdisciplinarity	1.2 Recognise and uphold the importance of bridging the science-action gap by integrating diverse knowledges, disciplines, and approaches wherever required in the Tsitsa Project. Support selected high-potential studies in transdisciplinary processes, focusing on practical usage.	1.2.1 Undertake a thorough field assessment of local environmental knowledge (LEK)	Limited outputs from Ngwenya's Honours thesis. Urgently required.	
		1.2.2. Undertake a literature review of LEK	Proposal for conducting a study on LEK for the Tsitsa project put forward by Chenai Murata in Dec 2018.	
		1.2.3 Highlight connections between research and action and between disciplines in project-wide reporting	Meta-reflection report includes reflection on this principle.	Ongoing through TP Quarterly Reflection reports.
		1.2.4 Identify, value and validate different forms of knowledge and ways of knowing (e.g. scientific, indigenous and place-based)	Monitor Capacity Development course guided by the principle of promoting epistemic justice. Modules 1 and 2 completed (Nov 2019 and Feb 2020).	These principles taken into account in design of the upcoming introductory course "Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management Contexts".

				Literature review by Athina Copteros covering transdisciplinarity and knowledge integration: "Detailed literature-based plan of how to integrate biophysical methods, data and results in practice".
1.3 A collaborative, reflexive, and adaptive orientation.	1.3 Embed a culture of ongoing reflexivity and learning, based on adaptive feedbacks as illustrated in strategic adaptive management and through participatory monitoring and evaluation which employs realist principles[3]. Ensure timeous, effective inter-flow between science and action ("praxis"). Use the PMERL[4] system as a central mechanism to embed and promote this culture, and adapt it as required to promote feasibility, motivation and willingness to participate.	Note: PMERL objectives are spelt out in a full report (Botha et al., 2017).	2017 and 2018 Meta-Reflection Reports completed. Several reflection events held ("Reflection and Wellbeing Tea" events established 2018; Year end informal reflection Dec 2019). Annual Research Colloquium established. Four events successfully completed (Oct 2016, Dec 2017, Nov 2018, Oct2019).	Meta-reflection workshop (March 2020). Quarterly reflection reports and workshops planned for 2020/21 to allow for more regular reflection and adaptation (starting this quarter). CoP coordinators' meetings now held monthly to promote better integration and awareness between CoPs of what other CoPs are doing and planning. Margaret has assumed the role of looking out for the wellbeing of the TP team during lockdown, encouraging people and maintaining a sense of what is happening and a sense of being a team. **Project responses to COVID-19 disruptions**.
1.4 Expansive learning and capacity development.	1.4. Building on our collaborative reflexive mode of operation, embed, support and promote adaptive learning and expansive learning processes[5] as	1.4.1 Establish a Steering committee to guide the project implementation	Wisdom Trust has had 3 meetings (Jun 2018, 2019?, Jan 2020). A and B Teams are operational and functioning well.	CoPCoordinators' meetings now held monthly. Margaret meets regularly with LIMA (Chris) and DEFF (Sarah).

[3] Sensu Sayer, (2000) "realism simultaneously challenges common conceptions of both natural and social science, particularly as regards causation; critical realism proposes a way of combining a modified naturalism with a recognition of the necessity of interpretive understanding of meaning in social life."
[4] Participatory monitoring, evaluation, reflection and learning (See NLEIP booklet).
[5] Sensu Engeström & Sannino (2010) expansive learning is that in which "the learners are involved in constructing and implementing a radically new, wider and more complex object and concept … the theory of expansive learning puts the primacy on communities as learners, on transformation and creation of culture, on horizontal movement and hybridization, and on the formation of theoretical concepts."

	a central capacity-building mechanism in and beyond the Tsitsa Project, emphasising co-operation through iterative co-construction[6].		C-team is in place and beginning to function well. Quarterly CoP Coordinators Meetings are being held.	
		1.4.2 Establish a technical Integrated Planning Team	Integrated Planning Team is operational and gaining traction.	Enhanced Integrated Plan 2-day workshop (May 2020). Core group of members from CoPs established and 2 meetings held (Jun 2020). CoP contributions to nodal plans for the longer-term future AND for the next round of bidding by implementers (for next year).
		1.4.3 Establish a culture of quarterly reflexive strategy assessments	Quarterly Progress reports are being collected from CoPs, analysis tools and templates have been developed by the PMERL team.	Quarterly reflection reports and workshops planned for 2020/21 to allow for more regular reflection and adaptation (starting this quarter).
		1.4.4. Establish a two way hierachy of news, data, information and knowledge flow	Very much ad hoc and not institutionalised.	KL Support person appointed Apr 2020 (Wandile Paulose Mvulane).
		1.4.5. Establish and formalise a capacity development process for the TP	Capacity Development Coordinator appointed April 2019 (Matthew Weaver). Capacity Development Plan V1 developed.	Training of Trainers Course: Introduction to Environmental Learning developed and submitted for accreditation. Adapted for distance learning due to Covid-19 contact restrictions. Planning underway for next module of TP Monitors course (Listening and Speaking)

