TSITSA PROJECT QUARTERLY REFLECTION REPORT

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Tsitsa Project Reflection Report Q2 2020

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INTRODUCTION

The Tsitsa Project (TP) is a multi-stakeholder initiative enabled by 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 catchment residents, traditional authorities, implementers of restoration activities, municipalities, government departments and NGOs. 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.

This is the second quarterly reflection report produced by the PMERL team. The report does not provide details on administrative and financial management, but reports and reflects on the objectives, activities and events of the project over the period June to August 2020. It offers an overview and synthesis to guide planning, decision-making, management and praxis in the TP going forward.

Where are we coming from?

As part of our commitment to ensuring that recommendations and findings from previous reflection reports and workshops are used going forward, we include here the lessons and recommendations from the previous quarterly report and workshop (Box 1) as a starting point for evaluating what is reported below.

> **Box 1: Lessons and Recommendations from the previous quarter (Q1 2020)**
>
> ☒ **Lesson 1: We have managed to achieve a lot despite COVID-19**
>
> ☒ **Lesson 2: Our principles are alive and well**
>
> ☒ **Lesson 3: There have been further improvements in integration and collaboration**
>
> ☒ **Lesson 4: Work in the catchment has been affected by COVID-19**
>
> ☒ **Recommendation 1: Maintain a collaborative, reflexive and adaptive orientation in the ongoing response to COVID-19**
>
> ☒ **Recommendation 2: Make sure to find ways to continue our work in the catchment**

METHODOLOGY

Data for this report were collected from a variety of sources (Table 1).

Table 1: Sources of data and information analysed for this reflection report

CoP Reports:

- Livelihoods CoP Quarterly Report (Q2 2020)
- Governance CoP Quarterly Report (Q2 2020)
- Student Progress Report: Anthony Fry
- Sediment & Restoration CoP Quarterly Report (Q2 2020)
- Summary of biophysical monitoring activities (Q2 2020)
- Citizen Technicians' Quarterly Report (Q2 2020)
- Grass & Fire CoP Quarterly Report (Q2 2020)
- Climate Change Quarterly Report (covering Q1 and Q2 2020)
- Systems Praxis CoP Quarterly Report (Q2 2020)
- Knowledge & Learning CoP Quarterly Report (Q2 2020)
- KL CoP BTO Report – Reflect and Reconnect Workshop (26 August 2020)

Community Engagement & Project Management Reports:

- Catchment Coordinator's Quarterly Report (Q2 2020), including minutes of meetings with DEFF, LIMA and implementers, and a meeting at Joe Gqabi municipality
- Tsitsa Project Coordinators' Quarterly Report (Q2 2020), including minutes of various meetings
- LIMA Senior Social Facilitator weekly reports x3
- LIMA Senior Social Facilitator BTO report on meeting with DEDEAT (30 June 2020)
- CoP Coordinators' Meeting Notes (July-August 2020)
- C-Team Meeting Notes (9 June 2020)

The report is based on qualitative data analysis, 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 two steps (Table 2). Step 1 was the first level of data filtering and analysis. The documents were divided among the two PMERL team members who read through them, 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 2).

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.

Overview of activities and outputs: June – August 2020

The outputs of the Tsitsa Project for the quarter are listed in Table 3. While outputs are a useful way of capturing a snapshot of what has been produced - as evidence of the projects' activities - they give limited insight into the outcomes and learnings and the processes that enabled these. 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 3: Key outputs of the Tsitsa Project June-August 2020

Peer-reviewed publications	**In preparation:**
	1. Prof. Tally Palmer is working on paper that draws on the TP entitled "The Adaptive Systemic Approach: Enabling research that supports just and sustainable natural resources development".
	2. Systems Praxis and Governance CoPs collaborative paper: Libala, N., Clifford-Holmes, J.K., Peacock, R., Ralekhetla, M., Mti, N., Fry, A., Weaver, M., Palmer, C.G. (2020). A Systemic View of the Governance Capabilities Pathway, to be submitted to Sustainability Science.
	3. Prof. Eureta Rosenberg and Hanli Human completed a draft of the "P in PMERL" paper and are in the process of finalizing the paper for submission.
	4. Matthew Weaver is leading a paper co-authored by Prof. Tally Palmer, Dr Jessica Cockburn and Ms Nosiseko Mtati. The paper is entitled: "*Transformative processes in a WEF nexus landscape: a case study of two vignettes from the Tsitsa Project".* A first draft of the paper has been completed and presented at the online WEF Nexus Workshop that took place on the 7th and 8th of May 2020.
	5. Matthew Weaver is engaging with the Livelihoods CoP Coordinator, Laura Conde-Aller, to co-author a publication showcasing the expansive learning of citizen monitors and vetiver growers in the Tsitsa Project. The paper was envisioned to commence from July 2020 but has been put on hold in favour of other priority work commitments.
	6. Adepoju, K, Peacock, R. (2020). Modelling the effects of population and landuse dynamics on food security and conflicts in Nigeria; A system dynamics approach. To be submitted first to African Conflict and Peacebuilding Review.
	7. Peacock, R., Blignaut, J.N., Crookes, D.J., & Powell, M.J. (2020). A system dynamics evaluation of the long run impact of the Ntabelanga dam on a communal rangeland system in the Eastern Cape, South Africa. To be submitted first to Heliyon.
	8. Peacock, R., Gusha, B. (2020). Analysis of modelling activities in the Tsitsa Project, Submission destination yet to be decided.
	Published:
	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(7): 224. [http://dx.doi.org/10.3390/land9070224].
	2. Rosenberg, E. and Kotschy, K. (2020). Monitoring and evaluation in a changing world: A southern African perspective on the skills needed for a new approach. *African Evaluation Journal* 8(1), a472. [https://doi.org/10.4102/aej.v8i1.472]
	3. Le Roux, J. and van der Waal, B. (2020). Gully erosion susceptibility modelling to support avoided degradation planning. *South African Geographical Journal*: 1–15.

	4. Bester, R., Blignaut, J.N. and van Niekerk, P.H. (2020). The cost-effectiveness of water augmentation and management: Assessing the Unit Reference Value. *Journal of the South African Institution of Civil Engineering* 62(2): 39-44.
Conference and webinar presentations	1. Weaver, M.J.T. Presented the outline, rationale and progress on the Social Learning Facilitation (Training of Trainers) course during the ELRC Weekly seminar slot as part of a series on Online Course Design. The session was attended by ELRC colleagues, alumni, partners and associates. 2. Rowntree, K. & Conde-Aller, L. Presentation on the plug-preneur SMME as part of a Water Research Commission webinar "Green economic recovery: Women leading their emancipation" (13 August 2020), to showcase green innovative businesses led by rural women.
Internal project reports and outputs	**See Table 1,** PLUS: 1. TP Quarterly Reflection Report Q1 2020. 2. TP Quarterly Reflection Report Q1 2020: Summary (7 pp.) 3. TP Quarterly Reflection Report Q1 Visual Summary (2 pp., in English and isiXhosa). 4. 3x Integrated Nodal Plans for Lower Sinxaku, Upper Sinxaku & Sigoga (Aug 2020). 5. Course materials for the Social Learning Facilitation and Listening & Speaking training. 6. Tsitsa Project Newsletter No. 3 (September 2020).
Visual media	3. COVID diaries video documenting experiences of some of the monitors during lockdown. 4. Narrated slides and video clips which form part of the course materials for the Social Learning Facilitation and Listening & Speaking training.
Significant internal events hosted by the Tsitsa Project	1. C-Team Meeting (9 June 2020, Zoom). 2. Reflect and Reconnect Workshop (26 August 2020, Zoom). 3. Enhanced Integrated Planning Meetings (11 June, 25 June, 13 July, 14 August 2020, Zoom).

Significant external events in which TP members participated e.g. catchment learning exchanges, conferences, etc.	1. Umngeni Ecological Infrastructure Partnership meeting.
	2. Umzimvubu Catchment Partnership quarterly meeting.
	3. "Heal the Land, Heal the People" webinar hosted by IntegRA, focusing on regenerative agriculture and its role in promoting sustainable livelihoods and social benefits. This included a talk by James Blignaut on regenerative farming.
	4. Gauteng City-Region Observatory webinar series on Social Data Collection in the Context of COVID-19.
	5. Programme on Ecosystem Change and Society (PECS) webinar series:
	    a. 'Meta-analyses and case studies in the social-environmental sciences' by Michael Cox and Sergio Villamayor-Tomas.
	    b. 'Within, against and beyond the state: Political ecologies of collaborative governance of protected areas in Puerto Rico' by Gustavo Garcia-Lopez.

Capacity development events hosted by the TP	1. Monitor training on COVID-19 and provision of PPE (20-27 July 2020, in the catchment). 2. Monitor training on the use of remote working tools - email, Zoom, Google Meet, MS Teams (3-10 August 2020, in the catchment).
Students graduated	1. **Nosiseko Mtati** submitted her final M.Ed thesis for examination. It has been accepted and the degree is to be awarded.

