

# Meta-Reflection Report 2019-2020 (Final)



**TSITSA**  
PROJECT

A product of  
**Participatory Monitoring, Evaluation,  
Reflection and Learning (PMERL)**

Implemented by the  
**Knowledge & Learning Community of  
Practice (KL CoP) of the Tsitsa Project**



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## DISCLAIMER

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Cover photograph by Nosiseko Mtati. Taken during a learning exchange with the Umzimvubu Catchment Partnership near Matatiele (Upper Umzimvubu Catchment).

We thank Nosiseko Mtati and various other members of the TP CoPs for the photographs in this report.

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## EXECUTIVE SUMMARY AND VISUAL OVERVIEW

This is the second Tsitsa Project Meta-Reflection Report produced by the Participatory Monitoring, Evaluation, Reflection and Learning (PMERL) team in the Knowledge and Learning Community of Practice (KL CoP) at Rhodes University. The Meta-Reflection Report partly plays the role of an annual report for the Tsitsa Project (TP), with an emphasis less on numbers of outputs (which are captured in quarterly reports) and more on surfacing emerging learnings across programme elements, and highlighting pointers for forward strategic planning.

In this report, we begin by outlining the purpose of PMERL, and then explain the methodology used to develop the Meta-Reflection Report. This is based on a year’s worth of reflection and monitoring work facilitation by the PMERL team, and an analysis of project reports and research produced within the TP (currently focused on work based at Rhodes University). We begin the reflection and evaluation findings with an overview of events and activities hosted by the TP, followed by reflections on outcomes and processes in three domains: knowledge, organisational, and social-ecological. Key **knowledge outcomes** this year on biophysical aspects have been the development of important baselines for biophysical monitoring, a better understanding of vegetation cover and fire dynamics, and a growing understanding of sediment processes. Knowledge generated on the social aspects includes a better understanding of catchment residents’ needs, interests, motivations and knowledge related to natural resource management and potential opportunities within the Tsitsa Project. Some of the most significant **outcomes of the project have been identified in the organisational domain**. The Tsitsa Project has seen significant expansion of its organisational and social network, both within the catchment itself, and with a wider range of stakeholders such as those working in similar catchment initiatives and with academics. Monitoring to track **social-ecological outcomes** is still very much in the infant stage in the Tsitsa Project and so it is challenging to report on these. Systems thinking will be important in specifying more detailed pathways of change towards the desired outcomes. There is wide recognition that we need to dovetail with the monitoring, evaluation and reporting systems of DEFF in order to get a better understanding of the social, ecological and social-ecological outcomes of the on-the-ground implementation work they are doing.

We then go on to reflect on the **key challenges** of implementing the project which relate to: local politics and tensions; difficulties of working collaboratively; challenges in recruiting suitably skilled human resources onto the Tsitsa Project; communication, knowledge management and mediation; and insufficient diversity of input in reflection and learning engagements. We then reflect on the Tsitsa Project principles, on plans for the way forward with PMERL and the meta-reflection process, and conclude the report with a set of **key lessons learnt, and recommendations for the way forward** (see visual summaries of these on the next three pages). We offer a tool (Table 9) to support an adaptive planning process (APP) as part of Strategic Adaptive management (SAM) to take these recommendations forward. In this tool, we outline possible **implications of the findings of the report (So what?), adaptations and actions (Now what?), and recommend responsible individuals and groups (Who?) to take forward the lessons and recommendations**.



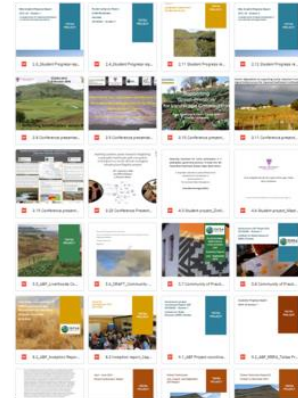
**Lesson 1:  
The Meta-Reflection Report and process operates as a 'Learning-oriented Annual Report'.**

The meta-reflection report and accompanying process plays the role of an annual report for the Tsitsa Project (TP) with an emphasis less on numbers of outputs (which are captured in quarterly reports); and more on surfacing emerging learnings across programme elements, and highlighting pointers for forward planning. It should be used to support Strategic Adaptive Management (SAM) in the project.



**Lesson 2:  
We are generating large amounts of knowledge that requires management, mediation and communication.**

It is time-consuming to collate and manage all the available material. It was however pleasing that there was a significant body of information available for analysis in the meta-reflection process, including field reports, research reports and 'well-being tea' reflections produced by Rhodes students, staff and the PMERL team itself. Nonetheless, knowledge management and communication remains a key function which is under-resourced in the TP.



**Lesson 3:  
Our greater presence in the catchment is significantly expanding the collective TP identity.**

The past year saw the TP extending its engagements in the catchment, beyond research and introductory work. Key activities which have supported this include: the appointment of a full-time Catchment Coordinator, catchment based facilitators (LIMA), CLOs and monitors from among the residents; the hosting of workshops to build general understanding of the TP's work, and more specific training of monitors; and the expanding praxis-oriented work on livelihoods, integrated planning, governance, and capacity development work.



**Lesson 4:  
We are learning to do "PRAXIS" together, i.e. we are conducting action-oriented, engaged research that involves a range of partners.**

We are making strides in diverse aspects of PRAXIS, including, amongst other activities of citizens, practitioners and scientists working together: with citizen engaged science, the uptake of integrated management and planning, research into the benefits of environmental monitors, a conference presentation by a catchment resident, a participatory process of indicator development, and the provincial DEFF asking the TP to give guidance on PMERL to its staff, livelihoods and enterprise development, climate change workshops and engagements, and engaged research on women's capabilities.



Sources: Icons from <http://handdrawngoods.com>. Photographs by Nosiseko Mtati and members of various CoPs.



**Lesson 5:  
Slow and careful  
relationship  
building is vital.**

The above learning and outcomes have all been made possible by a lengthy preparatory period involving slow and careful relationship building, as well as the appointment of a full-time Catchment Coordinator and Project Coordinator. Evidence for this includes growing trust in the Catchment Coordinator: e.g. local residents are approaching the CC to help with communication with implementers/DEFF, and to get NRM implementation going in their areas.



**Lesson 6:  
The Tsitsa  
Project's profile  
is growing.**

The TP has gained a considerable profile nationally and even internationally, and these events have had multiple positive impacts on the project e.g. building collective identity, encouraging youth leadership, etc. It remains an exhilarating challenge to give practical expression to the ambitious ideas the TP aims to implement.



**Lesson 7:  
Youth leadership  
is growing in the  
TP.**

A large number of young women and men have joined the TP as staff, Masters and PhD students, Post-Docs, and community researchers in the catchment, and they are stepping into leadership positions in the project.

The TP is seeing an important growth in youth leadership in the catchment through community researchers including CLOs, citizen monitors, etc.



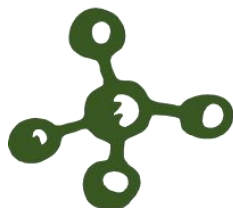
**Lesson 8:  
We need to work  
above and  
beyond  
deliverables,  
while managing  
operations,  
budgets and  
planning ahead  
collectively.**

It remains a challenge to operationally conceive of the TP as one programme and to work programmatically, when the budget is sliced up according to deliverables.

The TP needs to find a way to work above and beyond deliverables in order to optimise the value of such a big undertaking.

The support of Rhodes University in providing a financial buffer and easing the deliverable burden/pressure is significant and needs to be acknowledged – it is unusual for a university to do this.

Sources: Icons from <http://handdrawngoods.com>. Photographs by Nosiseko Mtati and members of various CoPs.



**Recommendation 1:**  
*Improve organizational collaboration and stakeholder engagement across various entities in the project including within and across CoPs, with partners in the catchment and beyond, and with other universities.*



**Recommendation 2:**  
*Improve integration of work of the RU TP team and LIMA with DEFF, implementers, traditional authorities and catchment residents through integrated planning and participatory monitoring.*



**Recommendation 3:**  
*Conduct synthesis of research outputs, data and other forms of knowledge and information. This should be geared towards a 'HOW-TO' for the Tsitsa Project as an enhancement of the integrated restorations plan for the nodes.*



**Recommendation 4:**  
*Continue building the collaborative, praxis-oriented work to explore livelihood options and climate change adaptation.*



**Recommendation 5:**  
*Further operationalise PMERL, with a particular focus on developing a monitoring system and building capacity.*

= 'Integration Challenge 1': Integration and collaboration across the wide range of entities, organisations and stakeholders involved in the TP. The key challenges is expanding more actively beyond the RU TP group, and involving a wider range of TP partners in the catchment and in other universities in activities like Meta-Reflection, etc.

Integration and collaboration across the entities is about relationality and a sense of belonging and we need to pay attention to this in our practices e.g. branding and t-shirts for stakeholders, reports that show more connectedness across CoPs, etc. As one M-R workshop participant commented: "Real integration takes time, lots of time and budget and trust".

= 'Integration Challenge 2':

Integration of work and activities of catchment-based partners.

The key challenges is expanding more actively beyond the RU TP group, and involving a wider range of TP partners in the catchment and in other universities in activities like Meta-Reflection, etc.

= 'Integration Challenge 3': Integration and synthesis of knowledge across various forms of data and research outputs. The time is ripe to conduct a review of the findings of the various studies (past and present) and monitoring initiatives that are already underway, and look for patterns within and across domains, so as to inform further monitoring, research choices and where appropriate, recommendations to the restoration teams. i.e. we need to build on and draw on our existing knowledge. Such a study should also include a 'HOW-TO'/Toolbox based on careful reflections on the learning within the project, and identify the lessons learnt from some of the more challenging relational and process-related aspects of the projects related to collaboration, integration, and adaptive management as these are unfolding within current institutional constraints.

The collaborative, praxis-oriented work on exploring and experimenting with livelihood options is a key success of the project and should be supported going forward. The advice of the Wisdom Trust to identify a wider range of development options for the catchment and facilitate access to those, even if through partnering with new partners, should be taken up. Together with this, a more thorough understanding of the multiple ways in which the landscape, livestock and natural resources are valued by catchment residents as livelihood assets is needed.

Putting in place long-term monitoring system that helps us to track social, ecological and social-ecological change and impacts in the landscape needs to be prioritised. This needs to be modelled as far as possible on the citizen-based monitoring activities already emerging in the project in order to not only share the benefits of the project, but to empower citizens to become 'community researchers' and engage with the landscape. This system should help to link existing PMERL work more directly with the 'people on the ground' and the wider TP stakeholder network, i.e. beyond the RU TP group.



Sources: Icons from <http://handdrawngoods.com>. Photographs by Nosiseko Mtati and members of various CoPs.

## LIST OF ACRONYMS

AWARD	Association for Water and Rural Development
BTO	Back-to-office Report
CapDev	Capacity Development
CCA	Climate Change Adaptation
CLO	Community Liaison Officer
CM	Citizen Monitor
CT	Citizen Technician
CoP	Community of Practice
DEFF	Department of Environment, Forestry and Fisheries
DEFF-NRM	Department of Environment, Forestry and Fisheries - Natural Resource Management
DRDAR	Department of Rural Development and Agrarian Reform (Eastern Cape)
DRR	Disaster Risk Reduction
DUCT	Duzi Umngeni Conservation Trust
DWS	Department of Water and Sanitation
EPWP	Expanded Public Works Programme
FHU	Fort Hare University
GEF	Global Environment Facility
Gov CoP	Polycentric Governance and Community Engagement Community of Practice
KL CoP	Knowledge and Learning Community of Practice
KMM	Knowledge Mediation and Management
M-R	Meta-Reflection
M&E	Monitoring and Evaluation
PMERL	Participatory Monitoring, Evaluation, Reflection and Learning
RIS	Research Investment Strategy
RU	Rhodes University
S&R CoP	Sediment and Restoration Community of Practice
SAAG	Southern African Association of Geomorphologists
SANBI	South African National Biodiversity Institute
SER	Society for Ecological Restoration
SES	Social-Ecological System
SMME	Small, Medium or Micro Enterprise
SPLUMA	Spatial Planning and Land Use Management Act
ToC	Theory of Change
TP	Tsitsa Project
UCPP	Umzimvubu Catchment Partnership Programme
UEIP	uMngeni Ecological Infrastructure Partnership
UFS	University of the Free State



## 1. INTRODUCTION

The Tsitsa Project (TP) is a multi-stakeholder initiative centred on a partnership between the Department of Environment, Fisheries and Forestry (DEFF), Rhodes University (RU), LIMA Rural Development Foundation (LIMA), Fort Hare University (FHU) and University of the Free State (UFS). The universities of Stellenbosh and Wits are nominally involved with student representatives but do not have full partner status. While these three organisations are the core partners in the TP, the project works with a wide range of other stakeholders including local catchment residents, traditional authorities, implementers of restoration activities, municipalities, government departments, partner universities, and so on. The TP seeks to enable and support sustainable landscape management, sustainable livelihoods and the development of polycentric, participatory governance in the Tsitsa River catchment area, in the rural Eastern Cape of South Africa. The project is ambitious in scale and scope, and is intentionally seeking to “do things differently” in the way it approaches research, implementation and capacity building activities. A set of guiding principles has been developed to guide the project in its endeavours, and these make explicit the project’s commitment to working collaboratively, reflexively, adaptively, and in a way that supports learning and social change processes (Box 1, Box 2, Figure 1).

### 1.1. 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?*



**Figure 1: Efforts to rehabilitate degraded landscapes have been on-going in the Tsitsa River catchment for many years. The Tsitsa Project is developing a new approach to this old problem, based on principles of knowledge co-production, co-learning, strategic adaptive management, and an integrated understanding of social-ecological systems (Photo: Nosiseko Mtati).**

These are just some of the questions which the Participatory Monitoring, Reflection and Learning (PMERL) framework of the Tsitsa Project (TP) addresses. The TP’s PMERL framework is one of the core enablers of the project’s intention to ‘do things differently’, as it catalyses a qualitatively different way of planning, managing, and evaluating research and development initiatives (Botha et al., 2017). This report is a key process and outcome of the PMERL work in the TP, and is the second annual TP Meta-Reflection Report. Its primary purpose is to synthesise reflection, evaluation and lessons learnt in the TP for the 2019-2020 financial year, using this process to draw out recommendations for adaptive planning and management.

It therefore functions in some ways as the TP ‘annual report’. While it does not provide details on administrative and financial management, it does report and reflect on the objectives, activities and



events of the project. It offers an overview and synthesis of these to guide planning, decision-making, management and praxis in the TP going forward.

### **Box 1: Guiding concepts and Communities of Practice of the Tsitsa Project (Biggs et al., 2018, Cockburn et al., 2018a):**

#### **Vision:**

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.

#### **Principles:**

1. Social-ecological principles and resilience thinking
2. Transdisciplinarity
3. A collaborative, reflexive, and adaptive orientation
4. Expansive learning and capacity development
5. Polycentric governance
6. Towards equitable participation
7. Scientific-technical foundation and evidence base

#### **Objectives:**

1. Founding Principles
2. Ecological Infrastructure and Services - the biophysical
3. Livelihoods and well-being
4. Institutional actors and governance
5. Realising agency and collective action
6. Knowledge flow, communication and advocacy

#### **Communities of Practice (CoPs) – internal working groups of the Tsitsa Project:**

- Sediment and Restoration (S&R CoP)
- Livelihoods and Ecosystem Services (Livelihoods CoP)
- Grass and Fire (G&F CoP)
- Polycentric Governance and Community Engagement (Gov CoP)
- Climate Change (not yet integrated formally into a CoP, but a cross-cutting theme)
- Systems Praxis (Systems CoP)
- Knowledge and Learning (KL CoP)

The report offers an important 'Pause and Reflect' moment for participants in the TP, and helps to realise some of PMERL's key contributions to the TP (See Box 2).

The purpose and key contributions of PMERL within the TP articulated in Box 2 build on the foundations laid out in the PMERL Framework developed for the TP in 2017 (Botha et al. 2017, Rosenberg & Human 2018), which drew substantially on work done by the Association for Water and Rural Development (AWARD, 2017). This framework lays out the following key aspects of PMERL's work in the TP (for further detail on these refer to Rosenberg and Human, 2018 and Cockburn et al, 2019).

***i. A two-fold purpose for monitoring and evaluation: PMERL enables both accountability to project funders and participants, and reflection, learning and adaptation within the project.***

The ultimate goal is to use monitoring, evaluation, reflection and regular reporting to foster learning on different levels, ranging from the individual Project Coordinator, to the Tsitsa Project collective and the broader institutional levels of the Department of Environment, Forestry and Fisheries: Natural

Resources Management (DEFF-NRM) directorate which funds the TP and implements on-the-ground natural resource management activities in the catchment.

**ii. A participatory and collaborative orientation to learning and adaptation.**

As the TP involves a diversity of partners and participants who may have different values, worldviews and different forms of knowledge, PMERL aims to increasingly draw on knowledge across all these perspectives and synthesise learning. It foregrounds ongoing learning as an essential ingredient of PMERL, which seeks to bring together monitoring, evaluation and reflection and reporting to promote innovative practices, adaptive management and governance, as well as meaningful sharing of what has been learnt, within and beyond the TP.

**Box 2: Refining the purpose of PMERL in the Tsitsa Project**

Key ways in which the PMERL system supports the TP to work according to its principles:



**1. Support participatory, learning-oriented monitoring and evaluation:**

PMERL embeds and brings to life a culture of reflexivity, collaboration, and adaptive planning and management within the project (e.g. through participatory development of social indicators, consultative processes to develop theories of change, facilitated reflection events to give feedback and enable co-reflection).