[6] Collaborative learning which results in a process of shared knowledge planning and action. (Pahl-Wostl et al., 2007; Ison et al., 2011)

			Monitor Capacity Development Course developed and running (2 of the 4 planned modules completed, reflection reports produced).	by the Governance CoP, which will be adapted for distance learning.
		1.4.6 Purposefully encourage and record/document processes of transformation and expansive learning within and beyond the TP		Cockburn, J., Cornelius, A., Copteros, A., Libala, N., Metcalfe, L., van der Waal, B. and Rosenberg, E. (2020). A relational approach to landscape stewardship: new perspectives for multi-actor collaboration. *Land*, 9.
1.5 Polycentric governance.	1.5 Building on understanding multi-level effects at different scales, and their interconnection and relationship to the relevant actors, construct a dynamic practical understanding of how the governance network with its formal and informal components might best serve the goals co-constructed between the participants, and support and promote this in practice.	1.5.1 Build multiple complex adaptive system models for Tsitsa	Draft models completed for grazing and fire, sedimentation, vetiver grass production, governance and livelihoods.	Plans in place to upload models to the Tsitsa Project website.
		1.5.2 Ensure that the project keeps track of progress towards polycentric governance	CLOs appointed in Sep 2019 to monitor citizen participation, voice, inclusion and decision-making in governance processes. CLOs took part in the coordination of a roadshow, three learning words workshops, and the science management meeting.	Governance CoP together with LIMA and the Catchment Coordinator have started to report on CLOs' activities. Reflections on CLOs' progress towards becoming "participatory governance agents" included in this report. KL CoP keeping track of learning and progress taking place through the Integrated Planning process. Priority sites for restoration were determined by local residents.
1.6 Towards equitable participation.		1.6.1 Emphasis will be given to obstacles and trade-offs to realising	Science-Management Forum successfully operational since 2015.	CLO reflections included in this report.

	1.6 Against a backdrop of low inter-group[7] interaction and widespread power asymmetries, strive to bring relevant groups together to create a partnership in which partners are closer to becoming equal. The Tsitsa Project will pursue this goal realistically, not to realise benefit sharing in a naïve sense, but to create conditions which are likely to lead to a more favourable situation where power and benefits reflect what is agreed upon by parties as appropriate, in a spirit of co-construction and fairness.	this, especially so-called elite capture[8]	Governance CoP has undertaken capacity development towards this end by addressing epistemic injustice through a series of learning words workshop that build capacity for collaborative governance on communal lands.	The Governance CoP report "Learning Words Together Towards Participatory Land and Water Governance" contains relevant reflections and outcomes.
		1.6.5 Build capacity among local residents to engaging in decision-making processes	Monitor courses are starting to do this (2019 onwards). Land and Water Forum not yet established. Network of NRM Committees at the appropriate village-valley level not yet established.	
		1.6.2 Include citizens and stakeholders in monitoring and making sense of what is happening	4 Types of citizen monitoring networks established: citizen technicians, citizen monitors, CLOs and eco-rangers (not all fully operational yet). Opportunities for sense-making through capacity development workshops, diaries, monthly feedback sessions with supervisors and mini research projects. Established interaction on a learning network between Monitors and other TP members (WhatsApp group) –	Eco-Rangers appointed at Qulungashe. WhatsApp group used successfully for communication and sharing of information related to COVID-19 and associated disruptions.

[7] "Groups" meaning groups at many levels and across many dimensions i.e. not only across the racial spectrum but also gender, age, commercial/communal, urban/rural, and across key scale divides e.g. national, district, local, village and household. The opening statement about low interaction and widespread power asymmetries reflects our opinion. Emphasis will be given to obstacle and trade-offs to realising this, including understanding the political ecology/economy which may yield key clues on which to leverage progress.