Funding proposals submitted	1. Three Water Research Commission (WRC) proposals: "A National Siltation Management Strategy for Dams in South Africa", "Evaluating the process and progression of erosion and sedimentation risk in two South African catchments" and "Using citizen science to protect natural untreated drinking water sources: natural springs in rural catchments and B3 municipalities in the Eastern Cape".
	2. Sustainable Landscape Finance Coalition (SLFC): A funding mechasim linked to grasslands in the Eastern Cape.
	3. IKI: Finalising bid. An on-line open call for submission in August. Two projects will be selected per stream and applicants will be notified in September. If successful, applications will go into full proposal writing.
	4. EFTEON: The Upper Mzimvubu catchment landscape passed the first selection process and is moving into full proposal writing. The project does not disburse funds but will equip the project with research tools with potential to attract and support future researchers.

Figure 1: Left – CLO, Eco-Ranger and Citizen Monitor receiving their personal protective equipment (PPE) at Upper Sinxaku. Right – LIMA Senior Social Facilitator handing over PPE to the Eco-Ranger from Qulungashe.

Progress against TP objectives

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. Further details are given in Appendix 1, including elaboration of the objectives and sub-objectives, previous progress and progress for the quarter.

Table 4: Tsitsa Project progress against objectives, June-August 2020

Headline Objective 1: Founding Principles

Title of objective	Progress this quarter
1.1 Social-ecological principles and resilience thinking	• The Enhanced Integrated Plans are underpinned and give effect to the socio-ecological principles and resilience thinking, and their impacts are expected be beneficial to both the department and more particularly to the people and landscape in which they work. • Climate change framed as an "uncertain future certainty" and now better integrated as a cross-cutting SES issue. • Prof Kate Rowntree is working with Helen Fox in developing materials for Machubeni and Tsitsa, which will look at grasslands as a socio-ecological system. • Reflect and Reconnect event (Aug 2020) included SES framing, SES outcomes, and reflection against this principle. • Quarterly reflection reports and events allow for more frequent feedbacks and promote feedbacks amongst a wider range of actors.
1.2 Transdisciplinarity	• Ongoing synthesis across 'disciplines' through TP Quarterly Reflection reports. • Promoted by participation of all CoPs in development of the enhanced integrated restoration plans for 3 nodes (working together and looking for cross-linkages). • Module 3 of the Monitor Capacity Development course (Listening and Speaking) and the new online course "Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management Contexts" are under development and specifically incorporate this principle.
1.3 A collaborative, reflexive, and adaptive orientation.	• First quarterly reflection report and event ("Reflect and Reconnect") completed. This workshop included a wider group of stakeholders than previous reflection meetings. • More feedback from the catchment included into the TP's data-gathering and synthesis processes (LIMA reflection reports, meeting minutes). • Collaboration and reflexivity promoted by enhanced restoration planning process. • Collaboration between CoPs on various publications (see Table 2). • Closer working relationship and synchronisation between LIMA and TP. • Reflexive orientation seen in the LIMA Senior Social Facilitator's increasingly detailed reflection reports, capturing important reflections that were not being captured before last quarter. • The Catchment Coordinator and LIMA have started regular meetings with DEFF Operations, GIB and Take Note for improved planning and communication. • Efforts to secure alternative funding to allow for continuity (adaptive). Project Coordinator's ongoing meetings with Mike Powell and Dr Harry Biggs offer guidance, support and helpful insights on how the TP can position itself for various funding and tender calls. • Ongoing project responses to COVID-19 disruptions, particularly the efforts to help monitors to be included in online activities. • CoP Coordinators' meetings continue to be held on a monthly basis.
1.4 Expansive learning and capacity development.	• Core group of enhanced integrated planning team members from CoPs established and several meetings held. • Finalisation of enhanced nodal plans for 3 nodes, for the next round of bidding by implementers. • First quarterly reflection workshop held on 26 Aug 2020 ("Reflect and Reconnect"). • Tsitsa Project website and bulk email list have been established as the main platforms for news and information sharing. • The Tsitsa Project published and distributed its 3rd newsletter this quarter.

	• Module 3 "Listening and Speaking training: Participating and Influencing Polycentric Governance Processes" planned for 16-17 Sep 2020 (part online and part face-to-face in Maclear). • Training of Trainers course was accredited and received over 100 applications. • COVID-19 training and training in online working tools provided to monitors by LIMA. • KL CoP is keeping track of learning and progress taking place through the Enhanced Integrated Planning process. • Publication on the skills needed for a new approach to monitoring and evaluation: Rosenberg, E. and Kotschy, K. (2020). Monitoring and evaluation in a changing world: A southern African perspective on the skills needed for a new approach. *African Evaluation Journal* 8(1), a472.
1.5 Polycentric governance.	• The Grass and Fire CoP together with LIMA is working with communities to build more effective local institutions around grazing management (grazing associations and agreements), although this was slowed due to COVID-19. • Eco-rangers' role starting to be developed - will be important for implementing grazing agreements and also for monitoring of restoration interventions.
1.6 Towards equitable participation.	• Significant effort was made this quarter to support the catchment-based monitors to participate in online meetings (the "new normal" due to COVID-19), through provision of phones, software, data, training and individual support. • Monitors were included in the "Reflect and Reconnect" event in August. • Monitors' experiences of the lockdown were highlighted in the "COVID diaries" video, which was screened at the Reflect and Reconnect meeting. • The Q1 reflection report visual summary was translated into isiXhosa, and all content of the reflection event was also translated. Language is often a barrier to equitable participation. • Listening and Speaking training is intended to equip participants with skills that will enhance their ability to run and participate in meetings. Similarly for Training of Trainers online course.
1.7 Scientific-technical foundation and evidence base.	• Discussions started on addition of climate change indicators. • Return to work and renewal of contracts of all catchment-based monitors. • Biophysical monitoring data collection. • Ongoing synthesis of knowledge and evidence in this report and future quarterly reflection reports. • Four papers published and 8 in progress. • Website and bulk email list developed, and in use for TP communication. • TP Google Drive in use by TP team and CoPs.

Headline Objective 2. Ecological Infrastructure and Services - the Biophysical

Title of objective	Progress this quarter
2.1 Functional ability of landscape.	• Publication: le Roux, J. and van der Waal, B. (2020). Gully erosion susceptibility modelling to support avoided degradation planning. South African Geographical Journal: 1–15. • WRC proposal submitted on managing dam siltation. • Ongoing PhD research by Laura Bannatyne. • Climate change learning resources are being developed for the monitors.
2.2 Resilience (system's ability to recover).	• No progress reported.
2.3a Prioritisation and design of practices.	• 3x Enhanced integrated restoration plans produced for three nodes (Lower Sinxaku, Upper Sinxaku and Sigoga) and submitted to DEFF.

Title of objective	Progress this quarter
2.3b Impact of practices (understand and influence land and water management practices).	• Enhanced integrated restoration plans. • Eco-rangers involved in establishment of firebreaks. • LIMA did rangeland mapping in Upper Sinxaku. • Ongoing MSc research by Megan McCarthy ("A system dynamics approach to the management of Invasive Alien Plant Species in the Tsitsa River catchment area, South Africa").
2.4 Monitoring.	• Resumption of biophysical monitoring by RU Geography team and catchment-based monitors. All rain gauges and level loggers were serviced and data downloaded, and water quality and SASS assessments were conducted at the established river monitoring sites in Catchment T35 A-E. • Resumption of laboratory analysis of water samples collected by Citizen Technicians. • The monitoring, rainfall and flow database is being updated with the data and information gathered during the field visit.

Headline Objective 3. Livelihoods and well-being

Title of objective	Progress this quarter
3.1 Livelihood strategies.	• Forestry assessment at Tsitsana by LIMA to scope out wattle timber availability and accessibility for charcoal production business. • Positive response from the headman to this initiative. • Discussion started with PMERL team about climate change adaptation indicators.
3.2 Aspirations and opportunities.	• Discussions initiated around a charcoal production business opportunity with Avocado Vision and LIMA. Avocado Vision works in the Matatiele area with Chris and other teams in the area and there seem to be opportunities to work together in future and explore other green business value chain linked livelihoods. • Ongoing MSc research by Anele Ntshangase on citizen understanding of and values ascribed to ecological infrastructure.
3.3 Participatory planning.	• No progress reported.
3.4 Integration.	• The SMME and other members have shown interest and motivation in continuing with the initiative. Plans have been made to provide support to the green-preneurs to improve and expand their supply in view of next year's implementation of the integrated nodal plans. • Eco-rangers appointed and included in training.
3.5 Monitoring and Evaluation (of well-being and capability).	• Return to work of all catchment-based monitors. • Monitoring of vetiver grass survival during the lockdown period and re-engagement with participating households.