**2. Enable systemic integration, feedbacks and collaboration for strategic adaptive management (SAM):**

The PMERL system is a central driver of adaptive feedbacks and processes within the TP as it creates flows of information and synthesises key recommendations which act as feedbacks into praxis (e.g. reflection and well-being teas/events; tweaking report structure to encourage reflection; Meta-Reflection report provides recommendations for “how to adapt our praxis”).



**3. Support and motivate participants:**

The intention of PMERL is to motivate participants, to make their work life easier, fun, and more meaningful; and to create an environment in which participants’ well-being is considered (e.g.: through reflection and well-being teas which enable reflection on organisational and personal challenges in a relaxed social setting through arts-based methods; and by ‘seeing and hearing’ participants through the Meta-Reflection process).



**4. Ensure knowledge integration, synthesis and transferability to others:**

PMERL helps to integrate knowledge and praxis more effectively across CoPs and partners within the TP, and helps the project to synthesise its key contributions, communicate these and support advocacy of the project’s approach to others (e.g. by synthesising outcomes across the project and providing feedback at reflection events).



**5. Ensure accountability and defensibility:**

Reporting and reflecting on the objectives and activities of the project in a systematic and thorough way, and interrogating outcomes critically, builds accountability into the project and allows the TP to have confidence in its findings and achievements (e.g. the Meta-Reflection Reports synthesise large volumes of documentation in a systematic way to build the evidence base for the TP’s work).

**iii. Practical and project management implications of the PMERL framework in terms of process and resources include the following aspects:**

- development of agreeable **indicators** for biophysical, institutional and social measures and regular monitoring against these indicators, using mostly quantitative and in some cases qualitative data.



- gathering of more **open-ended qualitative, including narrative, data** (much of this report relies on these forms of data)
- Conducting **case studies to provide in-depth insight** e.g. to explain observed trends in monitoring data or find solutions to emerging challenges (this aspect has not yet been operationalised, and needs careful planning to make it happen).
- Driving the monitoring, collection of narrative data and case studies through a **PMERL coordinator and team**
- **Making sense of, synthesising qualitative and quantitative data from diverse sources at project level and programme level**, and reviewing it for its strategic adaptive management significance.
- In the methodology section below we provide further details on how the PMERL team's activities have enabled the gathering of various forms of data to inform this report.

This report should be considered within the wider basket of documents which have been developed in the PMERL system since its implementation began in 2018, which includes the following documents:

- Participatory Monitoring, Evaluation, Reflection & Learning (PMERL) Framework (Botha et al. 2017) - updated in the next document listed
- 2018 PMERL Inception Document (Rosenberg and Human 2018)
- Tsitsa Project Learning Report 2018 (Cockburn et al. 2018a)
- 'Learning Paper' drawn from the Learning Report and published in the peer-reviewed journal Land (Cockburn et al. 2018b).
- 2018-2019 Meta-Reflection Report (Cockburn et al. 2019)
- 2019-2020 PMERL/KL Inception Report
- Series of PMERL Quarterly Reports produced in the 2018-201 and 2019-2020 financial year

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, through the Meta-Reflection Report, are offering a key support to the leadership in synthesising and making sense of the outputs and processes of the TP (See Box 2, point 3). Moreover, the synthesised lessons and recommendations from the Meta-Reflection Report is aimed at encouraging not just the leadership but the wider project participants to reflect on the impact of their work, inform their planning and decision-making, and hopefully bring about an appreciation of the meaningful nature of their work. In a large and ambitious project in which many people are going 'beyond the extra mile' to contribute, this kind of motivation is important. At the same time, reflections also need to point to areas that are challenging or problematic, and need further attention or even a sharp change of direction. PMERL therefore also serves a critical purpose in building accountability and defensibility into the project by supporting rigorous and systematic analysis of evidence in the project (Box 2, point 5).

## 1.2. Situating the report within the Tsitsa Project Vision, Principles and Objectives

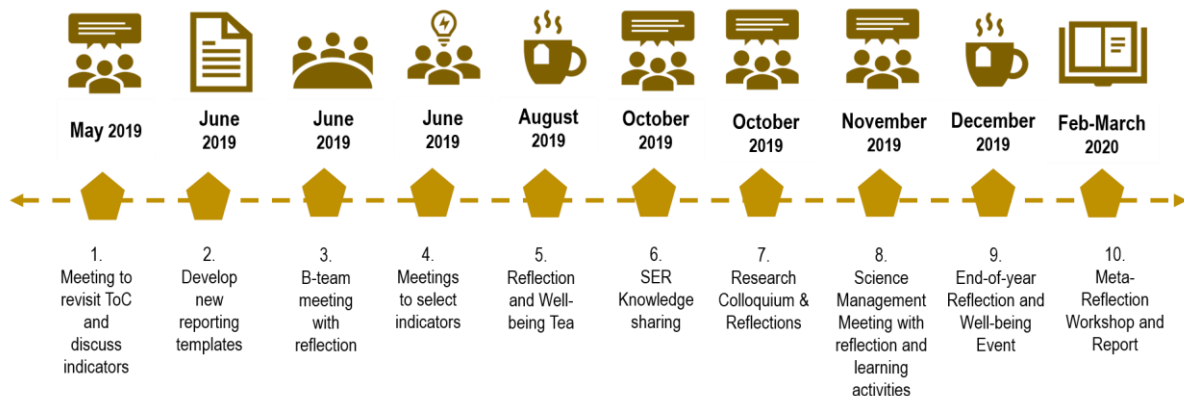
The Tsitsa Project has placed emphasis on articulating a *proto-vision* (to be revised with participants), *foundational guiding principles* for the project, and an *objectives hierarchy* (or tree) through a process of adaptive planning according to the strategic adaptive management (SAM, Kingsford et al. 2011, Fabricius et al., 2016) approach (Box 1).

These are articulated in detail in “*The Tsitsa Project Research & Praxis Strategy: Resource Library (Version 2) Informing Plans for 2018-2021*” (Biggs et al. 2018). These three sets of guiding concepts (summarised in Box 1) provide the overall framework within which the PMERL work of the project is situated. PMERL is seen as a key mechanism to guide its work towards the *vision*; the principles offer guidance on how the work of PMERL should be implemented; and the *objectives* provide direction for the sorts of outcomes and impacts we are seeking to achieve. The work of the TP is operationalised through six Communities of Practice (similar to ‘working groups’), which aim to bring together stakeholders under key areas of interest and practice across the breadth of the project (Box 1). These CoPs are seen as the ‘internal governance structure’ of the TP.

## 2. METHODOLOGY

### 2.1. PMERL activities in 2019-2020: Data collection

This report is a culmination of on-going PMERL activities in the 2019-2020 financial year (April 2019 to January 2020), which provided data and information for the report (Figure 2, Table 1). The PMERL team implemented the PMERL process outlined in Figure 2, including facilitating a variety of reflection activities to support the development of indicators and theories of change.



**Figure 2: Timeline of PMERL activities in the TP (2019-2020).**

During 2018-2019 it became evident that some stakeholders find reporting and reflection stressful and a burden on top of their existing commitments. The PMERL team then introduced more interactive events that focus on shared reflection on activities and experiences in a setting that is non-threatening. These were the reflection and well-being teas, which also created a space in which project stakeholders can get to know and offer peer support to one another in a relaxing environment where they are temporarily removed from daily stressors. Arts-based activities were introduced as a fun way of doing reflections that can also facilitate new, surprising learning. During the 2019-2020 financial year, two reflection and well-being teas were held and an arts based reflection activity was included at the annual Science Management Meeting, that invited all stakeholders at the meeting to share their reflections and learn collaboratively. A reflection activity was also facilitated at the annual Research Colloquium with students in the Tsitsa Project. Members of the PMERL team (Cockburn, Human and Kotschy) read through anonymised reflection tea notes and student reports to extract themes and insights for this meta-reflection report (see 2.3 for detail).

Though report writing can create additional pressure, it remains a valuable activity that can facilitate reflection and learning, especially when reports are written collaboratively. The PMERL team has put thought into how report writing can be made more user-friendly and less burdensome to the authors. Back-to-office (BTO) reports and templates were introduced to encourage individuals or teams to informally and collectively reflect on their experiences after activities, such as field-trips, community engagements and attending knowledge exchange events, such as conferences or indabas. The

templates for quarterly reports were also adapted. Speech bubbles with reflective questions were added to prompt reflections. Members of the PMERL team (Cockburn, Human and Kotschy) read through the BTO reports and quarterly reports to extract themes and insights for this meta-reflection report.

Participation from stakeholders in the PMERL process also expanded in the 2019-2020 financial year. The social and biophysical indicators were finalised through a participatory process that involved both catchment residents and Rhodes University implementation team members, as part of Hanli Human's MEd study. This process was another important source of reflections for this report.

Finally, the PMERL team also utilized opportunities at non-PMERL related Tsitsa Project activities, such as B-team meetings, strategic planning meetings, and knowledge exchange events to incorporate reflection and learning activities. Members of the PMERL team produced the field notes on these events and read through them to extract themes and insights for this meta-reflection report.

A key challenge for PMERL remains the involvement of the wider network of TP stakeholders beyond the group based at Rhodes University, i.e. catchment residents, traditional authorities, LIMA, implementers, DEFF, partner universities, etc. This requires careful planning of events, and allocation of resources for travel, to ensure accessibility of PMERL events and processes beyond Makhanda.

## 2.2. Sources of data and information

Data for this report were collected from the PMERL activities above, and also from a variety of activities and outputs in the wider Tsitsa Project (Table 1). Details about this step-by-step process through which these data sources were analysed are provided in Table 2 and Section 2.3.

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

Sources of data and information
<p><b>Documents from Livelihoods CoP:</b></p> <ul style="list-style-type: none"> <li>BTO/Update of Livelihoods Fieldtrip</li> <li>Draft Green Preneur Report</li> <li>Women Capabilities Framework Report (Step 1 &amp; Step 2)</li> <li>Ecosystem Services and Livelihoods CoP Q-Report 1</li> <li>Ecosystems Services and Livelihoods CoP Quarterly Report Q2</li> <li>Student support &amp; mentoring</li> <li>Citizen Based Monitors Report</li> </ul>
<p><b>Documents from Governance CoP:</b></p> <ul style="list-style-type: none"> <li>Student Progress Report Anthony Fry</li> <li>TP Governance Plan</li> <li>Governance Project Coordinator Report Q1</li> <li>Governance CoP Report Q1</li> <li>Governance Learning Words Workshop</li> <li>MSc Progress Report: A. Fry, Leverage points for participation in rural resource governance</li> <li>Hons Progress Report: Z. Mtintsilana, Exploring the motivation for active participation in participatory governance processes</li> <li>BTO report: Testing a socio-institutional network mapping tool (A. Fry), 21-22 May 2019</li> <li>BTO report: Integrated Planning Meeting, East London, 13-14 May 2019</li> <li>BTO: 17 May 2019: LIMA Induction</li> <li>BTO report: Umzimvubu Catchment Partnership Program (UCPP) quarterly meeting in Matatiele (A. Fry), 17 May 2019</li> </ul>
<p><b>Documents from Sediment and Restoration CoP:</b></p> <ul style="list-style-type: none"> <li>Mini catchment integrated planning and Appendix B Suggested Interventions Qulungashe</li> <li>SLM, restoration and avoiding degradation plan</li> <li>Biophysical Monitoring Report 1 of the Upper Tsitsa Catchment T35A-E</li> <li>Sediment &amp; Restoration CoP Q-Report</li> <li>Citizen technicians: Q2 report</li> <li>BTO: 17 May 2019: Integrated Planning Meeting</li> <li>Sediment &amp; Restoration CoP Quarterly Report</li> <li>Student Progress Reports (Quarterly): S. Herd-Hoare</li> <li>Student Progress Report (Quarterly): G. Snyman</li> </ul>
<p><b>Documents from Grass and Fire CoP:</b></p> <ul style="list-style-type: none"> <li>Grass &amp; Fire Appendix 5 Rangeland History</li> </ul>

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Grazing and Fire Management Plan Phase 1

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**Documents from System Dynamics CoP:**

Systems Dynamics QR 1  
Systems dynamics - Reflection notes addressed to PMERL

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**Community Engagement/Catchment Coordinator Reports**

BTO Roadshow  
Catchment Coordinator Q Report 2  
BTO: UEIP Biannual meetings  
BTO: State of the Municipality Address  
BTO: Tourism Brainstorming Workshop

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**Cross-cutting Project Reports:**

BTO EI indaba  
TP Stakeholder Engagement Strategy  
TP Communication and Advocacy Plan  
Rhodes University Restoration Research Group: Tsitsa Project NRM Operational Support and Planning - Q2 Report  
TP RIS V2  
Climate Change: The Tsitsa River Catchment Future

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**Documents from Knowledge and Learning CoP (Capacity Development & Knowledge Management and Mediation)**

CapDev Quarterly Report 1  
CapDev Quarterly Report 2  
TP Knowledge Management Strategy  
Science Management Newsletter  
BTO SER Conference  
BTO TP Research Colloquium  
Research-Praxis Planning & Reflection - Prelim Report

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**Documents from Knowledge and Learning CoP (PMERL Documents, Reports and Reflection Notes)**

Mid-Year Reflection and Well-being Tea Report  
Knowledge Management & PMERL Inception Report (2019)  
Science Management Reflection Notes  
End of Year Reflection and Well-being Tea Report  
PMERL Quarterly Report Q1  
PMERL Quarterly Report Q2  
PMERL Quarterly Report Q3  
PMERL reflection and learning notes from key meetings  
Summary and way forward from meeting of the Wisdom Trust  
BTO Wisdom Trust meeting: PMERL aspects

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### 2.3. Methods for data analysis

This report is based on qualitative data collection and analysis across a variety of data sources, aiming for an integrative analysis of insights and reflections on project outcomes and processes in a process similar to that described by Bazeley (2011). Data were analysed in a two-step process (Table 2) (Saldaña, 2013). Step 1 was the first level of data filtering, synthesis and identification of themes. The documents were divided among four PMERL team members who read through the data sources making notes on insights relevant to the five main themes that were identified ahead of the process:

- knowledge outcomes and processes,
- organisational outcomes and processes,
- social-ecological outcomes and processes,
- the Tsitsa Project headline objectives: founding principles, ecological infrastructure and services - the biophysical, livelihoods and well-being, institutional actors and governance, realising agency and collective action, knowledge flow, communication and advocacy (See Box 1),
- challenges.

In Step 2, we did a cross-cutting synthetic analysis using three ways of organising themes: lessons learnt, narrative threads, and consolidated outcome. The challenges across the board were also identified and notes separately. The reason for this 2-step process is that there was a large volume of information and limited time and resources to process and analyse all of it. Step 1 gives a general impression across all data sources to capture key insights, Step 2 is a more systematic way of organising the insights and reflections according to themes.

**Table 2: Steps taken in the analysis of data for the Meta-Reflection Report**

Step	Analysis activity, purpose, scope	Guiding framework
<b>Step 1</b>	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.
<b>Step 2</b>	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 'lessons learnt', 'common narrative threads' and consolidated outcomes allowing themes to emerge within these three categories, and then organising these more specifically into sub-categories/themes.

We used 'lessons learnt' and 'common narrative threads' as two organising concepts to guide analysis and presentation of findings in the Learning Report (Cockburn et al. 2018a) and Learning Paper (Cockburn et al. 2018b). We use them again in this report to maintain some continuity and comparability in the way in which PMERL reports on findings and reflections:

- **What are 'lessons learnt'?** They are statements which give insight into learning within and about the project.
- **What are 'common narrative threads'?** They are statements constructed as quotes to capture common perceptions from participants (in some cases, where appropriate, we have also used direct quotes as common narrative threads). The 'common narrative threads' convey the essence of key insight about outcomes and processes in the Tsitsa Project; they are the stories we tell ourselves and each other about the Tsitsa Project (drawing on narrative research approaches Bold (2012) and Brand et al. (2014)). These threads are not necessarily a perception or opinion shared by all participants but seek to convey distinct views held by at least SOME participants (they are in this sense qualitative rather than quantitative data). The threads should therefore be read and taken together as a collection of the diversity of perceptions which are prevalent among participants, as one might weave a cloth out of different coloured threads.

#### 2.4. Feedback and mediation of the Meta-Reflection Report: Circulating working draft and a Meta-reflection workshop to mediate the report

A Working Draft of the Meta-Reflection Report was submitted to the Project Coordinator on 12<sup>th</sup> February and circulated to Tsitsa Project participants for feedback, comments, questions and suggestions. Participants were invited to send us written feedback on the report via email. The PMERL team then also hosted a Meta-Reflection workshop on 12<sup>th</sup> March 2020 to mediate the report, and gather feedback and input from participants. By mediation, we mean that we facilitated a process for participants to access the key information in the report, to engage with the content, and to interact with others around the report. We appreciate that participants might not have had time to read the full report, and hence this mediation was important to ensure quality feedback and engagement with the report. The feedback and suggestions from the workshop were incorporated in the report in three main ways:

- Editing and revising the report with corrections, filling in gaps and expanding, enriching or refining the content of the report.