[8] Because of the typical way in which such projects as ours are built and funded, certain critics of our slow start in engaging communities have suggested that we are running the project without full participation, or taking so long that we might ourselves be guilty of "elite capture".

			successfully operational since Nov 2019. Feedback of project-level results and outcomes to citizen monitors not yet established.	
1.7 Scientific-technical foundation and evidence base.	1.7 Invariably required to complement all the other major principles to produce robust social-ecological outcomes. While Principles 1.1 to 1.6 are the keystones of the Tsitsa Project, we need to recognise a seventh implicit principle: that the project is strongly influenced by a science and evidence basis. This does not mean that the project should be techno-centric, but it does recognise the reality of the technical backdrop continually being called upon and integrated into the other approaches and knowledges. It would be unrealistic not to admit this facet as a keystone, given our history and values, and the level of funding and energy placed into this as the de facto way of working, bearing in mind that it represents only one aspect of the trans-disciplinary approach.	1.7.1 Establish the minimum number of critical baselines (social, ecological and institutional)	Hanli Human Masters thesis completed and presented to TP. Indicator protocols for social and biophysical indicators completed (v1). Adela Itzkin (Phd candicate) will further look at the TP "observation system" and compare to indicators. A large amount of baseline data already collected through research and monitoring.	Further baseline data provided in Huchzermeyer et al. (2020) and Conde-Aller (2020) - see Annexures.
		1.7.2 Synthesise social-ecological research and evidence being generated across the project to identify key messages for praxis and implementation	Started in the 2019-20 Meta-Reflection Report.	Ongoing in this report and future Quarterly Reflection reports. Two publications in press and four under development, plus four conference presentations. Reflections suggest that the COVID-19 lockdown has enabled some researchers to focus more on writing and on synthesizing the evidence base.
		1.7.3 Establish a functional knowledge management system	The TP has a functional website and data is accessible via various Google Drive folders, but the system is not optimal and has not been sufficiently resourced.	Wandile Mvulane appointed (Apr 2020) and working on developing a functional KM system, including updating the website and a single TP Google Drive. Biophysical monitoring database & updated rainfall and hydrology database (March 2020).

				Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (Apr 2020).

Headline Objective 2. Ecological Infrastructure and Services - the biophysical

We have used the vision statement of the Sediment and Restoration Community of Practice (CoP): To service the Tsitsa Project vision in a socially and economically effective way compatible with the concept of the Tsitsa River catchment as a social-ecological system, with special reference to reducing erosion to more natural levels through restoration efforts and good land-use practices across the landscape. Our interest also includes, wherever possible, ensuring ecosystem services move within the management mandate of other agencies such as Department of Water and Sanitation (DWS) and Department of Agriculture, Forestry and Fisheries (DAFF), Non-Governmental Organisations (NGOs) and communities.

Title of objective	Statement of objective	Sub-objective	Where weareat	Progress this quarter
2.1 Functional ability of landscape.	2.1 Understand and enhance capacity of ecological infrastructure to retain water, sediment and nutrients that support healthy streams/bundles of desirable ecosystem services.	2.1.1 Promote soil maintenance, formation and improvement.	Some linkage with grazing management and restoration works to slow and spread flows, promote water infiltration and prevent erosion. A basic soils workshop was held by JJ van Tol to train local residents on soil structure and fertility. J. van Tol is developing soil rehab norms for SA with one of the study sites being T35 E.	Student Progress Report - Putuma Balintulo (Vegetation and soil recovery over time following clearing of the invasive Australian Acacias in Eastern Cape).
		2.1.2 Water flow regime and routing (reducing surface runoff and increasing groundwater recharge, springs, base flow).	Databases on flows, sediment and water quality/river health are in place and ready for more in depth analysis. Map sediment stores and sinks such as wetlands (buffers, barriers, blankets).	Biophysical monitoring report and database (Feb 2020). Updated rainfall and hydrology database. Google Earth platform for the TP.