Headline Objective 4. Institutional Actors and Governance

Title of objective	Progress this quarter
4.1 Current and desired governance arrangements.	• Ongoing MSc research by Ant Fry ("Leverage Points for Improved Participation in Rural Land and Water Governance").
4.2 Political ecology/economy.	• No progress reported.

4.3 Internal governance and management of overall expanding scope of the Tsitsa Project.	• Tsitsa and UCP application (Maclear area) "EFTEON Umzimvubu Node" has been shortlisted. • Nick Huchzermeyer attended the online Nature-based Solutions (NbS) digital dialogues. NbS principals are reflected in what the Tsitsa Project is trying to achieve, and there is definitely scope for the Tsitsa Project to look for funding in this avenue. It also follows very closely to the Decade of Restoration and the principles of the Society of Ecological Restoration (SER). • Nosi Mtati attended the Umzimvubu Catchment Partnership Program (UCPP) quarterly meeting in Matatiele.
4.4 Project-related ethics.	• Joint ethics application approved by RU. • Visiting Researchers and Students Protocol is being updated based on a number of requests from students to work with the TP in future. We will also be considering an internal memo or protocol that covers the way in which we (as the internal Rhodes University team) work together. This internal consideration requires discussion within a university context particularly around research papers that are produced.

Headline Objective 5. Realising Agency and Collective Action

Title of objective	Progress this quarter
5.1 Principles.	• Developing agency and collective action is built into the design of the monitor short course and the Training of Trainers course. • Ongoing PhD research by Mateboho Ralekhetla on capacity development for agency. • Ongoing MSc research by Ant Fry on "Leverage Points for Improved Participation in Rural Land and Water Governance".
5.2 Prototype (pilot) projects that exemplify this goal.	• Monitoring of vetiver grass survival during the lockdown period and re-engagement with participating households. • Project was showcased at a WRC webinar on green businesses for empowerment of rural women. • As a result of the webinar, a Johannesburg-based freelance producer and video journalist for DW German Television, the foreign service of the German public broadcaster, expressed interest in producing a short 5-8 minute documentary on the project (to showcase best practice initiatives for the protection of climate and biodiversity). • Climate change learning resources are being developed to build climate change literacy. • TP newsletter 3 (Sep 2020). • All Tsitsa Project news and events are posted on the website and/or communicated via email. To reach stakeholders in the catchment they are shared via the Catchment Coordinator and LIMA. • Module 3 of monitor short course under development.

Headline Objective 6. Knowledge Flow, Communication and Advocacy

Title of objective	Progress this quarter
6.1 Scientific-technical databases, libraries and decision support systems.	• Website now hosted with RU. It is currently fully operational and live and is updated regularly. Google sites content has been migrated across. • TP Google Drive set up and in use by CoPs.
6.2 Community strategies.	• All Tsitsa Project news and events are posted on the website and/or communicated via email. To reach stakeholders in the catchment they are shared via the Catchment Coordinator and LIMA.

6.3 Lobbying/Advocacy.	• Sarah Polonsky (DEFF contract manager) acts as a catalyst by sharing information that might be useful for TP to source funding or create networks.

Indicator data

The TP monitoring system 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. The project-wide indicators for the TP were chosen through a collaborative process with researchers and communities (details provided in last quarter's report).

All monitoring data collection came to a halt last quarter with the COVID-19 lockdown in late March. Work resumed slowly this quarter as the lockdown eased to Level 2 and below. Some biophysical indicator data were collected in August. All rain gauges and water level loggers were serviced and the data downloaded, and water quality and river health data were collected. These are being analysed and will be reported next quarter. Suspended sediment sampling by the Citizen Technicians resumed in July, as well as the laboratory analysis of these samples. The terrestrial data (wetlands and veld condition) could not be updated this year due to time constraints in the field.

Social and livelihoods data will be collected through a comprehensive survey which is still under development and will be reported on next quarter.

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

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. This quarter there were more processes than outcomes. A synthesis is provided below.

The **enhanced integrated restoration plans for three nodes in the Tsitsa catchment** (Elangeni, Lower Tsitsana and Hlankomo), submitted to DEFF this quarter, were a key deliverable for the TP. The process of developing these plans was underpinned by the TP objectives such as collaboration, transdisciplinarity and learning. The Rhodes University TP team collaborated to translate the vision of the project - the "Tsitsa Approach" - into the way restoration work is done on the ground by the DEFF teams. Group activities were coordinated by Bennie van der Waal and Jai Clifford-Holmes to

capture the TP strategy and apply the strategy to the three nodes, resulting in three integrated plans for sustainable land management and restoration which will guide the future implementation of restoration activities.

This has been a powerful way of integrating across the research and practice aspects of the project. For example, climate change adaptation was considered as an important component of the integrated restoration plans, which builds on the 2019 efforts to get climate change better embedded into the Tsitsa Project. Capacity development and learning were likewise included as far as possible as cross-cutting issues, within the scope of the DEFF requirements. Engaging with specific node-level plans also improved researchers' understanding of what implementers do and their organisational structures and processes.

Figure 2: Draft version of the enhanced integrated plan for Lower Sinxaku

The **resumption of biophysical data collection** this quarter was important for maintaining data continuity. COVID-19 and associated budget cuts have affected the timing of assessments and also expansion of the biomonitoring of terrestrial aspects in the catchment. Figure 3 depicts the effects of the COVID-19 pandemic on biophysical monitoring for the 2020/21 year.
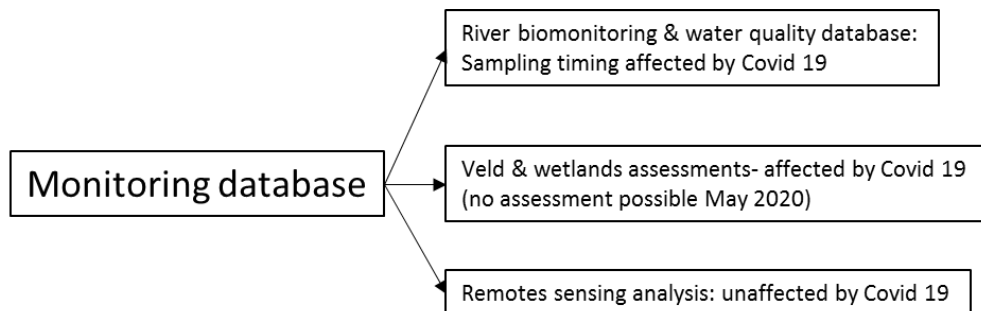

Figure 3: Biophysical monitoring in the Tsitsa catchment 2020/21

The Tsitsa Project now has a functional database across quaternary catchment T35 A-E and parts of F-K for the following biophysical data: river discharge, rainfall, water quality and river health (these are all in Excel format). Further details are provided in Appendix 2.