- Highlighting key implications (SO WHAT?) as feedbacks from the Meta-Reflection report to support an adaptive planning process in the 'Feedbacks Table' (See Table 9).
- Summarising feedback on the Meta-Reflection process itself to inform the way forward for meta-reflection, captured in Section 4)

## 2.5 Philosophical and methodological framework

We draw on critical realism as an underlying philosophical framework for this report. Critical realism is well aligned with a complex systems worldview (Mingers, 2011), and thus with the overall framing of the Tsitsa catchment as a 'complex social-ecological system' (Cockburn et al. 2018b). As a depth-ontological methodological framing for evaluation it supports deeper analysis of complex open systems. Key features of both critical realist philosophy and complex systems thinking include:

- recognising the world or reality as an open system - therefore the researchers are part of the system (Audouin et al. 2013);
- the concepts of emergence, hierarchies, and boundaries (framing) are central (Preiser et al. 2018);
- human understanding of reality is recognised as partial and fallible; are therefore need to be reflexive and modest, learning in an iterative and on-going manner from observations and experience (Palmer et al. 2015).

### 2.5. Note on positionality and the perspective presented in this report

The PMERL team is responsible for the production of this report. The majority of reports and activities that fed into the production of this report are documents produced by Rhodes University TP implementers (Table 1). As discussed above, the lack of engagement with information and insights from other partners in this process is a concern. The PMERL team read across the spectrum of documents produced by the Tsitsa Project stakeholders and giving an overview of their reflections from diverse contexts. This gives the PMERL team a 'birds' eye view' of the activities, reflections and learnings across the board; it also offers insight into outcomes that might not have emerged from an individual report but emerged from synthesis across different reports.

The PMERL team recognises that the Tsitsa Project extends beyond the RU implementers and includes government officials, catchment based implementers, project managers, researchers at other universities, and the catchment residents with whom we are engaging. It might be useful to think of this as the 'wider TP network'. Implementing a PMERL process that gets equal input from all these stakeholders is challenging. We have however conducted PMERL activities at meetings and engagements where members from the 'wider TP network' were present. Despite these efforts to get more input from this wider TP network, this report is still somewhat biased towards the perspectives and experiences of the RU based implementers. The PMERL team will continue to look for opportunities to get more diverse input from the wider TP network in the next financial year, 2020-2021.

## 3. REFLECTION AND EVALUATION FINDINGS

### 3.1 Overview of activities and outputs: March 2019 – February 2020

#### *i. Activities:*

The Tsitsa Project initiated and facilitated a variety of activities and produced numerous outputs during the financial year of 2019/2020. What was significant about the activities and outputs of this financial year, is that after what felt to many 'a very slow start' and 'taking a long time to start seeing what we have been doing', we were able to start seeing activities happening in the catchment. With this foundation in place, stakeholders are now in a better place to work together in an increasingly interactive

manner. Building the foundations and relationships to facilitate such interactive collaboration took time, but our patience is starting to bear fruit.

The key events and activities that took place during this year are described in Figure 3 (see also Figure 4). The following were key focus areas for the project in these events: community engagement, local capacity building, expanding livelihood opportunities, integrated planning and management and knowledge exchange. In addition to the activities described in Figure 3, there were also a range of meetings held in support of strengthening relationships between stakeholders, coordinating their activities and supporting integrated planning. These meetings included B-team Meetings, C-team Meetings, CoP Coordinators Meetings, and Integrated Planning Meetings with relevant stakeholders. What is significant about the activities of the 2019-2020 financial year, is that a leap has been made from building relationships and a foundation for integrative, participatory work, to seeing activities coming to life based on these foundations.

One of the most significant events of the 2019-2020 financial year has been the appointment of LIMA Rural Development Foundation (<https://lima.org.za>) as a contracted partner in the Tsitsa Project. LIMA is also funded by DEFF, and their key function is to act as a social facilitator and connector between the RU Tsitsa Project team and catchment residents and stakeholders, supporting the on-the-ground rural development activities of the project. LIMA's main focus at the moment is to oversee the newly-appointed Community Liaison Officers (CLOs) and support them in their communication, advocacy and monitoring work for the TP.



**Figure 3: Key events and activities of the Tsitsa Project for the 2019-2020 financial year.**



**Figure 4: Road Show event held in October 2029 where various monitoring techniques were demonstrated to local residents, and residents were invited to share their interests, concerns and knowledge related to natural resource management (Photo: N. Mtati).**

**ii. Outputs:**

The outputs of the Tsitsa Project's activities for the 2019-2020 financial year are listed in Table 3. While outputs are a useful way of capturing a snapshot of what the project has produced during this financial

year, and usually provide detailed evidence of the projects' activities, they give limited insights into the actual outcomes and learnings from the project. For this Meta-Reflection report the outputs offer a useful source of data from which to draw out more detailed lessons learnt, reflections and outcomes for the rest of the report (see Table 1). The *knowledge, organisational, and social-ecological outcomes and processes* reported in Sections 3.2, 3.3, and 3.4) provide more nuanced insights into the work of the Tsitsa Project this year that draw on, reflect on, and make meaning of these outputs.

**Table 3: Key outputs of the Tsitsa Project in the 2019-2020 Financial Year**

Type of output	Detailed outputs
<b>Peer-reviewed publications</b>	<p>Weyer, D., Bezerra, J.C., and De Vos, A. 2019. Participatory mapping in a developing country context: Lessons from South Africa. <i>Land</i>, 8, 134.</p> <p>Wolff, M.G., Cockburn, J.J., De Wet, C., Bezerra, J.C., Weaver, M.J.T., Finca, A., De Vos, A., Ralekhetla, M., Libala, N., Mkabile, Q.B., Odume, O.N., and Palmer, C.G. 2019. Exploring and expanding transdisciplinary research for sustainable and just natural resource management. <i>Ecology and Society</i>, 24(4): 4</p> <p>Bester, R., Blignaut, J.N., and Crookes, D.J. 2019. The impact of human behaviour and restoration on the economic lifespan of the proposed Ntabelanga and Lalenl dams, South Africa: A system dynamics approach. <i>Water Resources and Economics</i>, 26: 2.</p>
<b>Conference presentations</b>	See Appendix A.
<b>Internal project reports</b>	See Table 1.
<b>Significant internal events: Key events hosted by the Tsitsa Project</b>	<ol style="list-style-type: none"> <li>1. B-Team Meeting (13 March 2012, Makhanda).</li> <li>2. B-Team Meeting (18 June 2019, East London).</li> <li>3. Tsitsa Project Research Colloquium (9 October 2019, Makhanda)</li> <li>4. Tsitsa Project Road Show (13 – 18 October 2019, Tsitsa catchment area)</li> <li>5. B-Team Meeting (26 November 2019, East London).</li> <li>6. Science-Management Meeting (27 – 28 November 2019, King William's Town).</li> <li>7. Wisdom Trust Meeting &amp; Field Trip (21 – 23 January 2020, Maclear and Tsitsa catchment area).</li> </ol>
<b>Significant external events: Key events in which TP participated in e.g. catchment learning exchanges, conferences, etc.</b>	<ol style="list-style-type: none"> <li>1. Umzimvubu Catchment Partnership Meeting (30-31 July &amp; 1 Aug 2019, Port St Johns).</li> <li>2. South African Association of Geomorphologists field trip and conference (12-18 September 2019, Maclear and Cintsas).</li> <li>3. 8<sup>th</sup> World Conference on Ecological Restoration (Society for Ecological Restoration) (25-28 September 2019, Cape Town).</li> <li>4. 37<sup>th</sup> Annual Conference for the Environmental Education Association of Southern Africa (6-10 October 2019, Johannesburg).</li> <li>5. 7<sup>th</sup> Biennial South African Monitoring and Evaluation Conference (21-25 October 2019, Johannesburg).</li> <li>6. SANBI Ecological Infrastructure Indaba (20-24 October 2019, Matatiele)</li> </ol>
<b>Capacity development events hosted by the TP</b> (See Table 5 for further details)	<ol style="list-style-type: none"> <li>1. Systems Dynamics Training Part 1 (6-8 February 2019, East London), Training Part 2 (4-8 March 2019, Makhanda).</li> <li>2. Learning Words Workshops (Gov CoP) (February 2019, Maclear; July 2019, Qulungashe, Lower Sinxako, Village Number 5, Hlankomo); October 2019, Upper Sinxako, Ntatyani in Hlankomo, Sigoga in Lower Tsitsana.</li> <li>3. Livelihoods/vetiver grass monitoring training workshops (Livelihoods CoP) – See Table 5.</li> </ol>

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4. Village-level Climate Change Adaptation and Awareness workshops in Qulungashe (August and November 2019)
  5. SAAG conference field trip (25 participants): TP approach and integrated planning process (12-15 September 2019)
  6. Monitors CapDev Training Course Part 1: Orientation to the Tsitsa Project (6-7 November 2019, Maclear).
  7. “Greenpreneurs life stories and learning exchange visit”: Between Tsitsa Project and the Sustainable Land Management Project funded by the Global Environment Facility in Machubeni (GEF5-SLM) (12 November 2019).
  8. Climate Change Adaptation workshop with municipal officials (21 January 2020)
  9. Ground Truth Engineers Field Training and TP orientation with TP members including 2 CLOs (29 and 30 January 2020, 50 sites in the Tsitsa River Catchment).
  10. Monitors CapDev Training Course Part 2: Introduction to monitoring (12 – 13 February 2020, Maclear).
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### 3.2 KNOWLEDGE outcomes and processes

Reflections on knowledge outcomes and processes give us some insight into the social-ecological system in which we operate, about the Tsitsa catchment and about the broader governance and institutional context of the programme.

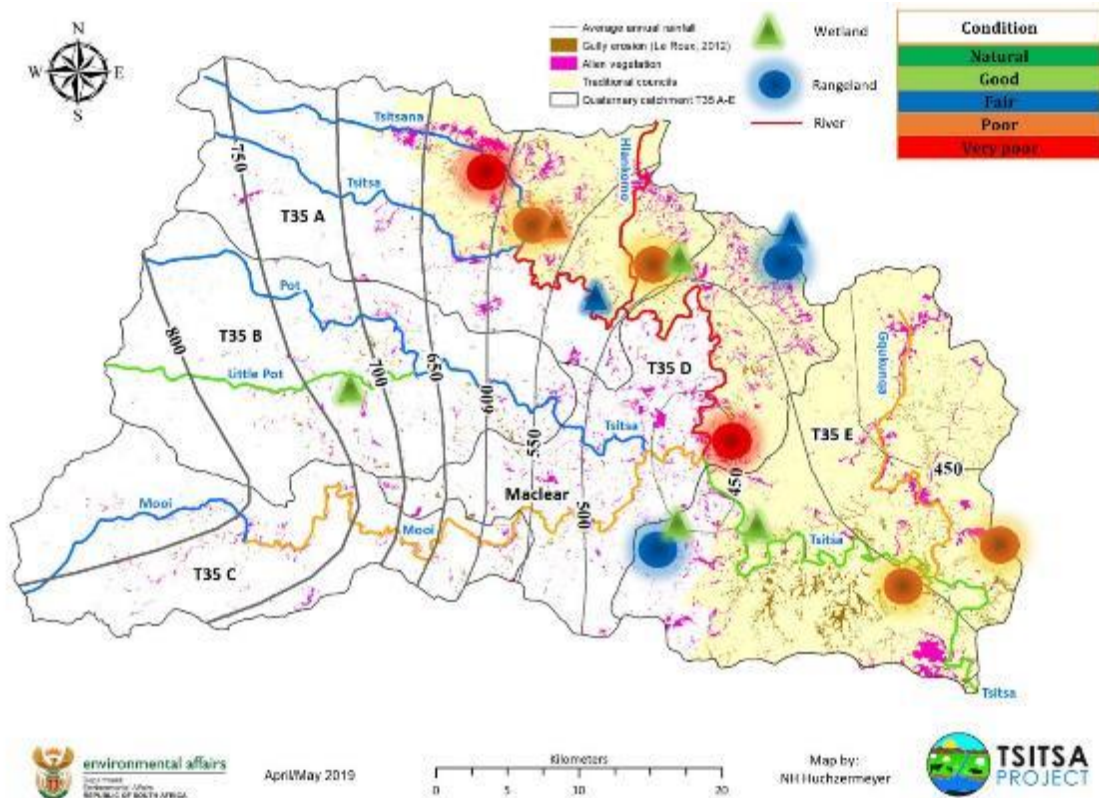
#### 3.2.1 Knowledge outcomes

The Annual Tsitsa Project Research Colloquium is a key event in which knowledge outcomes are shared and generated (Box 3). This year, student research contributed to knowledge outcomes primarily within in the following three objectives of the project: Objective 2: Ecological Infrastructure and Services - the biophysical, Objective 4: Institutional actors and governance, and Objective 5: Realising agency and collective action. Below we discuss in further detail knowledge outcomes related to biophysical (i) and social (ii) aspects of the catchment in further detail.

The peer-reviewed papers listed above in Table 3 are important knowledge outputs which convey some of the key knowledge outcomes generated in the project. The topics addressed in the 2019 published papers convey the wide disciplinary range of expertise associated with the TP: Participatory mapping in a developing country context, transdisciplinary research for sustainable and just natural resource management, and impact of human behaviour and restoration on the economic lifespan of the proposed Ntabelanga and Laleni dams.

##### ***i. Knowledge generated on biophysical aspects of the catchment***

The Tsitsa Project is currently engaging with sustainable land management and restoration work in Quaternary Catchment T35 A-E. This targets the upper Tsitsa River catchment and is the current focus area for biophysical monitoring, as guided by the Biophysical Monitoring Plan (Schlegel *et al.*, 2019) and Biophysical Monitoring Methods (Huchzermeyer *et al.*, 2019b) documents. Since most of the monitoring only started in April 2019, these data serve as a baseline for the Tsitsa Project and contribute to our understanding of the physical processes at play in the catchment. We also need to look into incorporating other biophysical data that is generated outside RU team, e.g. Digital Soils Mapping.



**Figure 5: Biophysical condition in the Tsitsa Catchment (T35 A-E) (Map by Nicholaus Huchzermeyer).**

The current monitoring includes rainfall, water quality and quantity, river, wetland and veld condition in Catchment T35 A-E. Figure 5, and the bulleted text below, summarise the current condition of the Tsitsa Catchment (April 2019), based on Huchzermeyer *et al.* (2019) (See also Figure 6 and 7).

- Rainfall:** A total of 11 self-logging tipping rain gauges are managed by the biophysical monitoring team, and a further 7 rain gauges are monitored by the citizen monitors. **Annual. Annual rainfall in the catchment has increased from 2015 with a general trend showing higher average rainfall at higher altitudes, particularly closer to the Drakensberg escarpment.**
- Hydrology:** There are currently 11 river monitoring sites at which a combination of hydrology, water quality and geomorphic (habitat) condition are being monitored. Discharge and flow velocities play an important role in sediment mobility and the stability of beds. All the sites show similar trends in discharge fluctuations with total discharge increasing further down the catchment. Months with little or no rainfall generally have low discharge values, while local rainfall events and snowmelts (e.g. August 2016) can increase the discharge significantly. Peak discharges at the start of the monitoring period (2016) were well below average but have been rising with increased rainfall in the catchment in subsequent summer months. **The peak discharge in 2019 exceeded the 10 year flood indicating very high discharges for the season, due to heavy rains in the catchment.**
- Water quality:** Water quality variables give an indication of the health of aquatic habitats. **Overall the water quality indicated a balanced system with the exception of increased phosphate levels and turbidity due to high suspended sediment concentrations in flood waters. Turbidity increased and clarity decreased with higher discharges and further downstream, due to an increase in erosion and transport of sediment. Increased suspended sediment has a significant effect on water and habitat quality particularly during the summer months.**

- **River health:** Macroinvertebrates act as barometers of river health as they are the first to register negative impacts on a river system. River health, in terms of water quality, was rapidly assessed by looking at the taxon richness of macroinvertebrate species sensitive to water quality. Scores indicated ecological conditions ranging from very poor to good across the monitoring sites (Figure 5). Poor scores can be attributed to the lack of habitat (mostly due to the embeddedness of coarse substrates due to erosional catchment processes and bed gradient) and high flows with turbid waters experienced during the monitoring survey.
- **Land cover and landscape connectivity:** These were mapped using a combination of medium-resolution satellite imagery, higher-resolution aerial imagery and field verification (Huchzermeyer et al., 2018a; Huchzermeyer, et al., 2018b & Schlegel et al., 2018). A Baseline map, classifying land cover at a catchment-scale was generated (to be repeated at five-yearly intervals). These datasets are used by catchment managers for integrated planning and prioritisation. Landscape connectivity over the past 100 years has been enhanced by the formation of gullies, livestock tracks and roads (Van der Waal and Rowntree, 2017).
- **Fire dynamics:** An MSc project (G. Snyman) examined fire regimes on grasslands under different land management (commercial livestock, communal livestock and forestry) and developed an effective methodology for detecting the frequency and extent of fires in the catchment. Preliminary findings show that: There is a decrease in the area of fire scars over the past 30 years; fire scars are larger in the upper catchment and smaller in the middle and lower catchment, especially in the traditional council areas; fire frequency and fire intensity are highest in the upper catchment; fire does not affect soil properties to the extent previously thought; this landscape experiences large, low intensity fires very frequently and this should be considered normal; and the only time fires may be seen as contributing to erosion is when they burn vegetation before intense rainfall events, leaving the ground bare and increasing erosion potential.
- **Veld (rangeland) condition assessment:** Rangeland condition was assessed at 8 monitoring sites chosen to represent different land-uses, geology, elevations and vegetation types within the Traditional Council areas. Two sites were classified as being in “very poor” condition, four as “poor” and two as “moderate” (Figure 5). “Very poor” sites were located on abandoned cultivated lands on the highly erodible mudstones of the Elliot and Molteno geological formation, and had low vegetation cover and grass biomass and large areas of bare ground. Biomass at all the sites was much too low to benefit from prescribed burning, around 100 kg/ha. All the sites would benefit from prolonged rest periods to allow for the stabilization of grass and other important plant populations through re-growth and full seed production. Because the catchment is dominated by mudstones that are highly erodible it is important to maintain healthy vegetation cover throughout the catchment.
- **Wetland condition:** Over 2 800 wetlands were identified covering a total area of over 7 600 ha, ranging from larger valley bottom wetlands to smaller hillslope seep wetlands (Schlegel et al., 2018). A range of wetlands (7 sites) was chosen to investigate their current condition, species composition and effectiveness as sediment buffers in the landscape at a coarse scale.