			Some initial assessment on baselines and trends of indicators at monitoring sites. See 2 monitoring reports in 2019 (Huchzermeyer et al., 2019 and Schlegel et al., 2019).	Degradation avoidance/ restoration/ rehabilitation decision tree. Student Progress Report - Laura Bannatyne (The implications of uncertainty associated with suspended sediment monitoring and yield estimation for catchment management decision-making).
		2.1.3 Workshop, share knowledge and plan with land users to reduce climate and disaster risk (fire, floods, and drought).	Report on the impact of climate change and natural disasters on livelihoods, well-being and ES in the Tsitsa catchment is complete. The first workshop took place with local and district Municipal workers, CLO's and provincial Government officials in 2019 (aimed at Elundini Local Municipality). Local Government Climate Change Response Workshop (Jan 2020).	
2.2 Resilience.	2.2 Understand and influence the system's ability to remain in (or to recover to, if transformed) a productive state, even after shocks and surprises.	2.2.1 Avoid degradation of currently functioning EI. See point 2.3a for more information.	Maps of areas that are sensitive to erosion are available and have been used to plan activities with communities and engineers in 2019 (T35A and E).	Assessment of land degradation in T35A-E against the SDG 15 indicators.
		2.2.2 Maintain built infrastructure, such as storm water drains, including discharge areas and wetland rehabilitation structures.	No actions on road culverts. Some maintenance of wetland structures on commercial land by JGDM - Rob Scholtz doing maintenance work (T35 C and Ugie area).	
	2.3a. Integrate biophysical and social knowledge to identify	2.3a.1 Identify key areas/EI that are	Workshops to map water and fuel sources, issues with storm water,	

2.3a Prioritisation and design of practices.	priority areas for specific (e.g. replanting bare-soil areas) and more general (grazing management) interventions.	functional, but vulnerable to degradation. This will be done from a technocentric (e.g. GIS, remote sensing, modelling, etc.) and local knowledge (workshops, stakeholder mapping, interviews, etc.) perspective. Workshop with land users those key areas/EI that are functional, but vulnerable to degradation (e.g. wetlands that form crucial grazing in winter). Integrate wishes and local knowledge of functioning of the identified/ prioritised areas with techno-centric data.	gully expansion, spring issues, grazing lands, cultivation areas etc. have been held. These workshops included 'learning words' and possible solutions to the issues (2 villages in T35 Aand 1 village in T35E). Headman level mapping in 2017 and village level mapping in 2019. Ground Truth surveyed a range of features in the catchment which can be used as a generic design for various restoration options (mostly soft options using natural materials) (Jan 2020).	Enhanced Integrated Planning workshop (May 2020) and process. Mapping of headman boundaries.
		2.3a.2 Workshop drivers of degradation and possible/preferred solutions. Identify key interventions and how/where/who the solutions will be implemented and maintained.	SedRest CoP facilitated a 3 day workshop on EI issues, possible solutions, examples and design of interventions, what works in the field, integrating the social and biophysical data so work responds to community needs, mapping tools (T35 A and E).	
2.3b Impact of practices.	2.3b. Understand and influence different land and water use management practices that impact the resilience of ecological infrastructure.	2.3b.1 Understand/research current rangeland and fire management. Engage land users where these practices are drivers of	Longer term GIS analysis of NDVI and primary productivity was done for a range of sites by Biotrack (T35 A, D and E).	Enhanced Integrated Planning workshop (May 2020) and process. Sean Herd-Hoare (MSc completed): Seasonal trends of rainfall intensity, ground cover and sediment dynamics in

		the present-day degradation. Examples of present-day practices could be frequent burning around plantations and continuous grazing.	Biophysical monitoring sites established in grasslands (T35 A, D and E). TP roadshow showcasing different soil-vegetation -runoff interactions (T35 A and E). LIMA and Grass and Fire CoP are working on establishing grazing associations and conservation agreements among communities. Grass and fire CoP has done work with communities on veld assessments.	the Little Pot River and Gqukunqa River catchments, South Africa. Gareth Snyman (MSc completed): An investigation into the fire regimes of the upper Tsitsa River catchment. MSc Research Proposal - Megan McCarthy (A system dynamics approach to the management of Invasive Alien Plant Species in the Tsitsa River catchment area, South Africa).
		2.3b.2 Engage with planning documents, such as the Local Municipality's Spatial Development Framework, new and existing forestry areas, new and existing agriculture parks, etc. to influence project locality, storm water management, landscape buffers, etc.	Some input into national databases and SDF such as wetland and soil erodibility spatial data. Existing data on new developments, such as access roads for dam construction has been used in planning and our data shared. Communication with DWS and Forestry not always successful. Mike Coleman involved in Spatial Planning tribunal for Elundini LM?	Siphakamise attended an IDP meeting.
2.4 Monitoring.	2.4 Biophysical monitoring relevant to this theme will be undertaken at multiple appropriate scales with considerable emphasis on local-scale participative monitoring. Results of all monitoring will be	2.4.1 Establish biophysical baselines, such as hydrology, sediment yield, vegetation cover, status of alien vegetation, local soil erosion, river fauna, vegetation diversity, etc.	Baseline data presented in Huchzermeyer et al. (2019).	Further baseline data provided in Huchzermeyer et al. (2020), which also includes protocols for monitoring the biophysical indicators (in collaboration with PMERL team).