We also have a large and comprehensive GIS spatial dataset that can be made available on request. This can be used in Google Earth or GIS software depending on what people have access to. Google Earth is a free platform accessible to anybody. The database includes community input from community voice mapping, biophysical data (such as alien vegetation and wetlands), boundaries (such as priority catchments, headman boundaries) and also our planning spatial layers (such as key nodes and their associated interventions). An overview is provided in Figure 4.
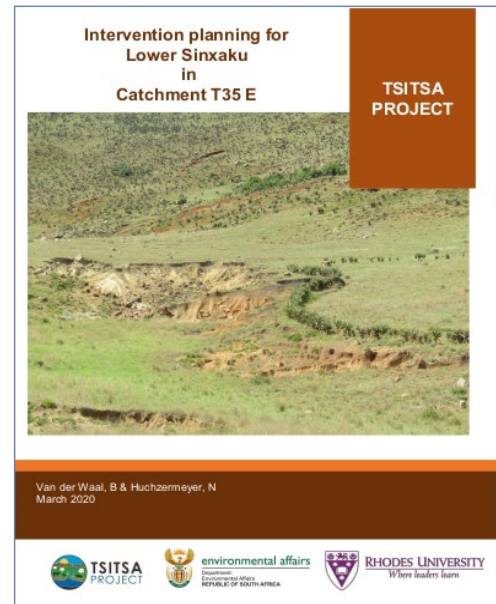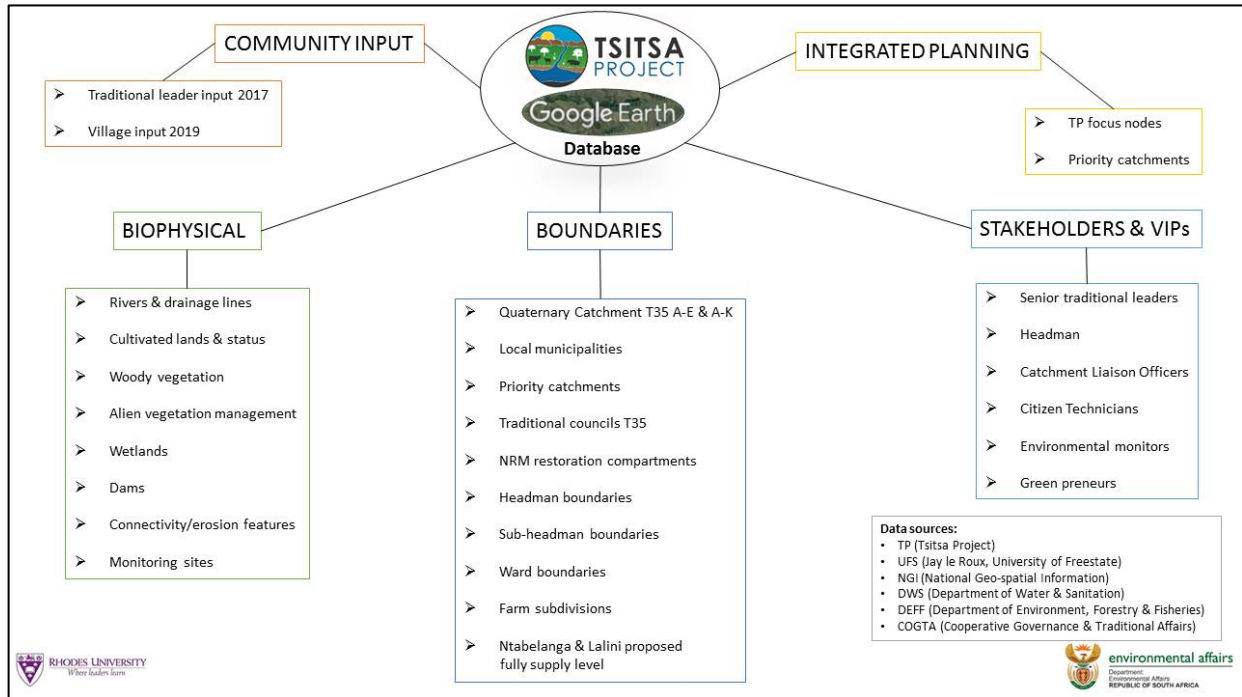
Figure 4: Overview of the Tsitsa Project Google Earth database

We have found that coarse scale remote sensing techniques, in particular those that use vegetation indices, are useful to pick up changes at a catchment scale but are not adequate for interpreting what is happening on the ground in terms of landscape degradation when compared to our finer scale data. Therefore, the current work that the Tsitsa Project has done to build baseline data at a finer scale is very important for monitoring degradation in the long run.

Knowledge sharing events and processes continue to be affected by the COVID-19 pandemic. To continue with knowledge sharing processes and to adapt to the pandemic conditions, the TP is using available technology and online platforms:

- The Reflect and Reconnect event was held online on the 26th Aug 2020. This was the first TP reflection meeting to be attended by such a wide range of stakeholders, including monitors and implementers.
- The Training of Trainers NQF Level 5 course was successfully accredited as an online course, with over 100 applicants from around South Africa and beyond, with varying Natural Resource Management backgrounds.
- The Listening and Speaking training module (Module 3 of the monitors' short course) is under development as a part on-line, part contact module. The module intends to improve participants' networking skills and partnerships in the catchment through, for instance, be able to identify key actors, how to participate in a community-based meeting, and how to organise and run a meeting. The module materials will be pre-recorded and delivered to participants a week before the training takes place.
- Members of the team attended many online discussions, meetings and webinars this quarter under the "new normal" remote working conditions.

The ability to share knowledge in these new ways has been key for connecting people, allowing for engagements, collaboration, sharing and capacity development to continue within and beyond the project. **We have also learnt a lot about what works and what does not work well with online meetings and training events**.

Figure 5: Part of the invitation to the Reflect and Reconnect online event on 26 August 2020

For example, the Reflect and Reconnect event went well considering its ambitious nature and the potential challenges – connecting remotely with monitors in the catchment who were not familiar with Zoom meetings, conducting the meeting in two languages, using breakout rooms and screening a video. The technology mostly worked very well and the efforts of LIMA staff in preparing the monitors to use Zoom were fantastic. The main critique was that we tried to do too much in one meeting and that it may have been better to have two separate events or hold the event over two days. It was difficult to achieve both intended purposes and we felt we didn't fully achieve either. Feedback from the participants (collected via a short survey) supported these perceptions, with most people feeling we did slightly better at "reconnecting" than we did at "reflecting". Other lessons regarding online events are included in the section on Lessons and Recommendations.

A significant development in terms of knowledge feedbacks to the catchment was the production of a two-page visual summary of the Q1 reflection report which was also translated into isiXhosa (Figure 5). A seven-page summary of the report (in English) was also circulated before the reflection event, along with the full version.

Knowledge management processes are important for PMERL as they provide data for reflections. The easing of the lockdown has provided benefits in terms of data collection. The shared Google drive and the website with continuously updated with incoming data. Some data is shared with the wider TP stakeholders through the bulk emailing list and newsletters.

Figure 6: Portion of the isiXhosa visual summary for the reflection event

Organisational outcomes and processes

Organisationally, the project showed good adherence to TP Principle 3 (a collaborative, reflexive and adaptive orientation) this quarter. **Collaboration and reflexivity** were enabled by the process of developing the enhanced integrated restoration plans, which prompted cross-CoP collaboration and much deliberation about how to integrate our learnings and guiding principles into the more practical aspects of restoration practice. The Reflect and Reconnect event promoted collaboration and reflexivity among the broader TP group of partners, and the Q1 reflection report drew on a broader range of feedback from the catchment through inclusion of LIMA reports and a wider range of meeting minutes. The LIMA Senior Social Facilitator's increasingly detailed reflection reports are capturing important reflections that were not available to the PMERL team before last quarter. The closer working relationship and synchronisation between LIMA, Rhodes University, DEFF and the implementing agencies, and the ongoing monthly CoP Coordinators' meetings, are also examples of collaboration and reflexivity.

An **adaptive orientation** was shown by the project's **organisational responses to the disruptions of COVID-19 and the funding uncertainties for next year**. These included the responses to the three budget cuts, such the making available of funds by the Institute for Water Research and the Environmental Learning Research Centre at Rhodes to enable key work to continue, the development of several funding proposals by different members of the TP team, the Project Coordinator's efforts to re-prioritise the budget, ongoing guidance, support and helpful insights provided by Mike Powell and Dr Harry Biggs on how the TP can position itself for various funding and tender calls, and the DEFF Contract Manager's role in sharing information that might be useful in sourcing funding or building networks.

The project also adapted to the impacts of COVID-19 in other ways, including adapting capacity development activities for remote learning, provision of PPE and training to allow monitors to return to work, and equipping monitors with software, training and support to enable them to participate in electronic meetings and capacity development opportunities. The Citizen Technicians' Memorandum of Agreement was updated to allow for the use of their work phones for a wider range of activities.

Although this has been highlighted before, we would like to highlight the important **role of the Catchment Coordinator as a key connector between people and organisations** this quarter. This is clear from the range of meetings attended by the Catchment Coordinator this quarter: meetings with Margaret, Sipha and Harry, phonecalls with the monitors to let them know they had not been forgotten, CoP coordinators' meetings, C-team meetings, meetings with Mr Kawa (DEFF), Governance CoP meetings, capacity development planning meetings, planning meetings for the Reflect and Reconnect event, and several meetings with DEFF and the Implementing Agents to share updates, plans and challenges. This connector role is so important in enabling exchange of information and practical coordination on the ground.

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 pay 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 **resumption of work by the 19 catchment-based monitors** was significant this quarter. This was enabled by health and safety training, renewal of contracts and distribution of personal protective equipment (PPE) by LIMA in July (see Figure 1). Training and hands-on assistance in the use of online meeting tools in August (Figure 4) enabled the monitors to participate in the Reflect and Reconnect event (see Knowledge Outcomes and Processes).

Figure 7: Technical training with monitors in the use of remote working tools, including Gmail, Zoom, Google Meet and Microsoft Teams.

Despite the lack of direct support for the **Green-prenuers** from the field staff due to COVID-19 and the ongoing rainfall scarcity in the area, the report from the monitors regarding the **health of the vetiver grass in the nurseries was promising**. The SMME and other members have shown **interest and motivation in continuing with the initiative**. The enhanced integrated restoration (nodal) plans finalised this quarter will continue sustaining the established network of vetiver growers and

perhaps even expand it, ensuring more favorable economic benefits. The plans have also integrated other aspects related to the use of invasive alien vegetation as a source for charcoal and fodder production.

Discussions were initiated this quarter around a charcoal production business opportunity with LIMA and an organisation called Avocado Vision which works in the Matatiele area. LIMA has taken the lead in scoping some areas for potential invasive alien timber (wattle) resource availability and accessibility. An assessment was done at Tsitsana and the response from the headman was positive.