### Box 3: 2019 Tsitsa Project Research Colloquium: Sharing Knowledge Outcomes

The Research Colloquium has become a key opportunity to share the research generated within the Tsitsa Project. Whilst events like the Science-Management meeting focus on the links between research and practice i.e. are praxis-focused, the Research Colloquium creates a space for focused engagement around the academic research conducted in the TP. This is particularly important for postgraduate students, as they not only get to present their research, but also to engage in critical debate and discussion.

There were eleven student research presentations during the 2019 Research Colloquium held in October 2019. They ranged from proposal presentations for those starting out, to final presentations for those wrapping up their research. The research presented addressed the following main headline objectives of the Tsitsa Project, i.e. it contributed to generating knowledge outcomes in these areas:

- Objective 2: Ecological Infrastructure and Services - the biophysical
- Objective 4: Institutional Actors and Governance
- Objective 5: Realising Agency and Collective Action.

The event was concluded with a reflection session facilitated by the PMERL team, in which participants were invited to draw a picture to represent their reflections of the day (i.e. an arts-based reflection) which most participants seemed to enjoy (see photos below). We then had a closing round completing the sentence: “*Our work in the Tsitsa Project matters because....*”. Some of the answers included: because we have an impact on people’s livelihoods,... because we connect people and the environment, ...because we take our time, ...because we take an integrated approach, ...because we connect things, ...because we are a flagship project and will be asked to give guidance to others.



Titles and names of presenters at the 2019 TP Research Colloquium:

1. Anthony Fry: *Tapping into governance: institutions for participation in land and water governance - a case study on communally owned land in the Eastern Cape of SA* (MSc: field work stage).
2. Zintle Mtintsilana: *Exploring motivation for active participation in a participatory governance process – TP case study* (Honours)
3. Nosiseko Mtati: *Engaging local citizens in scientific monitoring for catchment restoration: benefits and recommendations for optimizing benefits* (MEd: writing up stage)
4. Mateboho Ralekhetla: *Exploring the nature of participation in the Tsitsa Project: a question of epistemic justice* (PhD: Proposal Stage)
5. Bawinile Mahlaba: *Assessment of ecological infrastructure extent, current state and prioritization for rehabilitation and drought mitigation* (MSc: field work stage).
6. William Liversage: *In a novel landscape, in the EC in SA, what are the key vegetation resources that support livestock production?* (MSc: field work and analysis stage).
7. Sean Heard-Hoare: *Seasonal trends of rainfall intensity, ground cover and sediment dynamics in the Little Pot River and Gqukunqa River* (MSc: writing up stage).
8. Gareth Snyman: *An investigation into the fire regimes of the upper Tsitsa River catchment* (MSc: Writing up stage).
9. Pippa Schlegel: *Sediment dynamics in floodplain wetlands in the Tsitsa Catchment: implications for floodplains in southern Africa* (PhD: Proposal stage).
10. Laura Bannatyne: *Determining sub-catchment contributions to the suspended sediment load of the Tsitsa River* (PhD: about midway).
11. Thenjiwe Mngadi: *Quick intro on Masters research plans – interested in youth empowerment* (pre-proposal stage).

Most of the investigated wetlands were found to be in a good to fair condition and are acting as important sediment sinks in the landscape.

- **Forests:** Indigenous woody vegetation (both forests and smaller woody species) are important biodiversity hot spots that also provide a variety of building materials and are important for cultural and spiritual values (Geldenhuys et al., 2016; Ngwenya, 2016). Indigenous forests occur in fire shadow areas of ravines and steep south facing slopes that are commonly protected by cliffs. Assessments of forests pointed to a healthy population structure, but fire and alien pressures do threaten the outer limits of the forests (Geldenhuys et al. 2016). Restoration and management are needed to improve the quality and sustainability of indigenous forests.
- **Alien vegetation:** A total of 37 dominant alien woody species were identified in Catchment T35 A-E, of which 7 species (silver wattle, black wattle, green wattle, poplar, eucalyptus, pine and Mauritius thorn) are invading hillslopes, riparian zones and indigenous vegetation on a large scale (Huchzermeyer et al., 2018a; Huchzermeyer et al., 2019). Approximately 51% of the area covered by alien woody vegetation occurs on hillslopes, 43% in riparian zones and the remaining 6% is spreading from drainage lines, plantations, gardens and woodlots. Species occupying the largest area are silver wattle (uncondensed area of 5 502 ha), patches of black and green wattle combined (5 398 ha), *Eucalyptus* species outside of plantations (1 293 ha) and poplar species (1 099 ha). From the alien vegetation verified in the field only 3% was noted to be actively used and harvested to such an extent that it was no longer spreading (particularly evident within close walking distance of villages). Information and learning from DEFF and implementation teams would usefully enrich our understanding of dynamics related to alien vegetation, and should be incorporated in future Meta-Reflection reports.

In addition to the detailed baseline data on biophysical features of the landscape reported above, the Tsitsa Project has also generated knowledge outcomes on the following key aspects of the landscape:

- **The Tsitsa Project Integrated Restoration and Sustainable Land Management Plan: Working Together Adaptively to Manage and Restore Ecological Infrastructure for improved Livelihoods and Futures T35A-E (Phase 1 of TP) Version 1.1:** This is a key document of the TP which was produced in 2018 and is due to be updated in 2021. It is an important source of collated knowledge about the catchment (van der Waal et al., 2017), and has been hailed by senior officials from DEFF as a “one of a kind” document in the country (See Box 4 on Wisdom Trust).
- **Climate change and disaster risk reduction:** A detailed report outlining the potential implications of climate change for the Tsitsa River catchment was produced for the Tsitsa Project (Rowntree, 2019). Key points included the threat posed by climate change to grassland ecosystems through spread of savanna to higher altitudes and the importance of grasslands and wetlands as carbon sinks. Climate change adaptation can take place through ecosystem-based adaptation as well as through restoration activities and home garden improvements. Some of these activities are already contributing to CC adaptation but we need to make the link to CCA explicit.
- **The importance of the upper Umzimvubu (including parts of the Tsitsa catchment) as a Strategic Water Source Area** and the leverage that comes with this. This is being used to fight the shale gas mining development along the Drakensberg that could have a negative impact on these crucial water sources (this insight came out of discussions held at the Ecological Infrastructure Indaba held in Matatiele in October).
- **Sediment:** Monitoring sediment is an on-going activity within the Sediment and Restoration CoP, and the latest findings are report in Huchzermeyer et al. (2020) Biophysical Monitoring Report 2.





Figure 6: Biophysical monitoring team (Photo: Nicholas Huchzermeyer).

#### *ii. Knowledge generated on social aspects of the catchment*

Important progress has been made this year on understanding various social features and dynamics of the catchment through research and other engagements. The below points capture some of the key themes:

- **Growing understanding of catchment residents' needs, interests, motivations and knowledge related to natural resource management:** data sources on this include Road Show BTO, Learning Words workshop reports, M.Ed. thesis (H. Human, under examination), and women's capability index research by Laura Conde-Aller (Livelihoods CoP). The women's capabilities framework lays the groundwork to monitor and contribute to gender equity as a key outcome for the TP, while linking it to ecological outcomes as well. Student research on women's livelihood needs has also contributed to this growing understanding (I. Vicentini): The most commonly reported need of women to improve their livelihoods was fencing. Access to land was not the main constraint, but rather access to other resources (fencing, water, agricultural tools etc.).
- **Improved understanding of local governance processes through the mapping of 'Headman Boundaries':** i.e. the most local level of jurisdiction i.t.o. traditional leaders has now been mapped by the TP. This will inform spatial planning and the work of the Governance CoP in terms of understanding local governance arrangements.
- **Improved understanding of the benefits of the citizen sediment monitoring programme to participants:** The M.Ed. study (currently under examination) by Nosiseko Mtati provides useful pointers for the upcoming monitor training. Detailed recommendations from this work should be incorporated in the next quarterly Meta-Reflection process when the thesis has been finalised.
- **Baseline data on households:** Citizen monitors working in the Livelihoods CoP have begun conducting household surveys. However, data have not yet been compiled or analysed. Collecting baseline social data should be prioritised for the new financial year, and a framework developed for future monitoring.
- **Governance CoP learning words workshops:** Researchers learnt about the people, their expectations and the catchment.

- **The dam as a political issue:** Elections and DWS promises of roads might create issues if promises are not adhered to – a possible impasse again? (See newspaper article by Mike Coleman about how the dam issue comes up again around every election and then fades away in-between). We have seen changes in the composition of the A and B teams depending on where in the “dam political cycle” we are (see Wisdom Trust notes in Box 4). However, “The work to restore and manage the landscape sustainably will go ahead regardless of the uncertainty of the dam - dam or no dam.” (Science-Management Newsletter, Nov 2019). True to form, a commitment to move ahead with the construction of the dam featured in the President’s State of the Nation address in February.
- **Village-level planning:** The process has also been an important communication activity for the TP in terms of people understanding what the TP is about and how it might benefit them.
- **Land tenure and land use planning:** A report was produced by consultant Mike Coleman on the implications of SPLUMA for communal areas and the Tsitsa Project more specifically. This needs to be taken into consideration for polycentric governance and integrated planning processes in the TP.

### 3.2.2 Reflections on knowledge processes

The following reflections emerged from the analysis with regards to knowledge processes in the Tsitsa Project (see Table 4 for specific lessons learnt and common narrative threads to illustrate these):

#### ***i. The integration of activities and knowledge, as well as the important role of participation in facilitating learning and buying into and implementing activities is recognised.***

Much progress has been made with regard to working in an integrated manner and there is participation from across a wide spectrum of stakeholders working in the Tsitsa catchment. This includes local residents, local government, catchment based implementers, researchers and students at universities, provincial and national government, and organisations doing similar work in other catchments. However, working in such an integrative manner requires time to build relationships and trust. This is an ongoing process, where new stakeholders are continuously identified and new relationships have to be built with them. Progress has been made with regard to working in an integrated manner, but stakeholders need to constantly guard against diverting back to working in silos. An individualistic or sectoral approach to work seems to be supported by some institutional systems and cultures.

#### ***ii. On-going and iterative reflection on research done is needed to ensure that research activities are not extractive, and feed into the activities and management of the TP.***

Reports without useful insights, reflections and learnings offer little value to generate feedback back into the programme, and there is a need for PMERL to offer more guidance, possibly in the form of training, to support the development of more reflective report-writing skills. However, there are some scientific and technical publications and reports that are not written in a reflexive manner (a function of funder’s requirements) and we yet still need to digest, interrogate and make sense of these.

A related question is “How do we ensure that student research is used to benefit the work of the Tsitsa Project and prevent it from becoming extractive research?” Knowledge outputs are being generated through student research, however, there is some concern that these outputs are not optimally utilised to feed back into the planning and management of the Tsitsa Project, and that the student research may be contributing to stakeholder fatigue. The design and supervision of student projects needs to address these concerns, through appropriate methods, and topics that are well-aligned to TP planning and goals. Moreover, we need to find ways to access, review and synthesise wider research pertinent to the TP.

***iii. Management, mediation and integration of knowledge outputs, and knowledge gained from praxis, is still a key challenge.***

Whilst the TP now has a Knowledge Management and Mediation Strategy (Lunderstedt & De Vos, 2018) in place, it does not have a dedicated staff member for it (Note: a new KL CoP Support Officer will be employed from April 2020 and half his time will be allocated to KMM). Key documents have been produced but for knowledge outputs to have the necessary impact, they should be shared, accessible, communicated and mediated and this is not currently the case. This can result in strategies and plans not being followed through or research being duplicated. It also makes meta-level reporting and reflection very difficult; in compiling this report, for example, tracking down documents has been very time-consuming. Furthermore, while stakeholder analyses have been conducted, it seems to remain an ongoing process to learn who the stakeholders in the Tsitsa catchment, or the ‘wider TP network’, actually are. Addressing this serves both knowledge management and mediation, and networking and relationship building. Human and financial resources need to be allocated to KMM to put in place the technical and social processes needed for more effective knowledge-sharing internally and externally, and this work needs to dovetail more strongly with the Catchment Coordinator appointed in 2019 (See Table 4).



**Figure 7: Monitoring river condition on the Inxu tributary of the Tsitsa. (Photo: N. Huchzermeyer).**

***iv. Monitoring processes are a key part of collectively building knowledge about our praxis and impacts of the work on the ground***

Our knowledge of how interventions are impacting the social-ecological system in the catchment is limited by the fact that we have only recently started monitoring (see section 3.2.1): on-going monitoring and assessment of restoration sites is necessary to understand the effectiveness of different interventions. The need and value of ongoing monitoring of the Tsitsa Project activities is recognised and steps have been taken to employ and train local residents to assist with these monitoring activities. The PMERL team have almost finalised the indicator protocols which will be used to support monitoring.

***v. The project is making progress on engaging catchment residents in knowledge co-production and integrating multiple knowledge forms into the Tsitsa Project planning and activities***

There is increased participation from catchment residents in knowledge-building processes. Through opportunities to work as citizen monitors, citizen technicians and CLOs<sup>1</sup>, local catchment residents are getting more involved with the Tsitsa Project and as they participate in capacity development and co-

<sup>1</sup> Note: we are currently using the term ‘community researchers’ as an umbrella term for CLOs, citizen technicians, citizen monitors, and eco-rangers. In the next CapDev Course for Monitors, the ‘community researcher’s will be asked to come up with their own name for their collective.

engaged learning processes. This expands not only their knowledge about the social-ecological processes in the catchment, but also their ability to contribute to knowledge co-production and bring their own knowledge and insight into the work of the project. Monitoring activities often draw attention of local people creating informal opportunities for sharing the work of the Tsitsa Project with local residents (Figure 7).

Moreover, networking and community-based engagements are valuable events and methods to facilitate learning, knowledge flow, communication and advocacy of knowledge. Much knowledge is being generated within the Tsitsa Project as well as in other organisations doing similar work. Participating in knowledge exchange events, such as Science Management Meetings, conferences and Indabas (see Table 3) appear to be valuable opportunities for learning from and with other organisations. Similarly, in the catchment, having personal engagements with local residents appears to be valuable opportunities to gain local knowledge and insight. Despite challenges, the Tsitsa Project seem to be on track with the ongoing process of engaging with multiple knowledges and integrating it into its own planning and activities. There is still a need for a special case study on local/indigenous knowledge in the catchment, e.g. a systematic assessment using CLOs and a postdoc.

**vii. Knowledge exchange activities beyond the Tsitsa Project are growing.**

The work of the Tsitsa Project has been shared on various platforms (for conferences and other local Indabas attended see Table 3). These events are important opportunities for cross-catchment exchanges and collaboration. The Tsitsa Project can share with as well as learn from other organisations working in different catchments on what works well, under what circumstances and why. These exchanges can act as a type of pooling of resources where one site in a catchment can be used as a pilot and the outcomes shared. Knowledge exchange activities act as valuable opportunities to share innovative ideas across catchments, and we should also look into innovative digital and online tools for supporting such exchange. This is useful to expand the roll-out of initiatives that work well and to save resources by not repeating initiatives that have already showed to have no or little impact elsewhere. However, the context should always be taken into consideration, as initiative can also have different outcomes when implemented in different contexts with different mechanisms at play.

**Table 4: Lessons learnt related to KNOWLEDGE outcomes and processes**

<b>Lesson: “We have learnt that ...”</b>	<b>How was the lesson learnt, and by whom?</b>	<b>What does this mean for the project going forward?</b>	<b>‘Common narrative threads’ which illustrate this lesson</b>
<b>Lessons coming directly out of TP activities and processes:</b>			
... Generating knowledge outputs is not enough to support praxis and bring about impact.	Much of the considerable body of knowledge in terms of reports, theses and papers is still ‘silent’ and under-discussed in TP processes.	Resourcing the knowledge management and PMERL work of the TP is needed to better manage, store, share, interrogate and integrate knowledge generated.	“We have huge numbers of project reports, student theses and also papers which we don’t seem to be actively using and consulting in the day-to-day work of the project”
... Lack of easy access to information and data is a barrier to knowledge sharing and collaboration	Many project participants have asked the Project Coordinator for access to reports and about using a shared Google Drive.	The TP coordinator is aware of this challenge and is working on it. The KL CoP are supporting her to improve information access and sharing across the TP, and appointment of new KL CoP Support Officer in April 2020 should help.	“Data and information is available but sometimes difficult to access because we do not know where it is available and who to ask for access to it.”