	reflected upon in an adaptive PMERL driven framework.	2.4.2 Track changes in biophysical indicators at appropriate timescales, e.g. event, season, year.	Consideration of temporal and spatial scales included in Huchzermeyer et al. (2019) and Schlegel et al. (2019).	Adela Itzkin's PhD thesis is addressing issues of measurement scales.

Headline Objective 3. Livelihoods and well-being

Revised Livelihoods and Ecosystem Services CoP vision: To achieve the Tsitsa Project goals using the Tsitsa Project principles to improve well-being, especially through bottom-up, community-driven processes which realise local aspirations and integrate fluently into catchment level planning and action through strengthened institutional structures

Title of objective	Statement of objective	Sub-objectives	Where we are at	Progress this quarter
3.1 Livelihood strategies.	3.1 Understand the impact of macro and micro systems on livelihood strategies and well-being, including risks and vulnerability in time and space (for men, women and youth).	3.1.1 Historicity (changes in ecosystem services (ES), well-being and ways of living over time).	No systematic and comprehensive assessment of land cover and land use change over the last 50 years. Some information in Green Village WRC Report. Review of STATS SA data to track demographic changes - Masters thesis but only T35A-E and only 1990? To 2014.	Land cover changes since 1990 analysed by Nicolaus Huchzermeyer.
		3.1.2 Current livelihoods, strategies of local households and links to ecological systems.	Some data from Ngwenya. Data from Weyer's PhD still being analysed but limited to 3 villages so extrapolations need to be conservative Baseline data survey on household agricultural livelihoods proposed by Grass and Fire CoP.	Womens' Capability Assessment completed.
		3.1.3 Resource base or sustainable livelihood	Some small sample surveys with green-preneurs. Develop	

		assets/capital: human, physical, social, financial and natural.	comprehensive survey and run it via Citizen monitors and CLOs.	
		3.1.4 Impact of institutional arrangements and processes on local well-being and livelihoods strategies: political and economic (e.g. local/national/global policies, strategies, plans, etc.); informal rules (e.g. cultural norms, traditions, customary laws, etc.); and impacts of non-resident land users and migrants.	Stakeholder analysis has been done.	CLOs have been appointed and have enhanced communication in the catchment.
		3.1.5 Processes, drivers, risk and vulnerability drivers: macro and micro level (e.g. household).	Vulnerability Assessment not yet conducted. Some work done at household level.	
		3.1.6 Impact of climate change and natural disasters on livelihoods, well-being and ES.	Report on the impact of climate change and natural disasters on livelihoods, well-being and ES in the Tsitsa catchment is complete - will provide vital "hook-in guidelines" for team.	Discussion started with PMERL team about climate change adaptation indicators.
3.2 Aspirations and opportunities.	3.2 Understand the collective/individual aspirations, pathways and opportunities for a green economy, including entrepreneurship options, as well as constraints and enablers (for men, women and youth).	3.2.1 Past and current livelihoods/ES interventions impact on ecosystems and human well-being.	No progress. Deep synthesis required (possibly postdoc).	
		3.2.2 Aspirations, attitudes and practices towards land, livelihoods and farming.	No progress	
		3.2.3 Resource opportunities for green economy and	Vetiver project as pilot. Further evaluation suggested for 2020/2021.	