A presentation in August, as part of a WRC-hosted webinar showcasing innovative green businesses led by rural women, provided an opportunity to showcase the green-preneurs project. A freelance producer and video journalist for DW German Television expressed interest in producing a short 5-8 minute documentary on the project to showcase best practice initiatives for the protection of climate and biodiversity.

A process to highlight was the **beginning of an increase in development of communications materials for people in the catchment**, including the COVID diaries video, a newsletter, an isiXhosa visual summary of the Q1 reflection report, and materials on climate change and grasslands as social-ecological systems.

CHALLENGES IN IMPLEMENTING THE TSITSA PROJECT

The impact of the COVID-19 pandemic continues to be felt. Some people have lost loved ones due to COVID-19. Although the lockdown has now eased to Level 1, there are still some limitations on gatherings and engagements. Adapting TP activities to be online compatible has been a good learning experience but has also brought some challenges. Reliability of internet connections has been an issue, along the the psychological strains of remote meetings. Not all team members have found it easy to adapt to lockdown and remote working conditions.

Ongoing uncertainty around the renewal of funding from DEFF has been another challenge. While the Project Coordinator has maintained clear and caring communication about this, and there are concerted efforts to source additional funding, the uncertainty makes it difficult to plan ahead and continue working in a motivated manner. It also makes it difficult for us to maintain meaningful relationships with catchment residents and partners without raising unrealistic expectations about the future of the project.

Communication and community engagement was limited this quarter, but importantly, it did resume. Various technological challenges were experienced around the monitors' cell phones, including outdated operating systems. A revision of the Citizen Technicians' Memorandum of Agreement was necessary to allow them to use their work phones for a wider range of activities including online meetings. The devices used by the Citizen Monitors were stolen from the Rhodes University offices during the lockdown and had to be replaced.

LESSONS AND RECOMMENDATIONS

The following lessons emerged from the activities and processes of the TP this quarter. Note that this is not a summary of important *findings*, but rather simply draws out lessons that were learnt through our work, as reflected in the quarterly progress reports and the analysis done by the PMERL team.

1. While the restrictions necessitated by COVID-19 are now easing, making work in the catchment possible again, the impacts of the pandemic will continue to be felt for some time. The Reflect and Reconnect event reminded us of the deeply painful losses suffered by some of our team members, and the difficulties around sharing such personal experiences in online meetings. We need to be aware that many catchment residents and partners in the TP may have had similar experiences. Nevertheless, several people expressed gratitude for the support and care of the team.

2. Adapting capacity development and reflection activities for an online format requires significant additional effort and even more careful focus on process design and facilitation than is needed for face-to-face events.

3. Translation skills are important in the TP for enabling more equitable participation in events and information-sharing, and as such should be specifically developed and valued.

4. Some people are more comfortable in online spaces than others and this depends on many factors including prior experience, the type of device used, personality, the nature of the meeting and the nature of the person's relationships with the other participants. While many people reported finding remote meetings exhausting, some found them even more enjoyable than face-to-face meetings and many noted the increased efficiency in terms of time and travel.

The following recommendations are made:

1. COVID-19 has changed the context in which the TP is being implemented. It will be important to keep track of these impacts and their implications for our work through a social-ecological systems perspective, including impacts on funding opportunities, livelihoods, wellbeing, health, governance, and the skills and capabilities needed to adapt. A reminder from last quarter: 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.

2. The objectives on collection action and agency (under headline objective 5) could be revised and strengthened to better foreground these issues in the work of all the CoPs and reflect their cross-cutting nature across the project.

3. The Google Earth platform developed for the project is a valuable resource and should be further showcased to the team and TP stakeholders (see Figure 3 for an overview).

CONCLUSION

This Quarterly Reflection Report is a key product of the PMERL system of the Tsitsa Project which draws together evidence from across the project to reflect, evaluate and draw out lessons to inform future planning. We have continued to document progress against the objectives of the project, as started last quarter. While indicator data are not available this time around due to COVID-19 restrictions, monitoring data collection has resumed and we will be able to provide an update next quarter.

Once again, a large number of outputs were produced (Table 3). Progress was made against all the headline objectives (Table 4), although it was noted that the sub-objectives under Objective 5: Collective action and agency could be revised and strengthened to better foreground these goals in the work of all the CoPs (see Appendix 1).

Important **knowledge outcomes** included the submission to DEFF of enhanced integrated restoration plans for three nodes in the Tsitsa catchment, a key deliverable of the project. These plans have been a powerful way of integrating across research and practice and will guide the future implementation of restoration activities. The resumption of monitoring activities was also important in terms of maintaining the evidence base of the project. Knowledge management and knowledge mediation processes featured this quarter, and we have captured some of the learning that has taken place around facilitating online workshops, meetings and capacity development events.

Climate change and climate change adaptation is becomingly increasingly better integrated into the project as a cross-cutting issue.

In terms of **organisational outcomes**, it was encouraging to see that the TP's guiding principles were once again well covered, and particularly that the collaborative, reflexive and adaptive orientation in the ongoing response to COVID-19 was maintained as recommended in last quarter's report. Collaboration and reflexivity were enabled by the process of developing the enhanced integrated restoration plans, the Reflect and Reconnect event, the LIMA Senior Social Facilitator's increasingly detailed reflection reports and the closer working relationship and synchronisation between LIMA, Rhodes University, DEFF and the implementing agencies.

An adaptive orientation was shown by the project's organisational responses to the disruptions of COVID-19 and the funding uncertainties for next year. These included responses to the budget cuts, such the making available of funds by two Rhodes University research institutes to enable key work to continue, the development of a number of funding proposals and the Project Coordinator's efforts to re-prioritise the budget.

Similar to last quarter, there was more to report under knowledge outcomes and processes and organisational outcomes and processes, and relatively little under social-ecological outcomes and processes. While all three of these categories are important, the **social-ecological outcomes and processes** should grow over time as the project makes progress towards its vision.

However, we are happy to report that the project has found ways to continue its work in the catchment (Recommendation 2 from last quarter). The easing of lockdown restrictions made it possible for the monitors to return to work and allowed for some limited catchment-based activities.

These included re-engagement with the green-preneurs and monitoring of vetiver grass survival as well as preliminary engagements around a charcoal production business option.

We are hopeful that these activities will be able to continue next quarter and that we will not be affected by a second wave of COVID infections. Nevertheless, even if this does occur, two important capacity development processes will go ahead next quarter online, with participation by our catchment monitors enabled by the technological tools, training and support provided by LIMA this quarter.

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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 (Q2 2020)
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[1] 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. 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 is exemplified by the integrated planning process.	The Enhanced Integrated Plans are underpinned and give effect to the socio-ecological principles and resilience thinking, and their impacts are expected be beneficial to both the department and more particularly to the people and landscape in which they work. Climate change framed as an "uncertain future certainty" and now better integrated as a cross-cutting SES issue. Prof Kate Rowntree is working with Helen Fox in developing materials for Machubeni and Tsitsa, which will look at grasslands as a socio-ecological system.

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[1] 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.

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		1.1.2 Scenario-ing skills	Dylan Weyers' PhD data on visioning and scenarios at village level (built capacity was lost with Dylan deregistering).	No progress reported.
			Scenario analysis with the vetiver model to comment on the general sustainability of the endeavour in terms of supply and demand (2019).	
			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".	
		1.1.3 Vulnerability Assessments	No progress.	No progress reported.
		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 and associated reflection events foreground an SES view and SES outcomes.	Reflect and Reconnect event (Aug 2020) included SES framing, SES outcomes, and reflection against this principle.
			Monitoring system linked to TP change pathway to provide relevant SES data, to be reviewed annually.	Quarterly reflection reports and events allow for more frequent feedbacks and promote feedbacks amongst a wider range of actors.
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.	No progress reported.
		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.	No progress reported.
		1.2.3 Highlight connections between research and action and between disciplines in project-wide reporting	Meta-reflection reports and quarterly reflection reports include reflection on this principle.	Ongoing synthesis across 'disciplines' through TP Quarterly Reflection reports.
			Integrated planning process strongly promotes transdisciplinarity.	Promoted by participation of all CoPs in development of the enhanced integrated restoration plans for 3 nodes (working together and looking for cross-linkages).