<p>... Engagements with citizen technicians, citizen monitors and CLOs create opportunities for co-engaged learning where researchers as well as catchment residents get the opportunity to learn from each other and expand their collective knowledge.</p>	<p>Reflections from the interactions during the Road Show, the Governance CoP 'Learning Words' workshops, and the first training event with CLOs indicate that co-engaged learning is taking place.</p>	<p>Facilitators of learning events need to keep paying attention to managing power dynamics between researchers and catchment residents and using context-appropriate ways of facilitation knowledge exchange and co-engaged learning.</p>	<p>"We have observed through events like the Road Show and the Learning Words Workshop that there is two-way learning happening: the participants are learning about the Tsitsa Project and about landscape management, and we are learning about local residents' knowledge, interests, motivations and understandings of the area".</p>
<p><b>Lessons learnt from engaging more widely with other stakeholders / contexts (e.g. learning exchanges with other catchments initiatives, conferences, etc.)</b></p>			
<p>...The knowledge and insights created through the TP praxis is of interest to wider practitioner and researcher communities.</p>	<p>Presenting TP work at various fora has received positive and enthusiastic feedback from a range of parties interested in the TP's work.</p>	<p>Funding TP participants to attend knowledge exchange opportunities beyond the TP is important for advocacy, communication and learning.</p>	<p>"People seem to respond positively whenever we present the work of the TP, whether it is in practitioner or researcher forums."</p>
<p>...The TP's focus on meaningfully integrating local people's knowledge and priorities is a key success of the project's work</p>	<p>Positive feedback at the East London Indaba on participatory mapping through which local people's voices were incorporated.</p>	<p>We need to continue to plan and resource participatory mapping and other knowledge co-production activities with local communities, and provide feedback e.g. in the form of laminated maps.</p>	<p>"Participatory mapping seems to be a useful tool for integrating local knowledge and voices into integrated planning processes".</p>
<p>... More attention is needed on linking and knowledge synthesis: transdisciplinary work and work cutting across TP objectives, as well as on implications of the work for practitioners and policymakers.</p>	<p>Research Colloquium - PMERL reflection</p>	<p>Research, especially student projects, can be better linked to TP objectives, possibly through a TP proposal presentation which requires such linking. A synthesis of student research against TP objectives is also needed.</p>	<p>"While we are generating numerous student research theses, they are often not read in detail, nor are the findings actively integrated into the active on-the-ground restoration activities or project planning and decision-making."</p>
<p>... Synthesis of SES data is needed, together with more regular and systematic gathering of such data.</p>	<p>Identified as a gap at the research-praxis planning and reflection meeting (July 19).</p>	<p>PMERL to assist with quarterly synthesis, and making it available to the Project Coordinator and others.</p>	<p>"Much data and knowledge is available in the TP, however, there are sometimes gaps in the data with some data missing for certain years or areas. In order to collect and synthesise the data, much cooperation is needed between the different stakeholders in the TP."</p>

### 3.3 ORGANISATIONAL outcomes and processes

Some of the most significant learnings and outcomes of the Tsitsa Project in 2019-2020 have been in the organisational dimension: there is evidence of growth and expansion, new relationships and deepening of existing relationships, and strengthened organisational processes.

There is a sense among participants that the work in the early years of the project in terms of understanding the context, building relationships, and developing a strong foundation for the project is starting to bear fruit, as is shown in this quote from a participant at a reflection event:

*“It has been a long and sometimes difficult learning curve for the TP with many unexpected challenges. Despite this, the project has made progress and is finally getting some momentum.”*

There is growing recognition that the project has a stronger presence in the catchment, and that the wider network of the TP, including stakeholders from local municipalities, other government departments and local residents, and other researchers, are beginning to recognise the relevance and potential impact of the TP’s work. Moreover, the engagement of TP participants at regional and international events such as Indabas and conferences, and also in TP-hosted events like the Road Show and Science-Management meetings, has helped to build a team spirit and a sense of pride and excitement about the work of the project. There was positive feedback from participants at the Science-Management meeting about this ‘team spirit’, as noted by a member of the TP team:

*“I did hear several expressions of admiration from “TP outsiders” at King Williams Town that it seemed like there was generally a good group spirit and an admirable level of integration.”*

However, despite these successes, there is also an on-going difficulty in truly working collaboratively and integratively. There are signs of important progress in this regard, but much more can be done to improve cross-linkages, knowledge flow and integration of knowledge and praxis in the project. The work of the Tsitsa Project is also personally challenging for many participants, and on-going attention to participants’ sense of well-being and motivation is necessary. The PMERL work of the project is continuing well, but there are also ways in which this could be deepened and expanded; in particular, making connections with catchment-based project reporting (e.g. DEFF). While this will not be a trivial exercise, it is considered essential.

Below we first discuss the reflections and findings of the organisational outcomes and processes across the TP as a whole. We then focus in on these within the PMERL work more specifically (see Table 5 for specific lessons learnt, and common narrative threads which illustrate these; see also Box 4 for significant insights from the Wisdom Trust meeting related to organisational processes).

### **3.3.1 Organisational outcomes and processes within the broader Tsitsa Project**

#### ***i. The Tsitsa Project has seen significant expansion of its organisational and social network***

As with any new organisation undergoing development, the Tsitsa Project has developed new organisational and social relationships in this financial year. These have occurred in three particular domains of the project’s work:

**1. Engagements and new relationships with catchment residents:** LIMA Rural Development Foundation has been contracted by DEFF to provide support to the Tsitsa Project through social facilitation and on-the-ground engagements, capacity development and community liaison. LIMA, together with the TP’s Catchment Coordinator, newly appointed Capacity Development Coordinator, the Governance CoP and others, have been actively involved in the recruitment and management of a cohort of Community Liaison Officers (CLOs) who will act as a link between the TP and catchment residents (See also Section 3.4.2 and Table 5).

The CLOs have received their first formal induction and training in the TP, and have participated in the Tsitsa Project’s catchment-based Road Show event, the Science-Management Meeting and the municipal Climate Change Adaptation workshop. These events have been significant organisational processes with key outcomes as they have involved cross-CoP collaboration and built important new relationships in the catchment. Important inter-organisational learning between RU, LIMA, DEFF and the project coordinator has been important. Through the work of LIMA and the CLOs, the TP is expanding its engagement in the catchment and with a wider range of stakeholders. It is important to expand the active stakeholders in the TP and to empower and engage a wider range of stakeholders to have a say in the work of the TP, beyond the initial focus on Rhodes University and DEFF as the

main voices in the project. The appointment of Siphakamise Ngobhane, a LIMA employee, as the middleman is an important outcome to help facilitate these processes.

The progress made by the Livelihoods CoP in the development of local SMMEs through the vetiver nurseries, the appointment and training of Citizen Monitors, and the development of village-level integrated plans and activities are further important organisational outcomes, even though these process are localised and in the early stages. The Livelihoods CoP has been an area of important growth in the TP: it has enabled collaboration between CoPs, created opportunities for work on the ground, and has highlighted the value of participatory process and engaging with the community (i.e. we are starting to “practice what we preach”). The development of small businesses and ‘green-prenerus’ is a key highlight and a significant shift to empowering local residents. It shows the TP’s commitment to ensuring that the benefits of the project reach local communities. Though many of the outcomes currently appear to be plans, establishing these collaborative planning platforms is an important foundation for integrated, participatory management of the catchment.

Similarly, the work of the Grass and Fire CoP has also contributed significantly to a more on-the-ground presence of the TP in the communal areas. The team has started conducting research on the history of rangeland management in the Tsitsa Project, and has engaged with livestock owners to begin discussing the development of Grazing Associations (In Upper Singxaku and Qulungahse villages). In early 2020, livestock owners at Upper Singxaku formed a grazing association and have signed a conservation agreement to explore sustainable rangeland management options with the Tsitsa Project’s Grass and Fire CoP. This is an important step towards key organisational outcomes on the ground, and it is crucially building grass roots governance capacity and legitimacy as the development of such associations would put in place key missing institutions in the governance of natural resources. The process of getting these associations up and running is slow and a new learning experience for the TP, but a valuable one. Part of this process has also been the recruitment and employment of Eco-Rangers, who would assist with monitoring rangeland management practices. The links between LIMA and the Umzimvubu Catchment Partnership’s (UCP, previously UCPP) work with Conservation South Africa (CSA) and Meat Naturally (<https://www.meatnaturallyafrica.com/>), have been instrumental in sharing knowledge and inspiring the engagements of the Grass and Fire CoP. The foundation laid by the WRC funded “Green Village” project over three patient years (2015-17) should also be acknowledged for the above on-the-ground developments. In this way, the TP’s networks are expanding into other stakeholder partnerships such as the UCP.

Two key project-wide events at the end of 2019 also had a significant influence on widening and deepening the social network of the Tsitsa Project: The Roadshow and the Science-Management Meeting. Some of the key lessons from these events are captured in Table 5, and include the following:

- We have realised the importance of enabling the younger members of the TP to lead events (this was particularly evident at the Road Show).
- We have realised that the success of these events requires collaboration across all CoPs.
- We have realised how important it is to have good relationships in place in order for people to be willing to attend events, to be comfortable in the events and to participate actively.

The growing focus on climate change and disaster risk reduction (CC & DRR, led by Prof. Kate Rowntree, see Rowntree, 2019) has also emerged as a key opportunity for working closely with catchment residents and seems to be providing an entry point for working with municipalities. Engaging effectively and meaningfully with municipalities remains a challenge for the TP, and though there has been a significant effort to engage with municipal officials and engage them in our work and events, getting them involved has been difficult. Embedding climate change more directly in our work will also mean drawing in new partners, so we don’t ‘re-invent the wheel’ as was highlighted at the Wisdom Trust meeting (Box 4). Since the TP is funded by DEFF, we need to be attentive to aligning our climate change and DRR branding and messaging to theirs.

Through the work of LIMA, the CLOs, and various TP CoPs, much effort is going into learning from and working with the residents to ensure that the activities that are being implemented are relevant to the residents' interest and needs, and can help to enable and catalyse their agency. It is important to note here that funding gaps can threaten these newly developing relationships.

**2. The second key organisational outcome in terms of the expansion of the TP's organisational and social network has been the engagements and new relationships with partners and other stakeholders working in similar catchment-based initiatives, restoration of ecological infrastructure, and other related academic and practitioner activities.**

Collaborating and sharing ideas and experiences with partner organisations in neighbouring catchments is an important way of building knowledge. These are also important advocacy opportunities for the TP, and there is evidence that the TP is becoming more widely known and recognised as a leading project in the collaborative catchment and landscape management field. This outcome arose out of engagements in various events (See Figure 3 and Table 3), but in particular the following:

- Quarterly meetings of the Umzimvubu Catchment Partnership.
- Ecological Infrastructure Indaba hosted in Matatiele by SANBI and partners.
- Society for Ecological Restoration Conference: academic exchange and exchange with other organisations working in catchment initiatives e.g. AWARD, Living Lands, DUCT, etc.
- Various other academic conferences, symposia and workshop in fields such as Geography, Education, and Monitoring and Evaluation.

Engaging in these events results not only in expansion of the TP's network of relationships, but also has a number of other important outcomes for the project:

- Advocacy and communication: raising awareness of the project and gathering support for it in a wider stakeholder context.
- Social cohesion and motivation: Building team spirit and pride among the TP members who represent the TP at these events. This included a catchment resident sharing her experiences as a citizen technician (monitors) at the SER conference.

Feedback from the Wisdom Trust has re-iterated the need to build more strategic partnerships, not only for a more diverse range of funding sources, but to bring in different sets of expertise and knowledge into the work of the Tsitsa Project (e.g. for a wider conceptualisation of livelihood options, to engage more actively with climate change adaptation, etc.) (See Box 4).

**3. A third important organisational outcome in terms of the expansion of the TP's organisational and social network are the engagements and new relationships with senior managers and financial administrators at Rhodes University.** This work, which has been driven by the Project Coordinator, Ms. Margaret Wolff, with support from Project Advisor Mike Powell, is helping to strengthen support for the TP within the university and reduce bureaucratic barriers and burdens. This work has been significantly supported by senior DEFF staff as well. The university has agreed to 'bridge fund' the TP as and when there are delays with funds flowing from the DEFF to the university. This has eased the pressure on the project management and finance team significantly, as funding delays were putting significant strain on the project. This has also resulted in a little more 'freedom' from the deliverology pressure: for example if a deliverable needs to be adjusted or delayed for some reason, this no longer results in reduced cash flow for that specific quarter as would previously have been the case.

In all three of these domains, we have learnt that while building these new relationships takes time and effort, it is worthwhile. Building relationships and trust in the different teams and between different stakeholders is important for willingness and satisfaction of working together. It takes time to build relationships and trust to get to a stage where people can efficiently and routinely work together.



## Box 4: Key reflections from the Wisdom Trust meeting held in January 2020: Implications for organizational development and planning for the Tsitsa Project



The Tsitsa Project's Strategic Advisory Committee/Panel, colloquially referred to as the "Wisdom Trust" was created to allow Tsitsa Project to benefit from the knowledge, experience and wisdom of selected individuals, so enhancing project function, legitimacy and credibility. The mode of operation is that of a discussion group / think tank. The agenda, background and an interpretive summary of the activities, discussions and way forward can be found in the Wisdom Trust Meeting Report written by Harry Biggs (Jan 2020) and circulated to all attendees (Biggs, 2020). The intention of the meeting was to get input from the Wisdom Trust on various topics of interest or current relevance to the TP. Some material was circulated beforehand and some short presentations were given to provide the necessary context for the discussions. Two field excursions in the catchment provided an opportunity for informal discussions and learning.

The following key insights and inputs for consideration for the TP's 'way-forward' for the TP emerged from the Wisdom Trust conversations:

- **New directions?** There are meaningful changes of emphasis, even some fairly fundamental directional ones that could result from this Wisdom Trust meeting (e.g. exploring a wider set of livelihood options, engaging more effectively with climate change, partnering more widely with a wider range of organisations, etc.).
- **Critical thinking at its best?** The team regards it as a strength that the meeting allows open discussion, and encourages members to both endorse and / or criticise without the meeting having to necessarily reach consensus
- **A wider understanding of livelihoods?** A wake-up call from this meeting seemed to be that if we are a livelihoods-centred initiative, that we had better be widening that out to other natural-resource related (and even perhaps beyond?) possibilities also ones beyond our normal comfort zone of operation. Our role is not to implement per se, but to prototype, guide and facilitate, the facilitation being increasingly cross-sector.
- **Which integrative products to focus on?** A really helpful discussion on the relative energy to go into what level of proposed document/s/deliverables for the next financial year's activities i.e. whether the TP produces RISv3, an integrated management or a "methods" handbook for use in other catchments.
- **Beyond the hero narrative - is a flagship that makes strategic links with others and doesn't do it all alone possible?** The "flagship" visualisation has compelling implications, as discussed. These include even a wider outward-look by us, but without losing our trust and our feet on the ground. We need to realise (as came up in climate change discussions, but indeed in many other spheres discussed) that we don't have to do all these on our own. We should be making wider use of what's available, while building on our own strengths.
- **To make it work, more diverse sources of funding and partnerships are needed.** Tsitsa Project is doing a great deal across many fronts, and is now seeing it needs to do even more. Although we must sensibly rationalise and integrate the actions so that we get a workable mix across all these domains (some still "siloes"), we are certainly stretched and must look for more funding and support.

The Wisdom Trust was also an opportunity for contacts and networks to be meaningfully expanded, and more information and advice will follow as conversations continue.

Through the organisational processes and outcomes described above, a foundation has been established with a culture or willingness to share local knowledge and collaborate.

***ii. Working according to the Tsitsa Project's principles of collaboration and integration is an ongoing organisational challenge***

Whilst working collaboratively and interactively is deeply embedded in the guiding principles of the Tsitsa Project (Biggs et al. 2018, Cockburn et al. 2018a, b), we are finding it challenging to put this into practice. The expanding range of stakeholders described above under 'i. *The Tsitsa Project has seen significant expansion of its organisational and social network*' is evidence that the TP's network is growing and a wider range of actors are showing interest in engaging in the project. However, moving from 'sitting together at events and meetings' to 'working together in an integrated way' is challenging.

Working in an integrative and participatory manner is a slow, iterative process: in order to work in an integrative and participatory manner it is necessary to first establish an understanding of local knowledge (indigenous and experiential) that exists about the social-ecological systems. A period of relationship building and knowledge exchange is needed for this. This period can be time consuming and make it appear like few activities have taken place but important groundwork has been done which is essential to build future activities on.

In some ways, we are still working in isolated 'silos', despite efforts to arrange the internal governance structures of the TP to enable integrated praxis and transdisciplinary work, a point also raised at the Wisdom Trust Meeting (See Box 4). For example, the CoPs were set up to catalyse engaged praxis and TD, yet we still see that they mostly consist of researchers from RU with similar disciplinary orientations working together. As yet, the incorporation of non-RU and non-research actors in these CoPs remains a challenge. We also find that cross-CoP collaboration is difficult and does not happen as much as it should. Furthermore, reporting still happens mostly within CoPs, and it is only in this Meta-Reflection Report that synthesis of the findings and activities across CoPs begins to take place. We have however made some progress towards cross-CoP collaboration this year, for example through these activities:

- Appointment of CLOs and LIMA, and capacity development initiatives, have involved participants from the following CoPs: Governance CoP, Knowledge and Learning CoP, Systems Praxis CoP, and Grass and Fire CoP.
- Village-level integrated planning has involved the following CoPs: Livelihoods and Well-being CoP, Sediment and Restoration CoP, and Governance CoP.
- Cross-TP events such as the Science-Management Meeting and the Road Show involved all CoPs.