		entrepreneurship expansion and innovation.		
		3.2.4 Map out pathways for sustainable livelihoods and green economic trajectories.	Resource economic assessment of the forestry expansion (PhD or postdoc) is a priority.	
		3.2.5 Instrumental and intrinsic value of ecosystem services.	Sadly not complete. Should be a high priority – possible postdoc. Qualitative intrinsic value to local residents for sediment only, to some degree.	Anele Ntshangase MSc Thesis second phase data collection designed to explore citizen understanding and values ascribed to Ecological infrastructure.
3.3 Participatory planning.	3.3 Develop participatory micro-level catchment plans and strengthen institutional and governance structures to drive livelihoods and green economy benefits (for men, women and youth) linking to higher-level objectives.	3.3.1 Explore appropriate participatory, and thus learning approaches, to the development of micro-catchment level plans.	Kate Rowntree and Laura CA are busy with conservation agriculture and climate change adaptations.	
		3.3.2 Benefits from investing in ecological infrastructure to support local livelihoods, local economy and well-being.	Some quantitative data available from Laura CA.	
		3.3.3 Influence of micro-level plans on higher level strategies and plans and vice versa.	No assessment done.	
3.4 Integration.	3.4 Identify appropriate integrated/holistic land use methods, practices, (learning) approaches and knowledge resources to support livelihoods/green economy expansion and strengthen ecosystem-services (for men, women and youth).	3.4.1 Develop most appropriate and cost-effective intervention in different contexts that would foster local sustainable livelihoods and green economic activity.	Vetiver garden project. To date, five citizen monitors have been appointed and have been overseeing the progress of 36 green-preneurs micro-nurseries with focus on growing vetiver grass to supply the DEFF NRM implementing agencies undertaking restoration and rehabilitation work in the Tsitsa catchment.	After a series of consultations and meetings, Greenprenuers registered their business as grass planting, catering and shed under the trading name "Mchatha Primary Co-operative Limited". Eco-rangers appointed at Qulungashe.

		3.4.2 Identify, adapt and develop appropriate learning knowledge and resources relevant to and aimed at different catchment stakeholders and beneficiaries.	Capacity development coordinator has arranged a course for Monitors to equip them with broad research and monitoring skills relevant to the TP. Anele Ntshangase (MSc) produced a thorough review of TP outputs related to ecological infrastructure and the relationality between TP communities and EI.	
3.5 Monitoring and Evaluation (of well-being and apability).	3.5 Monitor and evaluate livelihoods, green economy and well-being capability expansion including agency and outcomes.		Hanli Human's Masters suggested indicators. Plan to use CLOs and surveys to collect data.	A Women's Capability Index has been completed.

Headline Objective 4. Institutional actors and governance

The vision of the Governance CoP: In support of the Tsitsa Project vision, to understand, prototype and help implement effective polycentric governance; to advise on internal governance appropriate to achieving the Tsitsa Project goals overall. Our influence may reach neighbouring catchments.

Title of objective	Statement of objective	Sub-objectives	Where we are at	Progress this quarter
4.1 Current and desired governance arrangements.	4.1 Map out, understand and influence governance processes, interventions, rules and codes that exist (or should exist) at local, provincial, national and international levels, including informal norms and arrangements.	4.1.1 Map out and understand legal and regulatory environment and act as deemed necessary, e.g. Spatial Planning and Land Use Management Act (Act No. 16 of 2013) (SPLUMA).	Mike Coleman's Report on integrating the TP into SPLUMA is complete.	
		4.1.2 Identify key gaps and contradictions and work towards pragmatic solutions (also using Institutional	T35 A-E and T35 F-M stakeholder analysis complete but not sufficiently nuanced enough and lacking the political ecology aspect.	

		Analysis and Design (Ostrom, 2011).		
		4.1.3 Meaningfully influence and contribute to developing appropriate overall governance strategy, including the important facet of overlap between water governance and land governance at different scales	No policy briefs produced yet. No "how-to" brochures specific to natural resource management. Governance Plan has been developed. Governance CoP made headway in engaging communities to overcome epistemic injustices that hinder the development of a land and water forum.	Governance Plan updated. Progress Report - Ant Fry (Leverage Points for Improved Participation in Rural Land and Water Governance). Project aims to identify leverage points to practically support the emergence of participatory governance in the Tsitsa catchment. Enhanced Integrate Plan is in the process of being developed.
		4.1.4 Map out players and roles and non-participators who could be likely players	Complete – but needs catchment embedded staff.	
4.2 Political ecology/economy.	4.2 Understand the historical and contextual development of the "realpolitik" we observe in the catchment at different levels, as well as the informal and shadow networks and de facto power influences, as this influences and is influenced by natural resources and their management.	4.2.1 Appoint a Catchment Coordinator	Nosi Mtati was appointed as catchment coordinator 2019.	
		4.2.2. Adapt the PMERL data collecting protocols to collect grass roots information that can be distilled and cross referenced for political ecology analyses	CLOs appointed and are to be used to collect information through surveys and interactions and feed it into the CoP structures and into PMERL.	Report on Participatory Governance Community Work Sessions: CLO reflections show that CLOs have made progress towards being participatory governance agents in the catchment, even though there are shortcomings with regards to resources.
4.3 Internal governance and management of overall expanding scope of the Tsitsa Project.	4.3 Understand, support and, where necessary, improve current internal governance arrangements in the Tsitsa Project such that, overall, the Tsitsa Project	4.3.1 Improve or create a mature praxis culture in the scientific and management components focusing on core B team.	Some progress.	LIMA joined the CoP coordinators' meetings and this has allowed better communication and feedback between the organisations.