			Monitor Capacity Development courses are guided by the principle of promoting epistemic justice. Modules 1 and 2 completed (Nov 2019 and Feb 2020).	
		1.2.4 Identify, value and validate different forms of knowledge and ways of knowing (e.g. scientific, indigenous and place-based)	This principle is taken into account in the design of the course "Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management Contexts".	Module 3 of the Monitor Capacity Development course (Listening and Speaking) and the new online course "Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management Contexts" are under development and specifically incorporate this principle.
			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[2]. Ensure timeous, effective inter-flow between science and action ("praxis"). Use the PMERL[3] 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); Meta-Reflection Workshop (Mar 2020). Quarterly reflection reports and workshops started in 2020/21 financial year to allow for more regular reflection and adaptation. Annual Research Colloquium established. Four events successfully completed (Oct 2016, Dec 2017, Nov 2018, Oct2019). CoP coordinators' meetings now held monthly to promote better integration and awareness of what other CoPs are doing and planning.	First quarterly reflection report and event ("Reflect and Reconnect") completed. This workshop included a wider group of stakeholders than previous reflection meetings. This report is the second quarterly reflection report. More feedback from the catchment included into the TP's data-gathering and synthesis processes (LIMA reflection reports, meeting minutes). Collaboration and reflexivity promoted by enhanced restoration planning process. Collaboration between CoPs on various publications (**see Table 2**). Closer working relationship and synchronisation between LIMA and TP. Reflexive orientation seen in the LIMA Senior Social Facilitator's increasingly detailed

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[2] 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."

[3] Participatory monitoring, evaluation, reflection and learning (See NLEIP booklet).

			Margaret assumed the role of looking out for the wellbeing of the TP team during the COVID-19 lockdown, encouraging people and maintaining a sense of what is happening and a sense of being a team. Projects adapted in responses to COVID-19 disruptions.	reflection reports, capturing important reflections that were not being captured before last quarter. The Catchment Coordinator and LIMA have started regular meetings with DEFF Operations, GIB and Take Note for improved planning and communication. Efforts to secure alternative funding to allow for continuity (adaptive). Project Coordinator's ongoing meetings with Mike Powell and Dr Harry Biggs offer guidance, support and helpful insights on how the TP can position itself for various funding and tender calls. Ongoing project responses to COVID-19 disruptions, particularly the efforts to help monitors to be included in online activities. CoP Coordinators' meetings continue to be held on a monthly basis.
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[4] as a central capacity-building mechanism in and beyond the Tsitsa Project, emphasising co-operation through iterative co-construction[5].	1.4.1 Establish a Steering committee to guide the project implementation	Wisdom Trust is functioning well and has had 3 meetings (Jun 2018, 2019, Jan 2020). "A, B and C Teams" are operational and functioning well. CoP Coordinators Meetings started out quarterly, now monthly since the start of 2020. Margaret meets regularly with LIMA (Chris) and DEFF (Sarah).	No further progress.
		1.4.2 Establish a technical Integrated Planning Team	Integrated Planning Team is operational and gaining traction.	Core group of members from CoPs established and several meetings held.

[4] 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."

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

			Enhanced Integrated Plan 2-day workshop (May 2020).	Finalisation of enhanced nodal plans for 3 nodes, for the next round of bidding by implementers.
		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 workshops initiated.	First quarterly reflection workshop held on 26 Aug 2020 ("Reflect and Reconnect").
		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 Paul Mvulane).	Wandile Paul Mvulane has created a Tsitsa Project website, email address, and a bulk email list which contains email addresses of all Tsitsa Project Stakeholders. The email list and the website are the main platforms for news and information sharing. The Tsitsa Project published and distributed its 3rd newsletter this quarter.
		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. Monitor Capacity Development Course developed and running (2 of the 4 planned modules completed, planning underway for Module 3). Training of Trainers Course: "Social Learning Facilitation - Introduction to Environmental Learning" developed and submitted for accreditation. Adapted for distance learning due to COVID-19 contact restrictions.	Module 3 "Listening and Speaking training: Participating and Influencing Polycentric Governance Processes" planned for 16-17 Sep 2020 (part online and part face-to-face in Maclear). Training of Trainers course was accredited and received over 100 applications. COVID-19 training and training in online working tools provided to monitors by LIMA.
		1.4.6 Purposefully encourage and record/document processes of transformation and expansive learning within and beyond the TP	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(7): 224.	KL CoP is keeping track of learning and progress taking place through the Enhanced Integrated Planning process. Publication on the skills needed for a new approach to monitoring and evaluation: Rosenberg, E. and Kotschy, K. (2020).

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			A publication being developed by Matthew Weaver, Jessica Cockburn, Nosi Mtati and Prof. Tally Palmer documents two stories of transformation in the TP ("Transformative processes in a WEF nexus landscape: a case study of two vignettes from the Tsitsa Project").	Monitoring and evaluation in a changing world: A southern African perspective on the skills needed for a new approach. *African Evaluation Journal* 8(1), a472.
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.	Most of the models have been completed except for those that speak to climate change and livelihoods.
		1.5.2 Ensure that the project keeps track of progress towards polycentric governance	Priority sites for restoration were determined by local residents. CLOs appointed in Sep 2019 to monitor citizen participation, voice, inclusion and decision-making in governance processes. Governance CoP together with LIMA and the Catchment Coordinator report on CLOs' activities. Reflections on CLOs' progress towards becoming "participatory governance agents" were included in the Q1 reflection report.	The Grass and Fire CoP together with LIMA is working with communities to build more effective local institutions around grazing management (grazing associations and agreements), although this was slowed due to COVID-19. Eco-rangers' role starting to be developed - will be important for implementing grazing agreements and also for monitoring of restoration interventions.
1.6 Towards equitable participation.	1.6 Against a backdrop of low inter-group[6] 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	1.6.1 Emphasis will be given to obstacles and trade-offs to realising this, especially so-called elite capture[7]	Science-Management Forum successfully operational since 2015. Governance CoP has undertaken capacity development towards this end by addressing epistemic injustice through a series of learning words workshop that	Significant effort was made this quarter to support the catchment-based monitors to participate in online meetings (the "new normal" due to COVID-19), through provision of phones, software, data, training and individual support.

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[6] "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.

[7] 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".

	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.		build capacity for collaborative governance on communal lands. The report "Learning Words Together Towards Participatory Land and Water Governance" contains relevant reflections and outcomes.	Monitors' experiences of the lockdown were highlighted in the "COVID diaries" video, which was screened at the Reflect and Reconnect meeting. The Q1 reflection report visual summary was translated into isiXhosa, and all content of the reflection event was also translated. Language is often a barrier to equitable participation.
		1.6.5 Build capacity among local residents to engage in decision-making processes	Monitor training 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.	Listening and Speaking training is intended to equip participants with skills that will enhance their ability to run and participate in meetings. Similarly for Training of Trainers online course.
		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 (latter not yet fully operational). Established interaction on a learning network between monitors and other TP members (WhatsApp group) operational since Nov 2019. This was used successfully for communication and sharing of information related to COVID-19 and associated disruptions. Feedback of project-level results and outcomes to monitors not yet established.	Monitors were included in the "Reflect and Reconnect" event in August and translation into isiXhosa was provided.
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	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).	Discussions started on addition of climate change indicators.

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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.		Adela Itzkin (Phd candicate) provided feedback on her work on the TP "observation system" in May 2020.

A large amount of baseline data already collected through research and monitoring. Further baseline data summarised in the Q1 reflection report. | |
| | 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 and ongoing in the quarterly reflection reports.

Various publications and presentations under development. COVID-19 lockdown enabled some researchers to focus more on writing and on synthesizing the evidence base. | Return to work and renewal of contracts of all catchment-based monitors.

Biophysical monitoring data collection.

Ongoing synthesis of knowledge and evidence in this report and future quarterly reflection reports.

Four papers published and 8 in progress. |
| | 1.7.3 Establish a functional knowledge management system | Wandile Mvulane appointed (Apr 2020).

Functional KM system established, including an updated 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). | Website and bulk email list developed, and in use for TP communication.

TP Google Drive in use by TP team and CoPs. |

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 we are at	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. Research underway on "Vegetation and soil recovery over time following clearing of the invasive Australian Acacias in Eastern Cape" (Putuma Balintulo, MSc).	Publication: le Roux, J. and van der Waal, B. (2020). Gully erosion susceptibility modelling to support avoided degradation planning. *South African Geographical Journal*: 1–15.
		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. Rainfall and hydrology database updated in Q1. Map of sediment stores and sinks such as wetlands (buffers, barriers, blankets). Some initial assessment on baselines and trends of indicators at monitoring sites (3 reports by the Biophysical Monitoring Group in RU Geography). Google Earth platform for the TP.	WRC proposal submitted on managing dam siltation. Ongoing PhD research by Laura Bannatyne.

			Degradation avoidance/ restoration/ rehabilitation decision tree. Research underway on the implications of uncertainty associated with suspended sediment monitoring and yield estimation for catchment management decision-making (Laura Bannatyne, PhD).	
		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 (Kate Rowntree). 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).	Climate change learning resources are being developed for the monitors.
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.	No progress reported.
		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).	No progress reported.
2.3a Prioritisation and design of practices.	2.3a. Integrate biophysical and social knowledge to identify priority areas for specific (e.g. replanting bare-soil areas) and more general (grazing management) interventions.	2.3a.1 Identify key areas/EI that are functional, but vulnerable to degradation. This will be done from a technocentric (e.g. GIS, remote sensing, modelling, etc.) and local knowledge	Workshops to map water and fuel sources, issues with storm water, 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).	3x Enhanced Nodal Restoration Plans produced for Lower Sinxaku, Upper Sinxaku and Sigoga and submitted to DEFF.