Another small success in starting to work more collaboratively and integratively, has been through the formation of the Knowledge and Learning CoP which started working this year. This CoP, similarly to the Systems Praxis CoP, functions as a cross-cutting support CoP for the other four more 'substantive' CoPs. The main functions of the KL CoP are: Implementation of the PMERL system, coordination of capacity development across the TP, and support for knowledge management and mediation. We have been impressed and encouraged by the degree of participation in the iterative development of the social indicators out of Human's M.Ed. thesis, for example. However, besides the good progress on PMERL and Capacity Development, there are persistent challenges with knowledge management and mediation which relate to insufficient human and financial resources for managing the large volumes of data, information and knowledge, and difficulty in finding people with suitable skills set to work in this field. The need for capacity and expertise in communication and advocacy is also urgent: the Project Coordinator and the Catchment Coordinator, with support from the KL CoP, are doing much of this work, but it requires more attention and resourcing.

The roles of the Catchment Coordinator and Project Coordinator in working across the project is also critical for supporting collaboration and integration. Putting in place sufficient capacity for this work has been an important organisational outcome for the TP over the last two years. The expansion of the TP's social network described above are in a large part thanks to the careful and committed work of these two committed individuals: Nosiseko Mtati and Margaret Wolff.

What has become apparent in reflecting on the challenges of collaboration and integration in the TP is the importance of putting in place human and financial resources for integration and collaboration. There is a need to appoint not only 'subject specialists' e.g. those working within each CoP generating knowledge and supporting praxis, but also 'brokers, connectors and integrators' who can work across the CoPs to support collaboration, synthesis and integration. Moreover, those specialists working within CoPs and specific subject areas and praxis areas of focus, need to set aside time to work collaboratively and integratively with others.

It is also important to acknowledge that we may not all "know how to collaborate": there are often assumptions about people's abilities to collaborate.

**Table 5: Lessons learnt related to ORGANISATIONAL outcomes and processes**

<b>Lesson: "We have learnt that ..."</b>	<b>How was the lesson learnt, and by whom?</b>	<b>What does this mean for the project going forward?</b>	<b>'Common narrative threads' which illustrate this lesson</b>
<b>Lessons coming directly out of TP activities and processes:</b>			
...Giving younger, less experienced members of the team responsibility and the opportunity to do things their way builds their confidence and the team spirit.	This was a reflection out of the Road Show event which was organised by a young leadership team; it also emerged as a reflection on the role of younger leaders within the TP team at the SER conference.	We should continue trusting the young leaders in the TP to take responsibility and ownership of tasks and events. This is a key capacity development opportunity.	"The road show was a success. (...) we were a group of young people who worked very well together and learnt from each other...we were just taking each day as it comes." (Catchment Coordinator)
...Much time and effort has been dedicated to building relationships with different stakeholders and the outcome of this is starting to show through a more integrated way of working across these different stakeholders. However, some stakeholder groups, like the youth and private sector are still only lightly engaged.	Reflections on various events and activities hosted by the TP, by various CoP members and TP participants.	Relationship-building remains an important activity which should be sufficiently resourced and planned for.	"We have come a long way in building relationships with stakeholders and it seems like it is starting to pay off."
...Fewer people than expected apply for positions as CLOs, citizen monitors and vetiver monitors.	This is a reflection from the Catchment Coordinator, based on feedback on the recruitment process.	We may need to adjust our recruitment process, or adjust what we offer – maybe people are more likely to apply for full-time positions?	"I was surprised by how few people showed up for the interviews for CLOs in many areas. Only one area appears to have been well attended. In light of the rate of reported unemployment in the catchment, I expected larger numbers to apply for the positions."

...The importance of the role of the Project Coordinator to work across the system, and putting time and resources in place for this.	This is a reflection from the Project Coordinator	On-going resourcing of the Project Coordinator and support positions.	
... Communication about the work of the TP among catchment residents still needs more work – not all traditional leaders fully understand the work of the project.	B-team meeting reflections.	We need to continue prioritising in-catchment communication and advocacy work through LIMA and the CLOs about the work of the TP.	“The traditional leaders were unclear in how the work of DEFF and DWS are connected. This confusion potentially highlights how despite all the community engagement that have been done in the communities over the past few years, residents, including community leaders, still have little understanding of the work that the TP is doing and what we are trying to achieve with it.
... We need to improve connections/integration across CoPs, both within the RU team and also by including more non-research/RU participants in each of the CoPs.	This is a widely noted reflection, including from senior DEFF officials.	We need to develop more integrated work plans and deliverables, Another way to address this might be to make sure each TP member is an official member of at least two CoPs.	“Despite the effort to work in an integrative manner, breaking away from working in silos it is easy to divert back to working in silos. Different organisational, bureaucratic and institutional cultures appear to support working in silos making it difficult to establish a culture of working together.”
... Working in a systemic, collaborative, and adaptive way takes longer than more conventional project approaches.	This is a reflection from the Project Coordinator	Need to allocate sufficient budget and human resources to make it possible to put in the required time and effort.	“It is only by accepting the time and effort required to work in a complex social-ecological system and to continuously work towards understanding and being adaptive, that there is any chance of success towards sustainability of the project.”
...It is crucial to embed and give a home to the climate change and disaster risk reduction work in the TP.	Climate change report by Kate Rowntree.	It seems appropriate to embed the work of Prof Kate Rowntree on CC and DRR in one of the CoPs.	“We all recognise that climate change is across-cutting issue and an important integrator, but we need to build it in more actively into our work”
... it takes time and effort to put in place enabling conditions at the university to support the work of the TP.	Project Coordinators Report	We need to prioritise resources and other forms of support for the Project Coordination team.	“Time spent by Margaret and Cindy building relationships with the RU finance department has paid off in that it has helped build understanding of the complexity of the work of the TP, helped clarify reporting requirements and made it easier to find solutions to problems that

arise (marked improvement from Q1).”

**Lessons learnt from engaging more widely with other stakeholders / contexts (e.g. learning exchanges with other catchments initiatives, conferences, etc.)**

... Being recognised as a team and sharing successes is important for building team spirit and shared identity.	Tsitsa Project participants reflected on the positive team spirit they experienced at the SER conference and at the EI Indaba in Matatiele.	A simple thing like a t-shirt can help to create a shared identity and pride – we must pay attention to such insights e.g. CLOs are asking for t-shirts and should get them!	“It felt good to be at the SER conference together as a team – being there in our T-shirts made us proud to be part of this exciting project, which was a feeling we had not experienced previously.
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**iii. Working in the Tsitsa Project can be personally challenging and attention needs to be paid to participants’ well-being and motivation**

Whilst the ambitious scale and scope of the project and its intentions to ‘do things differently’ and ‘bring about change on the ground’ is a significant motivation for people’s involvement in the work (see Cockburn et al., 2018a), these very characteristics of the project also mean that the work is personally challenging and demanding of people’s time and energy. The two Reflection and Well-being Events hosted by PMERL this year have helped to create a space for people to reflect on the personal challenges of the work, and motivate each other to continue finding ways to manage the challenges whilst appreciating the opportunities which the work creates.

The PMERL team have also realised that part of the role of the Meta-Reflection process is for participants to be seen and heard. It has become apparent that the Meta-Reflection process is an important time to acknowledge and celebrate successes and milestones, i.e. for participants to be seen and recognised. Similarly, project participants want to be heard, and may need to express their frustrations, and PMERL can play an important role as a listener, by lending a compassionate ear.

In this way, PMERL is starting to realise its role in supporting the project team through reflection and moments to pause and share challenges and motivations with one another. The key challenge is now to create more such opportunities for the wider TP network beyond the RU team which has currently been the focus of the Reflection and Well-being events.

**3.3.2 Organisational aspects related to PMERL: reflections and way forward**

- **Progress with implementation of PMERL Framework:** indicators, Theory of Change (ToC), reflection events, synthesis and sense-making.
- **Finalisation of social and biophysical indicators:** the social and biophysical indicators have been selected through an iterative and participatory selection process and full-scale monitoring will start early in the next financial year, 2020-2021 (some have already started earlier).
- **Reflection and well-being teas/events:** these have given some depth to our understanding of what is going on in the project beyond the reports, at a deeper level. These events need to be broadened to grow participation across the range of TP partners beyond RU.
- **Challenges or gaps:** we still do not have an established monitoring system, although we are getting closer. There may actually be a lack of resource-allocation to monitoring both within CoPs and across the project as a whole.
- **Difficulty of embedding a culture of reflection, especially in reporting, within the current framework of ‘deliverology’ where the focus is on continuously generating new documents and products.** For example, where and when do we reflect on implementation of



all our plans and strategy documents (e.g. our "failure" to implement KM strategy (and others) should be reflected upon somewhere). Project participants are all very busy producing documents, but there is no accountability for what happens once the document has been produced. There are also problems with continuity in the team in terms of who developed the strategy and who will be implementing it). Embedding a subconscious culture of informal, ongoing reflection would be one way to address this. The 'Feedbacks into Praxis' table which the PMERL team has developed out of this Meta-Reflection process should assist with this (see Conclusion).

- **Reflective report writing skills that illustrate reflections and learning should be developed:** The PMERL team needs to work with the Tsitsa Project team members on what is needed in reports and how to write useful reflective and learning reports that are linked to the Tsitsa Project outcomes and principles. This appears to be especially problematic with student progress reports and managers of citizen technicians and monitors' reports.

**The way forward:** We need to find ways to link the TP PMERL monitoring, reporting and reflections to EPWP, DEFF and other M&E and reporting already taking place in the catchment, i.e. a dove-tailing or interleaving process needs to be investigated. The invitation from Michael Kawa to provide PMERL training for his staff (expressed at the Wisdom Trust Meeting in January 2020, see Box 4), is a valuable opportunity that can be used towards this goal. In addition, we need to put in place and support more monitoring systems (based on indicator protocols and digital data collection systems e.g. Open Data Kit (ODK)), continue working on expanding reflection events beyond RU TP participants and develop a long-term monitoring system for the TP, drawing on the value of systems approaches for identifying key variables. This needs to be operationalised on the ground through the 'community researchers' i.e. CLOs, citizen technicians, citizen monitors and eco-rangers, and through linking with DEFF and the implementers' M&E and reporting system.

### 3.4 SOCIAL-ECOLOGICAL outcomes and processes

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

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

The proto-vision of the Tsitsa Project (Box 1) 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 (Box 2), **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.

Last year's Meta-Reflection Report noted limited availability of social-ecological monitoring data from the catchment to report on these outcomes. This year we are able to report more (see for example

section 3.2.1: i. Knowledge generated on biophysical aspects of the catchment), although there is still much work needed to engage with the practical NRM activities being carried out by DEFF implementing agents in the catchment and the outcomes (social, ecological and social-ecological) arising from these.

This year, the following areas of progress were noted (see specific lessons learnt and common narrative threads to illustrate these in Table 7); these three areas will each be discussed in turn below:

**i. Significant new work on supporting sustainable livelihoods and catalysing local agency in the catchment:** This has taken the form of establishing vetiver grass nurseries in 38 households and a business entity to allow sale of the grass to DEFF-NRM implementing agents. This is supported by citizen monitoring of the vetiver nurseries and restoration work, and is supported by and various collaborations aimed at improving livelihood options for residents. There was also progress with related work under the newly established Grass-Fire CoP towards establishing grazing associations and conservation agreements, linked to improving livelihood sustainability. Discussions at the Wisdom Trust Meeting have prompted a widening of the potential sustainable livelihood options explored by the project to go beyond 'the usual suspects' related to restoration, e.g. to consider agroforestry, etc.

**ii. New employment and capacity development opportunities** were created in the catchment for Community Liaison Officers, Citizen Monitors and Eco-rangers. The appointment of a Catchment Coordinator, a Capacity Development Coordinator and our partnership with LIMA were important enablers of these opportunities.

**iii. Collaborative planning activities are promoting collective action** among stakeholders. Integrated planning workshops included field demonstrations, data sharing and discussion of norms and standards, and participatory mapping and mini-catchment planning was undertaken with residents. While still in the early stages, these collaborative activities provide the foundation for ongoing collective action in the catchment.

In the engagements with the residents who have taken up the three opportunities discussed here, we are seeing early signs of how the TP's work has potential to catalyse agency and collective action through engaging people in the project. However, the Tsitsa Project recognises that there is existing agency and collective action already present in the catchment and we are hoping to build on and further catalyse that, rather than assuming that we can "bring it in" from the outside as something that did not exist before the start of the project.

#### 3.4.1 Supporting sustainable livelihoods and catalysing local agency

The Livelihoods CoP has piloted the establishment of **home-based vetiver grass** (*Chrysopogon zizanioides*) **nurseries** to promote the cultivation of this species, which has useful soil-stabilising and water retention properties. The intention is that the vetiver grass is thereafter purchased by the DEFF-NRM implementing agents in the catchment (e.g. Gamtoos Irrigation Board and Take Note) for use in rehabilitation and avoided degradation work, thereby creating a local market through which local households will be able to generate consistent additional annual income.

Progress over the past year includes:

- Establishment of 35 household-based vetiver grass micro-nurseries and one community vetiver nursery across three nodes in the Tsitsa catchment - exceeding the target of 30 nurseries. This includes 20 households and one community garden in the Elangeni Traditional Council area, five households in Lower Tsitsana, and 10 households in Batlokoa. Potential beneficiaries have committed to the concept and 'Green-preneurs' are actively involved in growing vetiver grass in home-based nurseries (See Figure 8).



**Figure 8: A Green-preneur, Mrs. Joy Bara, sells the first of her vetiver grass plugs to Dr. Bennie van der Waal (Photo: Laura Conde-Aller).**

- Additional local benefits include introduction of rainwater harvesting and conservation methods for increased productivity, stabilisation of soil around homesteads, and the potential to expand home-based fruit and vegetable gardening in association with the vetiver grass.
- Establishment of a business entity with a bank account, which will enable participating households to make cash income from selling vetiver. This required establishment of a small, medium and micro-enterprise (SMME) which is registered as a Department of Environment, Forestry and Fisheries (DEFF) supplier. Individual micro-nurseries needed to constitute themselves as service providers with legitimate tax clearance certificates in order to be considered acceptable. The SMME encompasses growers from two villages located in the Lower Sinxaku area in Elangeni, namely Qulungashe and Maxesibeni. Production and supply of vetiver grass will be managed as a collective through an executive committee. It was also necessary for all parties to agree on a fair retail and/or wholesale price for the vetiver grass. This is a social outcome and a step towards actual economic outcomes for residents. Establishing the nurseries and SMMEs required significant support, and future planning needs to take into account the resourcing required to set up such formal institutions to support livelihoods opportunities.
- Capacity development through training of both nursery growers and citizen monitors. A “Greenpreneurs life stories and learning exchange visit” was held between participants of the Tsitsa Project and the Sustainable Land Management Project funded by the Global Environment Facility in Machubeni (GEF5-SLM).

Two **micro-catchment (village-level) integrated plans** have been developed for Elangeni (Qulungashe village in Lower Sinxaku) and Batlokoa (No. Five and Ntataneni villages in Hlankomo). These focus on integrating restoration initiatives, local employment and improvement of livelihoods and entrepreneurship opportunities, and reducing risks to households from storm water run-off. This process generated knowledge and understanding among local residents of the land degradation challenges and natural resource management priorities in their villages, and promoted new partnerships relevant to village-level planning. The process is a good example of knowledge co-production and social learning



between the diverse actors in the TP, but also relates directly to the management of ecological infrastructure in the catchment (managing soil erosion, run-off, springs, vegetation cover, and many more).

The above represents a promising start towards the goal of supporting sustainable livelihoods. However, there are still many unanswered questions about the feasibility of expanding this entrepreneurship activity more widely across the catchment. Future work should include development of a business case for vetiver nurseries through analysis of relevant human development data, establishment of the market, and ongoing capacity development.

The development of **livestock associations and grazing agreements** through the work of the newly established Grass and Fire CoP is another promising step towards supporting sustainable livelihoods. Should the livestock associations and conservation agreements be successful, they would hopefully lead to multiple social-ecological outcomes - so these are early building blocks.

The potential commitment of livestock owners to joining a livestock association and signing conservation agreements indicate that agency and collective agency are slowly being catalysed among residents and users of natural resources. They also indicate that indeed, livestock is a key livelihood asset for many households. Meat Naturally, an organisation that works with communities and NGOs in the Matatiele area in the upper Umzimvubu catchment, has offered to host auctions in the Tsitsa catchment if grazing plans are in place. This is a potential economic incentive for collaboration around grazing management.

There is a close connection between the work on livelihoods, local village-level planning, and sustainable livestock management, and climate change adaptation as outlined in Rowntree (2019). Many of these activities are forms of ecosystem or community-based adaptation, which are considered key social-ecological responses to climate change. These connections need to be made more explicit in the Tsitsa Project, as they not only demonstrate additional co-benefits of the existing work of the Tsitsa Project, but can also help to embed climate change adaptation in a more systemic way in the work of stakeholders and local residents.