	goals are more likely to be met. Currently, a particularly important aspect is managing the concentrically expanding scope in multiple dimensions of the Tsitsa Project's reach – this needs to be sensibly constrained.			Margaret and Nosi met with LIMA in March to resolve confusion over Sipha's role. Margaret, Sarah Polonsky (DEFF) and Chris Jackson (LIMA) have been meeting monthly to discuss what is happening in the project. Sarah has introduced the Tsitsa and Thicket projects to the Climate Change group within DEFF (Hlengiwe and Olga). Various opportunities to engage with others in the catchment were mentioned (MEC for Public Works wanting to engage with PG Bison and youth, Van Tol from UFS, Nosi invited to attend Muncipal District Forum and a wetland day by Elundini Municipality).
		4.3.2 Partnering strategy including our own partnering profile e.g. potentially with uMzimvubu Catchment Partnership Programme (UCPP), various universities, etc.	Attendance of Umzimvubu Catchment Partnership Program (UCPP) quarterly meeting in Matatiele initiated.	
		4.3.3 Develop a philosophy and criteria for managing this reach and scope appropriately.	No progress.	

4.4 Project-related ethics.	4.4 The Governance CoP will act as a central referral point for ethics issues in the Tsitsa Project. These include academic issues such as intellectual property; community engagement issues; ethics codes for research and engagement; broader philosophical issues, such as evolving values, as these influence the ethical views of various stakeholder groupings (including ourselves).	4.4.1 Develop a policy guideline for visiting student and researchers	Students from The Netherlands were reigned in by Tally in 2019. Tsitsa Project Research Protocol for collaborative research developed.	
		4.4.2. Develop a generic research collaboration MOU	Tsitsa Project Research Protocol for collaborative research developed.	Joint general ethics application submitted by KL and Governance CoPs.

Headline Objective 5. Realising agency and collective action

Recognising the centrality of meaningful stakeholder involvement in the Tsitsa Project, to work towards facilitating trust and capacity, and a sense of a shared future aimed at a desired state[9] that has been jointly crafted. To reach this we focus on facilitating motivation (including a sense of fun) and ability which helps provide agency at the individual and collective levels, and ultimately, strong and sensible interacting contributions from government, traditional, and civil society.

[9] This desired state requires joint updating as contexts shift and learning occurs; an adaptive principle.

Title of objective	Statement of objective	Sub-objectives	Where we are at	Progress this quarter
5.1 Principles.	5.1 It may be necessary to understand and develop praxis for the following key attributes of this approach in our context/s	5.1.1 Role of champions.		
		5.1.2 Capacity development.	Matthew Weaver appointed as Capacity Development Coordinator in 2019. Capacity Development Plan v1 co-developed (Oct 2019).	Updated Community Engagement Plan.
		5.1.3 Motivation for this: how to deepen interest.	Governance CoP Capabilities Pathway and supporting writings.	
		5.1.4 What is agency?	See under Objective 1 – Towards equitable participation. Governance CoP and KL Cop have joined efforts in Cap Dev course to promote development of agency. Completed: Hanli Human's Masters thesis including agency into the social indicators. PMERL indicators include measures of agency. No progress with developing specific case studies for agency assessment.	Matheboho Ralekhetla (PhD) currently studying capacity development for agency.
		5.1.5 What is collective action?	No progress.	

		5.1.6 How would we best select entry points and best use our time and energy?	No progress.	
		5.1.7 Equity Warning Light.	Laura CA has done a Gender study and developed a survey. PMERL indicators include measures of equity. No progress with commissioning a set of case studies.	Womens' Capability Index completed.
5.2 Prototype (pilot) projects that exemplify this goal.	5.2 To engage in a selected set of projects[10] which involve societal elements (with at least some important/novel linkage and near-equal participation from two or more CoPs) as well as at least some significant transdisciplinary dimensions.	5.2.1 Green-preneurs producing vetiver slips, grass plugs tree seedlings for rehabilitation work. These can be done at the household level in the vicinity of rehabilitation areas and be sold to the implementers.	First slips were produced.	After a series of consultations and meetings, Greenprenuers registered their business under the trading name "Mchatha Primary Co-operative Limited".
		5.2.2 Test the feasibility of grass plugs using indigenous grass spp (Masters project).		
		5.2.3 Household and village-scale planning and implementation of rainwater and storm water harvesting and conservation farming (across communal and commercial farming).	Some progress made in Livelihoods CoP with rainwater harvesting for vetiver growing households.	
		5.2.4 Expansive systematic learning across multi-level	Some learning takes place through the A and B teams.	