		(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.	Headman level mapping in 2017 and village level mapping in 2019. Mapping of headman boundaries in Q1. 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 process underway.	
		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).	No progress reported.
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 the present-day degradation. Examples of present-day practices could be frequent burning around plantations and continuous grazing.	Longer term GIS analysis of NDVI and primary productivity was done for a range of sites by Biotrack (T35 A, D and E). Biophysical monitoring sites established in grasslands (T35 A, D and E). TP roadshow showcased different soil-vegetation -runoff interactions (T35 A, E). LIMA and Grass and Fire CoP are working on establishing grazing associations and conservation agreements among communities. 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.	Enhanced integrated restoration planning process. Eco-rangers involved in establishment of firebreaks. LIMA did rangeland mapping in Upper Sinxaku. Ongoing MSc research by Megan McCarthy.

			Gareth Snyman (MSc completed): An investigation into the fire regimes of the upper Tsitsa River catchment. Research underway on "A system dynamics approach to the management of Invasive Alien Plant Species in the Tsitsa River catchment area, South Africa" (Megan McCarthy, MSc).	
		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 SDFs 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 has not always been successful. Mike Coleman involved in Spatial Planning tribunal for Elundini LM? The project has engaged with IDP processes to a limited extent.	No progress reported.
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 reflected upon in an adaptive PMERL driven framework.	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) and Huchzermeyer et al. (2020), which also includes protocols for monitoring the biophysical indicators (in collaboration with PMERL team).	No progress reported.
		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.	Resumption of biophysical monitoring by RU Geography team and catchment-based monitors. All rain gauges and level loggers were serviced and data downloaded, and water quality and SASS assessments were conducted at the established river monitoring sites in Catchment T35 A-E. Resumption of laboratory analysis of water samples collected by Citizen Technicians.

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).	Some information in Green Village WRC Report. Review of StatsSA 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 (Huchzermeyer et al., 2020).	No progress reported.
		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, including a livelihoods survey.	No progress reported.
		3.1.3 Resource base or sustainable livelihood assets/capital: human, physical, social, financial and natural.	Some small sample surveys with green-preneurs.	Forestry assessment at Tsitsana by LIMA to scope out wattle timber availability and accessibility for charcoal production business.

				Positive response from the headman to this initiative.
		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 completed. CLOs have been appointed and have enhanced communication in the catchment.	No progress reported.
		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.	No progress reported.
		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.	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).	No progress reported.
		3.2.2 Aspirations, attitudes and practices towards land, livelihoods and farming.	No progress	No progress reported.
		3.2.3 Resource opportunities for green economy and entrepreneurship expansion and innovation.	Vetiver project as pilot. Further evaluation suggested for 2020/2021.	Discussions initiated around a charcoal production business opportunity with Avocado Vision and LIMA. Avocado Vision works in the Matatiele area with Chris and other teams in the area and there seem to be opportunities to work together in future and explore other green business value chain linked livelihoods. Through Dr Ayanda Sigwela we are involved with the implementation of a Small-Scale Funding Agreement with the United Nations Environment Program (UNEP).

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		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.	No progress reported.
		3.2.5 Instrumental and intrinsic value of ecosystem services.	Qualitative intrinsic value to local residents for sediment only, to some degree. Research underway on citizen understanding and values ascribed to ecological infrastructure (Anele Ntshangase, MSc).	Ongoing MSc research by Anele Ntshangase.
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 investigating conservation agriculture and other climate change adaptations.	No progress reported.
		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.	No progress reported.
		3.3.3 Influence of micro-level plans on higher level strategies and plans and vice versa.	No assessment done.	No progress reported.
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. Five citizen monitors appointed and overseeing the progress of 36 green-preneurs micro-nurseries with the focus on growing vetiver grass to supply the DEFF NRM implementing agencies undertaking restoration and rehabilitation work in the Tsitsa catchment. The green-prenuers registered their business under the trading name "Mchatha Primary Co-operative Limited".	Monitoring of vetiver grass survival during the lockdown period and re-engagement with participating households. The SMME and other members have shown interest and motivation in continuing with the initiative. Plans have been made to provide support to the green-preneurs to improve and expand their supply in view of next year's implementation of the integrated nodal plans.
		3.4.2 Identify, adapt and develop appropriate learning knowledge and resources relevant to and aimed at	Training for the monitors to equip them with broad research and monitoring skills relevant to the TP.	No progress reported.

		different catchment stakeholders and beneficiaries.	Anele Ntshangase (MSc) produced a thorough review of TP outputs related to EI and the relationship between TP communities and EI.	
3.5 Monitoring and Evaluation (of well-being and capability).	3.5 Monitor and evaluate livelihoods, green economy and well-being capability expansion including agency and outcomes.		Social indicators derived collaboratively with communities by Hanli Human (MEd). A Women's Capability Index has been completed. Plan to use CLOs and surveys to collect data. All catchment-based monitoring put on hold due to COVID-19.	Return to work of all catchment-based monitors. Monitoring of vetiver grass survival during the lockdown period and re-engagement with participating households.

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.	No progress reported.
		4.1.2 Identify key gaps and contradictions and work towards pragmatic solutions (also using Institutional Analysis and Design (Ostrom, 2011).	T35 A-E and T35 F-M stakeholder analysis complete but not sufficiently nuanced enough and lacking the political ecology aspect.	No progress reported.
		4.1.3 Meaningfully influence and contribute to developing appropriate overall governance strategy, including the important facet of overlap	Governance Plan developed and updated in Q1. Governance CoP made headway in engaging communities to overcome	Ongoing MSc research by Ant Fry.

		between water governance and land governance at different scales	epistemic injustices that hinder the development of a land and water forum. Research in progress on "Leverage Points for Improved Participation in Rural Land and Water Governance" (Ant Fry, MSc). Enhanced Restoration Plans integrate land and water governance to some extent.	
		4.1.4 Map out players and roles and non-participators who could be likely players	Complete – but needs catchment embedded staff.	No progress reported.
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 in 2019.	No further progress required.
		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. CLO reflections showed that CLOs have made progress towards being participatory governance agents in the catchment, even though there are shortcomings with regards to resources.	No progress reported.
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 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	4.3.1 Improve or create a mature praxis culture in the scientific and management components focusing on core B team.	LIMA joined the CoP coordinators' meetings and this has allowed better communication and feedback between the organisations. Confusion over the Senior Social Facilitator's role has been resolved. Margaret Wolff (TP), Sarah Polonsky (DEFF) and Chris Jackson (LIMA) have been meeting monthly to discuss what is happening in the project.	Tsitsa and UCP application (Maclear area) "EFTEON Umzimvubu Node" has been shortlisted. Nick Huchzermeyer attended the online Nature-based Solutions (NbS) digital dialogues. NbS principals are reflected in what the Tsitsa Project is trying to achieve, and there is definitely scope for the Tsitsa Project to look for funding in this avenue. It also follows very closely to the Decade of Restoration and the principles of the Society of Ecological Restoration (SER).

	needs to be sensibly constrained.		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 reported in Q1 (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.	Meeting this quarter attended by the Catchment Coordinator.
		4.3.3 Develop a philosophy and criteria for managing this reach and scope appropriately.	No progress.	No progress reported.
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.	No progress reported.
		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.	Joint ethics application approved by RU.

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[8] 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.

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.	?	No progress reported.
		5.1.2 Capacity development.	Matthew Weaver appointed as Capacity Development Coordinator in 2019. Capacity Development Plan v1 co-developed (Oct 2019). Community Engagement Plan updated Q1.	No specific capacity development on developing agency and collective action but this is built into the design of the monitor short course and the Training of Trainers course.
		5.1.3 Motivation for this: how to deepen interest.	Governance CoP Capabilities Pathway and supporting writings.	No progress reported.
		5.1.4 What is agency?	See under Objective 1 – Towards equitable participation. Completed: Hanli Human's Masters thesis including agency into the social indicators. Research underway on capacity development for agency (Matheboho Ralekhetla, PhD).	Ongoing PhD research by Mateboho Ralekhetla.
		5.1.5 What is collective action?	No progress.	No progress reported.
		5.1.6 How would we best select entry points and best use our time and energy?	No progress.	Research in progress on "Leverage Points for Improved Participation in Rural Land and Water Governance" (Ant Fry, MSc).