### *3.4.2 Employment and capacity development opportunities within the Tsitsa Project*

As described above under organisational outcomes and processes, the Tsitsa Project has engaged much more directly and actively with catchment residents this year, particularly through employment of local residents and capacity development initiatives (See Table 3, Table 6 and Figure 9). Overall, we estimate at least 350 people benefitted from Capacity Development processes (formal and informal) in the Tsitsa Project during 2019-2020 financial year. This was in direct response to calls from residents for the project to offer more direct benefits to participants. For example, in the 2018-2019 Meta-Reflection report (Cockburn et al. 2019) one of the key lessons learnt was that “We need to put local catchment residents first”. The subsequent focus on employment opportunities and capacity development in 2019 is an indication of the project’s ability to respond and adapt based on stakeholder feedback. A significant success in this arena in 2019 was the appointment of a full-time Capacity Development (CapDev) coordinator, Dr. M. Weaver, who is a member of the KL CoP and also the Governance CoP.

In future Meta-Reflection processes, we also need to integrate data and insights on employment and capacity development from DEFF and implementers working in the Tsitsa Project.



**Figure 9: The first training course for monitors and liaison officers in the Tsitsa Project hosted in November 2019: Groups modelled their landscapes, discussed issues, causes and TP-relevant interventions.**

During 2019, the CoPs and other TP actors facilitated many engagements with rich learning outcomes. Even though learning outcomes are not always made explicit or captured/monitored, these often emerged from reflections. The Capacity Dev coordination effort in the TP is starting to encourage a culture of being alert to these learning outcomes and encouraging facilitation in a manner that promotes learning (Figure 9). Capturing, documenting and recording the multiple Capacity Development-related activities being facilitated within the TP is an administrative challenge. The CapDev Coordinator needs to develop an efficient system to keep track of these initiatives. The Monthly CoP Coordinators meeting could serve as a suitable high-level platform to receive updated information on initiatives.

One of the long-standing successes of the Tsitsa Project has been the citizen technician programme run by the Sediment and Restoration CoP (Bannatyne et al. 2017). In this monitoring programme, local catchment residents are employed to collect water samples from the river to aid in monitoring sediment levels. In 2019, we have built on the successes and lessons learnt in this initiative of the S&R CoP, and have employed additional local residents to support the monitoring, research and community engagement activities of the project.

We now have 18 people employed in three main functions in the project, supported by three CoPs. They are seven Citizen Technicians (CTs), five Citizen Monitors (CMs) and six Citizen Liaison Officers (CLOs) (See Table 6). They have participated in numerous formal and informal capacity development and training activities throughout the year, which have been facilitated collaboratively across the TP's CoPs, and coordinated by the Capacity Development Coordinator appointed in the Knowledge and Learning CoP (Table 6). There is currently work in progress to employ a fourth type of monitor in the TP, namely Eco-Rangers, who will be supported by the Grass and Fire CoP to monitor rangelands and livestock.

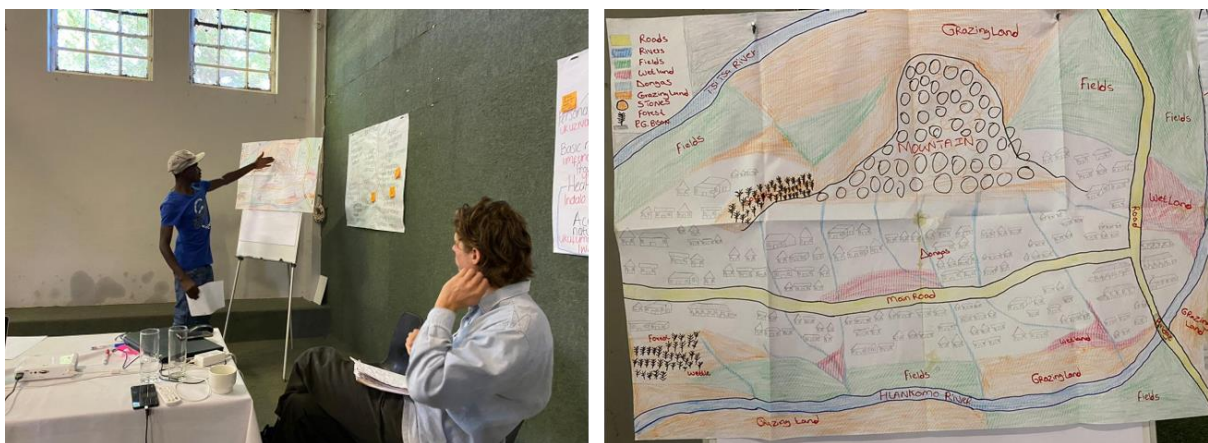
**Table 6: Employment and capacity development of local residents or ‘community researchers’ in three main roles in the Tsitsa Project**

Type of role	No. of employees	‘Home’ CoP	Location	Main tasks and nature of employment	Capacity development and training events
Citizen Technicians (CT)	7	Sediment & Restoration CoP	Ngqakaqheni Lower Sinxako Mandyimba Constitution Farm Vincent Location Ndzebe Gomeni	Monitoring sediment loads in the river.  Task-based employment: paid per sample of river water collected.	On-going training and support by S&R CoP.  TP Monitor Training Course Part 1: Nov. 2019  TP Monitor Training Course Part 2: Feb 2020
Citizen Monitors (CM)	5	Livelihoods CoP	Elangeni: Qulungashe Village in Lower Sinxaku  Batlokoa: No Five and Ntalyaneni Villages in Hlankomo	Monitoring livelihoods activities, especially vetiver nurseries.  Part-time employment: paid an hourly rate for work completed.	Micro-catchment integrated planning workshops  Participatory workshops: integrating restoration, livelihoods opportunities and household risks. No. of participants: Workshop 1: 68, Workshop 2: 64.  “Greenpreneurs life stories and learning exchange visit” to Machubeni: 12 Nov 2019.  TP Science-Management Meeting: Nov 2019  TP Monitor Training Course Part 1: Nov. 2019  TP Monitor Training Course Part 2: Feb 2020
Community Liaison Officers (CLO)	6	Governance CoP	Elangeni (Upper and Lower Sinxako); Hlankomo (No. 5 & Ntalyaneni); Lower Tsitsana (Sigoga & Mission) Basotho (Sofonia West) Upper Tsitsana (Mabalane) 6 - Basotho (Sofonia East)	Community engagement and liaison, monitoring social dimensions of TP.  Part-time employment: paid a fixed monthly wage.	6 x Learning Words workshops  Community-institutional mapping; ecological infrastructure mapping; village level planning  Tsitsa Project Roadshow October 2019  TP Science-Management Meeting: Nov 2019  Municipal Climate Change Adaptation Workshop: Jan 2020  TP Monitor Training Course Part 1: Nov. 2019  TP Monitor Training Course Part 2: Feb 2020

As mentioned above, through employing and training local residents to participate in the Tsitsa Project, we are in the early stages of enabling the realisation of local people’s agency and supporting collective action in relation to the vision of the Tsitsa Project. Through these activities (Table 6), we are building

the foundation for this, but it will take time to realise. We realise, however, that to facilitate collective action, it is necessary to understand the local dynamics and politics within the catchment. Moreover, we need to continue to work towards engaging women and youth in these opportunities, and possibly also the elderly who represent an important vulnerable/marginalised group. The youth is recognised as an important stakeholder in the catchment and there is concern that there is currently not enough focus on getting the youth involved with the activities of the Tsitsa Project. There has been a call for the TP to engage more actively in youth, not only in employment and training, but also in supporting young people in schools to access opportunities for further career development through study opportunities, etc.

Another key focus of the engagements with the ‘community researchers’, i.e. the CTs, CMs, and CLOs has been to understand their insights and knowledge of the catchment. We recognise them as key knowledge-holders, and appreciate all capacity development engagements as opportunities for co-engaged learning. We as researchers and implementers external to the catchment need to make the most of learning from the residents about their lived experiences in the catchment. The community researchers are well-placed to gather information on local, indigenous knowledge relevant to the project by engaging with their elders. This has become evident during the first two Monitor Training Courses, in which the community researchers have presented ideas on their own local research projects as part of course assignments. They have done this using creative ways of observing and presenting their local village and NRM-related challenges they are keen to address (see Figure 10). The community researchers’ commitment to engaging in the training courses and becoming involved in their communities as monitors and researchers has been encouraging.



**Figure 10: Lehana Msuwe from Village No. 5 presented the map of his village highlighting key features and natural resources for his capacity development course assignment (Photo: Bukho Gusha).**

The Systems Praxis CoP ran training workshops with members of the TP from both Rhodes University and the regional DEFF-NRM offices early this year. These have been hailed as a significant capacity development outcome for the project. Sharing these new and different ways of thinking about and doing the work within the TP is a key opportunity for the project to grow its impact not only in the catchment, but also to other aspects of DEFF’s work, and to their work in other areas.

### *3.4.3 Collaborative planning for collective action*

Collaborative planning for collective action at the village and regional level has been a third key social-ecological outcome of the work of the TP this year. These are key activities working towards the intended outcome of integrated landscape management as articulated in the TP’s vision. This work has been driven by the Sediment and Restoration and Livelihoods CoPs, at two key levels:

***i. Village-level planning for restoration of micro-catchments:***

Village based mapping of natural resource related issues and possible interventions was carried out in consultation with local residents in Qulungashe (T35E) and Hlankomo (T35A) (See Figure 11). Social outcomes of village-level planning included the development of new partnerships among the diverse stakeholders in the landscape as relevant to village-level planning. The actual restoration activities like rock packing and water-harvesting will need to be monitored to be able to assess the ecological outcomes of this work.



**Figure 11: Site visits to Qulungashe to plan interventions for village-level integrated planning and restoration (Photos: Laura Conde-Aller)**

***ii. Regional planning for the Tsitsa River catchment, T35A-E:***

The TP, through the S&R CoP, co-ordinated and hosted two regional/catchment level integrated planning meetings this year (May and July 2019). These brought together a range of stakeholders across the TP including researchers, planners, managers and implementers to collectively plan the avoided degradation and restoration activities for the catchment.

Integrated planning builds appreciation for the connectedness of biophysical, social, infrastructure etc. aspects of catchments. The integrated planning meeting included field visits and demonstrations at sites in the Lower Sinxaxu area. Facilitators demonstrated different methods for assessment, stock control, erosion control and spring protection. There was fruitful exchange of information on verification and assessment guidelines, reporting and terminology between DEFF, TP and other groups implementing restoration work.

The S&R CoP have noted that the TP activities need to relate to the ecological services outcome of silt suppression. Restoration and rehabilitation of spring catchments offers an opportunity to benefit health and livelihoods, even though direct protection of springs does not fall within the ambit of the TP – it aligns with the principle of ‘avoided degradation’ which the TP is applying in its work.

**Table 7: Lessons learnt related to social-ecological outcomes and processes**

<b>Lesson: “We have learnt that ...”</b>	<b>How was the lesson learnt, and by whom?</b>	<b>What does this mean for the project going forward?</b>
<b>Lessons coming directly out of TP activities and processes:</b>		
...Climate change is a risk for the outcomes and impacts of the TP. The TP should incorporate CC risks in its planning and implementation.	Scoping report on climate change in the Tsitsa Catchment (Kate Rowntree).	CC needs to find a home within the CoPs, and also to be included into the TP indicators - this will probably require refinement of the livelihoods indicators as well as addition of new ones related to spatial planning.
...Interventions in the catchment have to take various complex social and ecological systems into consideration. Therefore, it could be wise to take more time to plan initiatives because rushing it can have more negative outcomes in the long run.	Livelihoods CoP (Laura Conde-Aller).	Continue with collaborative planning and don't rush into initiatives with communities. Also, the TP can take an experimental approach coupled with good monitoring and “learn the way forward”.
...The process of collaborative planning enables learning (by focusing different stakeholders on something specific), builds common purpose and also builds relationships.	S&R CoP, those involved in integrated planning activities, Livelihoods CoP, Governance CoP.	Continue building opportunities for collaborative planning (and then doing), because it is a useful enabler of future collaboration.
...It is more cost-effective to undertake preventative work, than to spend millions e.g. on a single concrete structure which would require input from engineers, EIAs, permits etc.	S&R CoP, through engagement with DEFF and implementers of restoration work.	Focus on avoided degradation and low-tech restoration methods. This has more potential for local livelihoods and also fits well with the focus of the UN Decade of Restoration.
... The focus of the Tsitsa Project is restoration and avoided degradation with sustainable land management regardless of the decisions being taken around the dam.	DEFF re-iterated this during the B-team Meeting, the Science-Management Meeting and the Wisdom Trust Meeting.	We should continue focusing on the core vision of the TP and not get distracted by discussions about the dam; reducing sedimentation for the dam should not be the central focus of our narrative when talking about the project. However, we need to be ready to engage should the dam go ahead (for example, with the issue of erosion related to road construction).
<b>Lessons learnt from engaging more widely with other stakeholders / contexts (e.g. learning exchanges with other catchments initiatives, conferences, etc.)</b>		
The TP is indeed leading within the ecological restoration research community. Very few restoration initiatives have specifically employed learning-oriented M&E systems, and even fewer have co-developed their indicators together with stakeholders. The linkages and relationships between local residents and senior managers being built through the TP also also significant.	PMERL team, SER conference.	We should continue leading the way in this work, but also seek out opportunities for learning and exchange beyond the TP so that we do not become complacent.
... There is a growing call for us to work directly with the youth and ensure that they benefit (i.e. get social outcomes) from the work of the project.	Interactions with people at various external events, comments at Science-Management Meeting.	Focus on creating opportunities to engage the youth.
...Consistent presence and work in an area can produce great results on the ground.	UCP learning exchanges, comments at Science-Management Meeting.	Find ways to ensure ongoing presence and avoid the trap of “projectisation”.

<Note for final report prep: Try to add narrative threads or quotes to this table>

### 3.5 Challenges in implementing the Tsitsa Project

Despite the progress the Tsitsa Project has made during the 2019-2020 financial year, there were challenges that are worth noting because learning to speak to these challenges can help to overcome them and strategically adapt the ways in which we plan and implement activities in the Tsitsa Project. These challenges are noted below:

#### 3.5.1 Local politics and tensions

Local politics and tensions between different villages and households should be acknowledged and planned for. The catchment is not a homogenous area. There are local differences that influence how people want to be engaged. Local political leaders can influence processes in a way that is not beneficial to the broader community. When engaging with communities, stakeholders should be vigilant and sensitively engage with these potential stumbling blocks. Sound knowledge of local customs, politics and relationships between different stakeholders are important to navigate the space carefully. An orientation to newcomers entering the programme, and especially working in communal areas for the first time is important. Ongoing engagement and guidance from the community engagement officer who is intimately aware of the local context and relations between different stakeholders.

#### 3.5.2 Working collaboratively

Despite much progress that has been made with regard to working together and breaking away from the culture of working in silos, the threat of reverting back to this practice seems to be constantly looming. Active effort should be made to remain constantly reflective on whether we are adhering to the principle of working collaboratively or falling back into old habits of working in silos. Together with this, it is an ongoing process to integrate all the relevant stakeholders into the Tsitsa Project and getting them to work together. Some key government stakeholders are still absent from meetings, such as the Department of Education, DRDAR, local government, the youth and private sector. We also need to collaborate more effectively with the various university partners such as UFS, UFH, Wits Stellenbosch University, Wageningen University, etc. Building relationships and having knowledge exchanges with local government also continues to be a slow process and valuable opportunities and links between the work done can be missed. The presence and participation of all these stakeholders in the Tsitsa Project is essential for the representation of all the relevant stakeholders in the Tsitsa catchment. It is therefore necessary for the Tsitsa Project to always have an ear on the ground to know what events are taking place in order to participate in networking and knowledge exchange events that can be utilised to build relationships that are foundational to working collaboratively. However, the remote location of the catchment and the long distances stakeholders have to travel to and within the catchment pose logistical challenges. This also poses a challenge to collective action. Meeting people in the catchment and having enough time for meaningful interactions is difficult. The busy schedules of the Tsitsa Project stakeholders also pose a challenge for collaborative work. Most stakeholders involved with the Tsitsa Project work on multiple programmes and find it difficult to balance the demands and obligations from different programmes. Together with this, coordinating diaries of different stakeholders working on multiple programmes in different organisations and departments is difficult. Adding to this is the lack of continuity of representatives from different stakeholder groups. Different representatives from departments are sent to meetings that slows down the momentum of discussions and planned activities as people have to take a few steps back to bring newcomers on board with what was discussed and agreed upon in previous meetings.

#### 3.5.3 Recruiting suitably skilled human resources onto the Tsitsa Project

It appears that it can be a challenge to recruit newcomers with specific skills to work on the Tsitsa Project. The Tsitsa Project is a very complex programme with many different aspects to it. Entering the programme requires new stakeholders to acquire a lot of new information and knowledge which can

be a slow and sometimes intimidating process. Getting to grips with the details of the programme can thus be a steep learning curve. This further speaks to the importance of capacity development at various levels of the Tsitsa Project to enable stakeholders to meaningfully engage with the programme and lower their levels of stress and protect them against potential burn-out. Internal capacity development can potentially also upskill stakeholders already involved in the programme and prepare them to take on positions with more responsibilities and that require higher skills levels.

#### *3.5.4 Communication, knowledge management and mediation*

Open, clear communication is crucial for such a large programme to keep everyone on the same page. Knowledge management and mediation, as well as advocacy can play an important role here. Moreover, access to knowledge products and resources needs to be easy, which it currently is not. One of the challenges with knowledge management and mediation is the shortage of human resources in this department. It is a big task that is difficult, if not impossible to manage as a small part of another job description. As the Tsitsa Project grows, the importance of having good knowledge management and mediation also grows to help keeping everyone informed and on the same page. Recruiting a knowledge management and mediation officer would fill an important gap in the Tsitsa Project and address many challenges regarding access to data and information as well as communication and advocacy.