[10] These projects should be challenging and novel but feasible (i.e. neither trivial nor overwhelming, nor too many of them overall for our capacity)

		government actors especially DWS, DEA, DRDAR, ECSECC.		
		5.2.5 Project awareness and advocacy.	Brochure - complete. Draft communication and advocacy plan developed (May 2019).	Communication and Advocacy Plan updated (Mar 2020).
		5.2.6 Catchment-wide awareness: Radio, brochures, school competitions.	School logo competition complete, logo being used by project.	
		5.2.7 CLO capacity development and tools, including monitoring.	Two modules complete (Nov 2019 and Feb 2020).	

Headline Objective 6. Knowledge flow, communication and advocacy

Provide effective information and communication for the Tsitsa Project, both for internal (how the Tsitsa Project runs itself) and external purposes. Build an enabled constituency of support, interest and action for the catchment and even more widely for the Tsitsa Project principles in multiple areas (scientific, technical, funding, political, and administrative, across various sectors and broadly across resident and other stakeholder communities). Lobby when necessary with appropriate "marketing" or advocacy initiatives.

Title of objective	Statement of objective	Sub-objectives	Where we are at	Overall Progress
6.1 Scientific-technical databases, libraries and decision support systems.	6.1 Make information and data within the Tsitsa Project accessible, available, understandable, transparent and usable to all stakeholders at different governance levels to best aid further research,	6.1.1 Archive and display scientific-technical datasets in a user-friendly way. These can include theses, papers, GIS layers, reports, policy briefs, etc. Include metadata on methodology, tools used, data sources, etc.	Dylan Weyers Google Drive still a good starting point. INR Knowledge portal still operational. Kyra's website functional but not complete. This needs a dedicated amount of human resources.	Wandile Mvulane appointed (Apr 2020) as added capacity to help with the website and data management. Mini-models developed so far are to go on the website.

	management and implementation.		Google drive V2.0 (Margaret Wolff) online and active.	Data products, booklet and decision tree produced by the SedRest CoP are all helpful for knowledge flow, communication and advocacy.
		6.1.2 Archive and display community and stakeholder related datasets in a user-friendly way. These can include theses, workshop notes, community maps, GIS layers, reports, etc. Include metadata on methodology, tools used, data sources, etc.	Website complete but lacking the geo-spatial functionality.	See below.
		6.1.3 Allow interactive spatial data display on an online GIS platform that will support decision making by stakeholders.		Biophysical monitoring database & updated rainfall and hydrology database (March 2020). Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (Apr 2020). Incorporates local plans and green-preneurs data linkages also. Need to sharpen up mWater data this year and include restoration sites.
6.2 Community strategies.	6.2 What are the goals of this strategy? What do we want to achieve?	6.2.1 Formulation: internal/external, so called target audience.		
		6.2.2 Develop and biennually revise a Tsitsa Communications Strategy. Especially outside the catchment, e.g. internationally (is this advocacy done by DEA/DST etc.? What do we expect if this works? How do we then	Draft communication and advocacy plan developed (May 2019).	Updated Communication and Advocacy Plan. Updated Branding and Communication Strategy.

		support them? What limits them? To what extent can Tsitsa staff be expected to expand their scope, and what are the dangers of exaggerating advocacy?)		
		6.2.3 How do we measure awareness in the catchment? Establish a baseline of understanding in the catchment regarding natural resource management and EGS.	CLO network to establish baselines for understanding.	
6.3 Lobbying/Advocacy.		6.3.1 Develop key Tsitsa Project Principles	Cockburn (2018) paper summarises the core principles. Meta-Reflection reports include a reflection of progress against these principles.	Margaret plays an important communication and advocacy role: Building relationships with other organisations and people (e.g UCP, SANBI, DEFF CC division, Tony Knowles etc.), seeking funding, meeting with the DEFF project manager and LIMA.