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

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		5.1.7 Equity Warning Light.	Laura CA has done a Gender study and developed a survey. Womens' Capability Index completed. PMERL indicators include measures of equity. No progress with commissioning a set of case studies.	No progress reported.
5.2 Prototype (pilot) projects that exemplify this goal.	5.2 To engage in a selected set of projects[9] 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 and 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.	Some 36 green-preneur micro-nurseries are growing vetiver grass to supply the DEFF NRM implementing agencies and a SMME has been registered.	Monitoring of vetiver grass survival during the lockdown period and re-engagement with participating households.
		5.2.2 Test the feasibility of grass plugs using indigenous grass spp (Masters project).	?	No progress reported.
		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.	No progress reported.
		5.2.4 Expansive systematic learning across multi-level government actors especially DWS, DEA, DRDAR, ECSECC.	Some learning takes place through the A and B teams.	No progress reported.
		5.2.5 Project awareness and advocacy.	Brochure - complete. Draft Communication and Advocacy Plan developed (May 2019), updated Mar 2020.	Project was showcased at a WRC webinar on green businesses for empowerment of rural women. As a result of the webinar, a Johannesburg-based freelance producer and video journalist for DW German Television, the

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

| | | 5.2.6 Catchment-wide awareness: Radio, brochures, school competitions. | School logo competition complete, logo being used by project. | Climate change learning resources are being developed to build climate change literacy.

TP newsletter 3 (Sep 2020).

All Tsitsa Project news and events are posted on the website and/or communicated via email. To reach stakeholders in the catchment they are shared via the Catchment Coordinator and LIMA. |
| | | 5.2.7 CLO capacity development and tools, including monitoring. | Two modules of monitor short course completed (Nov 2019 and Feb 2020). | Module 3 under development. |

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	Progress this quarter
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.	Wandile Mvulane appointed (Apr 2020) to help with knowledge management. Mini-models developed so far are to go on the website.	Website now hosted with RU. It is currently fully operational and live and is updated regularly. Google sites content has been migrated across. TP Google Drive set up and in use by CoPs.

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	management and implementation.		Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (Apr 2020). Data products, booklet and decision tree produced by the SedRest CoP are all helpful for knowledge flow, communication and advocacy. TP raw datasets still need further organisation. Dylan Weyers' Google Drive still a good starting point. INR Knowledge portal still operational. A system was also set up by Kyra Lunderstedt.	
		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.	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.	No further progress reported.
		6.1.3 Allow interactive spatial data display on an online GIS platform that will support decision making by stakeholders.	Google Earth Platform for the Tsitsa Project, including database, videos and easy-to use guideline manuals (Apr 2020).	No progress reported.
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.	?	No progress reported.
		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 support them? What limits them? To what extent can Tsitsa staff be expected to expand	Draft communication and advocacy plan developed (May 2019) and updated (Mar 2020). Updated Branding and Communication Strategy.	No progress reported.

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		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.	No progress reported.
6.3 Lobbying/Advocacy.		6.3.1 Develop key Tsitsa Project Principles	Cockburn (2018) paper summarises the core principles. Quarterly reflection reports include a reflection of progress against these principles. Margaret Wolff plays an important communication and advocacy role, through the relationships she has built and is building with other organisations and people.	Sarah Polonsky (DEFF contract manager) acts as a catalyst by sharing information that might be useful for TP to source funding or create networks.

Biophysical monitoring equipment in the catchment includes self-logging rain gauges at 11 sites and river flow loggers at 9 sites. Most sites are now approaching 5 years of data for both rainfall and discharge. Both the rainfall and flow databases are available in Excel format.

The rainfall database contains the following rainfall data:

- Summary of each hydrological year (Figure 1)
- Monthly rainfall data
- Daily rainfall data
- 30 minute rainfall data
- 5 minute rainfall data
- Details on rainfall intensity
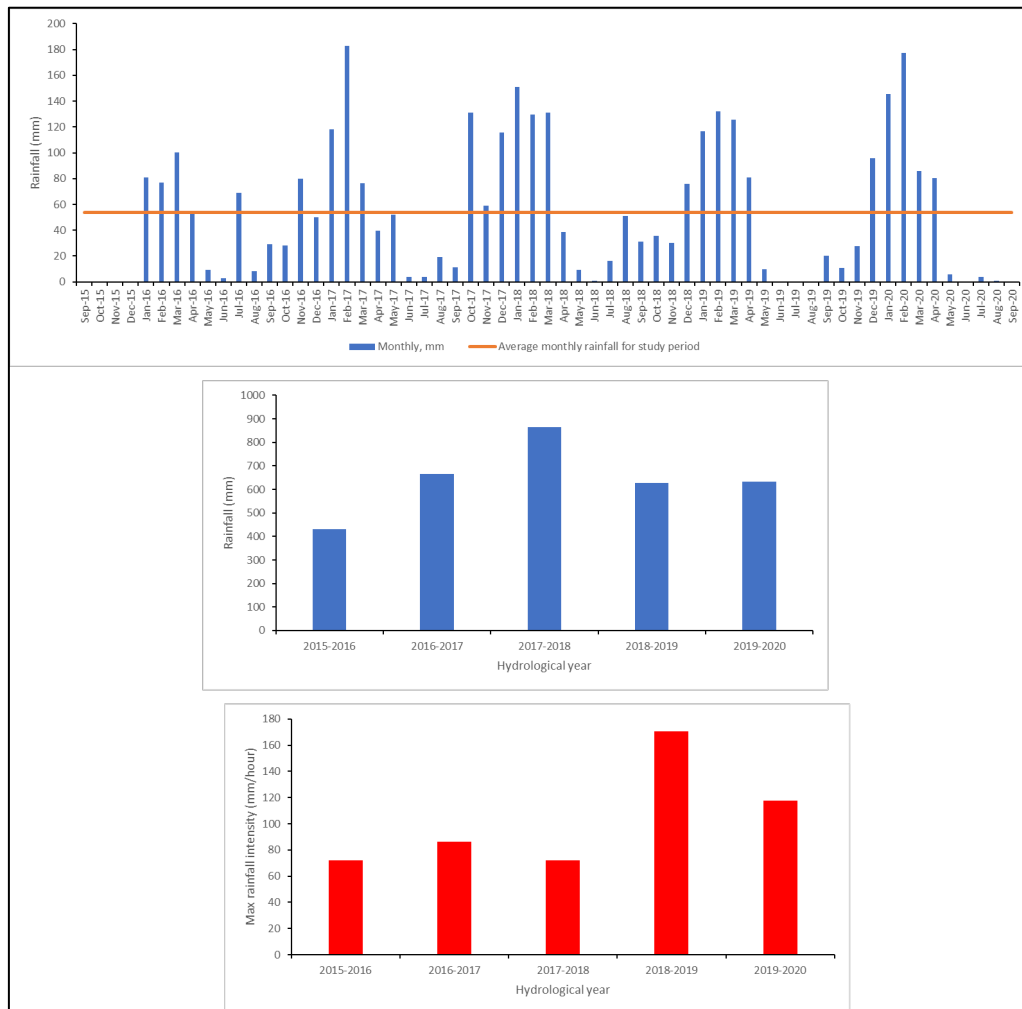- Raw data files

Figure 8: Example of graphs from the rainfall database showing details for monthly rainfall, total rainfall and rainfall intensity per hydrological year, for the study period at one monitoring site.

TP Quarterly Reflection Report Q2 2020

The flow discharge database contains the following details:

- Surveyed cross-section at each logger
- Water surface slope
- Roughness calculations
- Measured depths to logger
- Level logger depths
- Measured discharges and depth to logger for rating curves
- Details on the HEC-RAS hydrological modelling
- Rating curves
- 20 minute discharge time series (Figure 2)
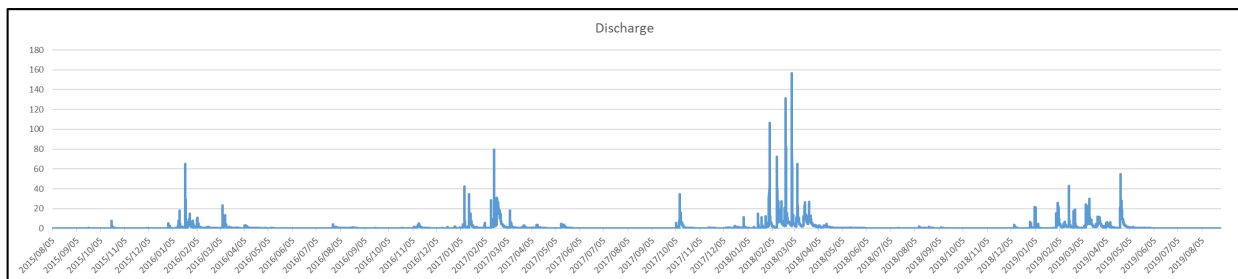- Raw data from loggers

Figure 9: Example of a graph from the discharge database showing discharge at 20 minute intervals

This is the second year of conducting biomonitoring in all the rivers in T35 A-E. This entails measuring basic water quality variables and conducting SASSv5 macroinvertebrate assessments. Some sites have more than 2 years of data.

The biophysical monitoring data is also available in Excel format. For river monitoring there are details on basic water quality results, SASSv5 results and ecological condition.