#### *3.5.5 Insufficient diversity of input in reflection and learning engagements*

PMERL has to plan to have reflection and learning engagements that include the 'wider Tsitsa Project network'. This will require building trust and getting formal agreements in place that can protect the different stakeholders. The PMERL team also needs to expand their scope of reports that are being reviewed and if possible include reports from outside Rhodes University. Again, this would require building significant trust and having formal agreements in place for intellectual property and confidentiality, to only name a few problematic areas. The capacity and reflective report writing skills of those responsible for coordinating and writing reports also need to be developed to ensure that the reports that are being produced offer valuable insight and learning. Workshops can be hosted by the PMERL team to capacitate stakeholders to be more reflective in their report writing and on how to identify and report on learning.

### **3.6 Reflections on the Tsitsa Project Founding Principles and Vision**

The founding principles of the TP (see Box 1) are intended to guide all work done under the project and are themselves guided by the project's vision. In keeping with the commitment to a collaborative, reflexive and adaptive orientation (Principle 3), the principles were collaboratively developed and are reflected on and revisited on an on-going basis, as we learn from our praxis. They are to be "kept alive, challenged, updated and above all, implemented" (Biggs et al. 2018).

#### *3.6.1 Reflections on Principles*

The process of reviewing and analysing the documents for this Meta-Reflection report showed us that the principles are very much alive in the work of the TP. Major events such as the Roadshow, the integrated planning processes, and the Science-Management Meeting addressed most, if not all, of the principles. The linkages between the TP's work over the past year and the different principles are summarised in Table 8.



**Table 8: How the work of the TP addresses the founding principles**

Principle	“This principle was addressed this year through...”	‘Common narrative threads’ which illustrate this principle
1. SES and resilience thinking	<ul style="list-style-type: none"> <li>• Systems CoP stakeholder workshops and research.</li> <li>• Livelihoods work, which integrates social and ecological outcomes.</li> <li>• Work on climate change risk and vulnerability.</li> <li>• Integrated planning at the village and regional levels.</li> </ul>	<p>“Interventions in the catchment have to take various complex social and ecological systems into consideration. Therefore, it could be wise to take more time to plan initiatives because rushing it can have more negative outcomes in the long run.”</p> <p>“Implementing integrated activities is complex in a programme that involves many different stakeholders/ institutions/ implementers who need to co-ordinate their activities. It seems like the integrated planning processes help to smooth this over.”</p>
2. Trans-disciplinarity	<ul style="list-style-type: none"> <li>• Reflection on the TP’s Research &amp; Praxis Strategy.</li> <li>• Inter-CoP collaborations around integrated planning workshops etc.</li> </ul>	<p>“Much information and knowledge sharing is needed between the different CoPs and stakeholders for the realisation of something such as the rangeland management plan because it is very transdisciplinary and integrated.”</p>
3. Collaborative, reflexive and adaptive orientation	<ul style="list-style-type: none"> <li>• Participatory indicator development process.</li> <li>• A more engaged and participatory Science-Management Meeting.</li> <li>• Programme innovations. including joint budgeting, presence of a full-time project manager and regular cross-unit meetings.</li> </ul>	<p>“Most importantly, the interactions with other project members and stakeholders enabled the different CoPs to align their activities (e.g. CoP coordinators meeting), develop shared knowledge on, for instance, purpose of the Capacity Development Programme, and furthermore; the integration of the ES&amp;L CoP activities in the wider catchment integrated planning, to name a few.”</p>
4. Expansive learning and capacity development	<ul style="list-style-type: none"> <li>• “Learning words” workshops</li> <li>• Appointment of a full-time catchment coordinator, catchment based facilitators (LIMA), community liaison officers and citizen monitors.</li> <li>• Training of monitors.</li> <li>• Supervision of students and Annual Research Colloquium.</li> <li>• Mentoring of younger team members by older members.</li> <li>• Presentations at conferences (including by a citizen technician).</li> </ul>	<p>“Capacity building is important to enable boundary crossing and interdisciplinary work and collaborations among the different disciplines and stakeholders in the catchment”.</p> <p>“DEFF expressed repeatedly that T35 is a catchment that has more freedom than others and with the research backing we can try things and be ‘experimental’.”</p>
5. Polycentric governance	<ul style="list-style-type: none"> <li>• Work of the Governance CoP</li> <li>• A main focus in the Research &amp; Praxis Strategy v2.</li> <li>• Initial work to form grazing associations.</li> <li>• Integrated planning at village and regional levels.</li> <li>• Stronger relationships with Traditional Leaders.</li> </ul>	<p>“We have shifted our understanding about how to enable polycentric governance from looking at catchment management forums, to investigating networked approaches, to looking at how to support existing forums like the district-level Environmental Forum”.</p> <p>“Integrated planning is providing a platform for governance processes at the most local level” .</p>

6. Equitable participation	<ul style="list-style-type: none"> <li>• “Learning words” workshops to ensure messages are not “lost in translation”.</li> <li>• Development of a women’s capability framework.</li> <li>• Stakeholder Engagement Strategy and investigation of ways of involving the youth.</li> <li>• CLOs in place to help monitor participation.</li> <li>• Greater participation of residents in monitoring.</li> <li>• Translation of some communications materials into isiXhosa.</li> </ul>	<p>“By empowering local residents to monitor natural resources we hope they can become community researchers and feel more able to engage in decision-making”.</p> <p>“We see that women and youth are sometimes excluded from decision-making in the traditional authority processes – we need to find ways to address this inequity”.</p>
7. Scientific-technical foundation and evidence base	<ul style="list-style-type: none"> <li>• Biophysical monitoring and baseline data.</li> <li>• Greatly improved understanding of social aspects of the catchment.</li> <li>• Work on biophysical and social monitoring methods and protocols.</li> </ul>	<p>“Work and the implementation of plans can build on existing knowledge and information. This knowledge and information needs to be accessible to prevent the duplication of work and research.”</p>

The PMERL function within the Knowledge & Learning CoP plays an important role in supporting the TP in working according to its principles (See Box 2). The work of PMERL, like that of the Systems Praxis CoP, is fundamentally relational, connective and process-oriented.

### 3.6.2 Reflections on the Tsitsa Project Vision

The vision of the Tsitsa Project is “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” (see Box 2). Reflecting on the achievements of the past year against this vision, it is clear that there is still a long way to go to achieve resilient social-ecological systems and equity in access to ecosystem services. However, there has been progress towards supporting sustainable livelihoods for local people through integrated landscape management, albeit in a small part of the total catchment. Support for livelihoods within multi-functional landscapes, and exploring a more diverse, innovative and out-of-our-comfort-zone range of livelihood options together with partners was a key recommendation from the Wisdom Trust Meeting in January 2020. The capacity development initiatives of the TP which were a key focus of 2019 also have the potential to contribute to empowering people and catalyzing agency. These are key processes for shifting to the more participatory forms of governance which are necessary to foster equity in access to ecosystem services.

## 4. REFLECTIONS ON THE WAY FORWARD FOR THE META-REFLECTION PROCESS

Key insights from the meta-reflection workshop and report feedback, which will be used to refine and guide the meta-reflection process and PMERL work going forward, are captured in Box 5 below. The meta-reflection process and report aim to get feedback and input from diverse Tsitsa Project stakeholders throughout the year. This is an ongoing process and the PMERL team is continually working towards getting input and participation from a more diverse stakeholders in the catchment. This includes community members, implementers, local, provincial and national government, and researchers from universities other than Rhodes University.

### Box 5: Insights and feedback from the Meta-Reflection Workshop to guide the way forward for meta-reflection and PMERL in the Tsitsa Project

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



This photo shows the closing reflection activity at the Meta-Reflection workshop – an example of PMERL's attempts to bring in arts-based and embodied reflection approaches: each participant shared their highlight from the day and we threw a ball of string as we moved along the circle which demonstrated how we are all connected in quite a visceral way (Photo: Ant Fry).

The PMERL team recognises that there is much room for improvement and growth in the process to get better integrated and ongoing feedback from the diverse stakeholders in the catchment with multiple feedback loops that can be used for feedback for integrated planning and strategic adaptive management.

The real value of the meta-reflection process and report lies in the valuable insights it offers for the purposes of planning, budgeting and SAM.

In this light, the purpose of the report is to allow the PMERL team to pick up on new matters arising in a timely manner that can allow timely feedback to stakeholders for SAM. Planning is underway to better incorporate the meta-reflection process and report with the processes of planning, budgeting and SAM in the future (See Table 9).

The meta-reflection process and report is in itself a process of ongoing reflection and learning. The PMERL team is continuously adapting the methods used to better meet the needs of the stakeholders and reflecting on how reflection and learning opportunities and methods can be improved and expanded. The aim is to get ongoing feedback from diverse stakeholders and make PMERL more 'polycentric' by sharing the responsibilities of reflection and learning with PMERL champions located in different stakeholder groups. Input from diverse stakeholders can provide a better, more holistic understanding of the catchment and the work happening in the catchment. Synthesising this feedback and creating opportunities for strategic planning based on regular reflection and learning on an ongoing basis is what the PMERL team is ultimately working towards.

In the next financial year (2020-2021), smaller reflection reports will be produced throughout the year (quarterly basis) based on analysis and synthesis of reports and reflections produced by stakeholders. This will happen in collaboration with Knowledge Management and Mediation to facilitate PMERL's access to these reports. Data gathered with ongoing monitoring will also be included in these reports. Feedback will then be given to Tsitsa Project stakeholders with opportunities for reflection and input at quarterly Reflection and Well-being Teas/Events, and a wider range of participants will be invited to these beyond the RU group.

## 5. CONCLUSION AND RECOMMENDATIONS FOR ADAPTING PRAXIS

This second Tsitsa Project Meta-Reflection Report is a key product of the PMERL system of the project. It is based on a systematic approach to drawing together evidence across the project to reflect, evaluate and draw out lessons to inform future planning. Whilst we have reported on activities and outcomes of the project in a numerical manner (where possible), the main focus of the report has been a narrative account of the project's work in 2019-2020. The intention has to provide a synthesis of the project over the year, to identify key insights and recommendations to guide the work of the project going forward. It is important to acknowledge that a synthesis across a project of such large scope, scale and complexity will invariably be incomplete. We have done our best with the available resources to capture the diversity and depth of the project's work and to offer critical and helpful reflections.

The 2019-2020 financial year has seen important shifts in the work of the TP after a long period of building foundations of both knowledge and relationships. The feeling of shared identity and momentum in the project which has been expressed by many people indicates an initiative which is maturing and ready to start making a meaningful impact in the world.

The TP is continuing to develop knowledge on the social-ecological system of focus, i.e. on the biophysical and social aspects of the Tsitsa River catchment. Key **knowledge outcomes** this year on biophysical aspects have been the development of important baselines for biophysical monitoring, a better understanding of vegetation cover and fire dynamics, and a growing understanding of sediment processes. Knowledge generated on the social aspects includes a better understanding of catchment residents' needs, interests, motivations and knowledge related to natural resource management and

potential opportunities within the Tsitsa Project. This has come about through student research and through workshops e.g. the Learning Words and Village-level Integrated Planning workshops. Peer-reviewed publications also attest to the wide range of expertise associated with the project, ranging from participatory mapping, to transdisciplinary research practice, and resource economics and systems dynamics modelling.

Reflections on the **knowledge processes** from which these outcomes emerge have revealed that while we are striving for knowledge co-production and integration across knowledge systems, this is difficult to get right in practice. We are paying attention co-engaged learning with catchment residents, and we are drawing on a range of disciplinary expertise to generate knowledge, but truly integrating these into praxis and sharing knowledge effectively across the wide range of project partners is difficult.

Some of the most significant **outcomes of the project have been identified in the organisational domain**. The Tsitsa Project has seen significant expansion of its organisational and social network, both within the catchment itself, and with a wider range of stakeholders such as those working in similar catchment initiatives and with academics. Working according to the Tsitsa Project's principles of collaboration and integration is an on-going organisational challenge. Deeply rooted institutional cultures and structures, along with the culture of 'deliverology', are particular impediments to collaboration and integration. As the project is ambitious and seeking to transform these institutional barriers, working in the Tsitsa Project can be personally challenging and demanding, and attention needs to be paid to participants' well-being and motivation. The PMERL team are taking this seriously and looking for creative ways to support and motivate project participants.

An important **organisational outcome relevant to the work of PMERL** has been the formation of the Knowledge and Learning CoP, and its support of both PMERL and Capacity Development initiatives in the project. Despite on-going challenges related to knowledge management and mediation, both these core functions (PMERL and CapDev) have contributed to key organisational processes and outcomes in the TP this year.

Monitoring to track **social-ecological outcomes** is still very much in the infant stage in the Tsitsa Project and so it is challenging to report on these. Systems thinking will be important in specifying more detailed pathways of change towards the desired outcomes. There is wide recognition that we need to dovetail with the monitoring, evaluation and reporting systems of DEFF in order to get a better understanding of the social, ecological and social-ecological outcomes of the on-the-ground implementation work they are doing. The invitation from the regional DEFF office to facilitate an introduction to PMERL to for the regional DEFF team is a very promising sign. There are early signs of potential social-ecological outcomes being generated through the RU-driven aspects of the TP. These are emerging from three main areas of activity: 1. exploring and supporting the development of sustainable livelihood options (initially through vetiver grass nurseries), 2. creating employment and capacity development opportunities (particularly for citizen technicians, monitors and liaison officers), and 3. collaborative planning for collective action which is starting to take place both at the village level and the regional level. These are all early outcomes which can enrich and support the work of the regional DEFF-NRM teams and implementing partners. It is also within these domains of activity that we are starting to see improved collaboration and integration across the CoPs, and across the research-implementation boundary.

The following key **challenges in implementing the project** were identified: Local politics and tensions; working collaboratively; recruiting suitably skilled human resources onto the Tsitsa Project; communication, knowledge management and mediation; and enabling more diverse input in reflection and learning engagements. It is interesting to note that majority of these challenges relate to organisational aspects of the project, rather than the oft-cited 'deeply challenging context' in which the project is located i.e. a catchment characterised by a shortage of skills and opportunities and high rates of poverty, unemployment, and crime.



In **reflecting on our principles**, we found that the principles are very much alive in the work of the TP. Major events such as the Roadshow, the integrated planning processes, and the Science-Management Meeting addressed most, if not all, of the principles. Many of the collaborative activities highlighted above as starting to bring about social-ecological outcomes and support integration across the project are also addressing many of the principles. In looking at each individual principle, we were able to identify between two and six key activities during the year, which spoke directly to that principle. Nonetheless, we should not be complacent: working consistently, and honestly, according to all these principles across the large scope and scale of the project is a significant undertaking and we must continue to reflect on this process and keep our eye on the ball.

We conclude this report by highlighting **eight key lessons learned**, out of which we provide **five key recommendations** for the Tsitsa Project to adapt its praxis. We present these below in an illustrated format. Thereafter we provide a detailed table (Table 9) in which outline the implications (So what?), adaptations and actions (Now what?) and recommend responsible individuals and groups (Who?) to take forward the lessons and recommendations. It is important to note that this table is a work-in-progress tool drafted by the PMERL team as an offering to support SAM in the TP. The implications, adaptations and actions, and responsible parties are currently suggestions and need significant deliberation and refinement by the TP team as part of an adaptive planning process (APP).

## Key lessons and recommendations from the Tsitsa Project Meta-Reflection Report 2019-2020:



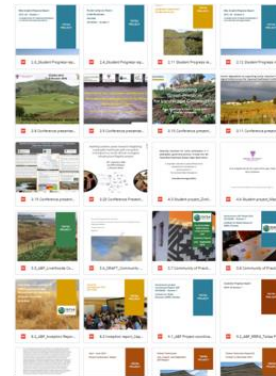
**Lesson 1:**  
**The Meta-Reflection Report and process operates as a ‘Learning-oriented Annual Report’.**

The meta-reflection report and accompanying process plays the role of an annual report for the Tsitsa Project (TP) with an emphasis less on numbers of outputs (which are captured in quarterly reports); and more on surfacing emerging learnings across programme elements, and highlighting pointers for forward planning. It should be used to support Strategic Adaptive Management (SAM) in the project.



**Lesson 2:**  
**We are generating large amounts of knowledge that requires management, mediation and communication.**

It is time-consuming to collate and manage all the available material. It was however pleasing that there was a significant body of information available for analysis in the meta-reflection process, including field reports, research reports and ‘well-being tea’ reflections produced by Rhodes students, staff and the PMERL team itself. Nonetheless, knowledge management and communication remains a key function which is under-resourced in the TP.



**Lesson 3:**  
**Our greater presence in the catchment is significantly expanding the collective TP identity.**

The past year saw the TP extending its engagements in the catchment, beyond research and introductory work. Key activities which have supported this include: the appointment of a full-time Catchment Coordinator, catchment based facilitators (LIMA), CLOs and monitors from among the residents; the hosting of workshops to build general understanding of the TP’s work, and more specific training of monitors; and the expanding praxis-oriented work on livelihoods, integrated planning, governance, and capacity development work.



**Lesson 4:**  
**We are learning to do “PRAXIS” together, i.e. we are conducting action-oriented, engaged research that involves a range of partners.**

We are making strides in diverse aspects of PRAXIS, including, amongst other activities of citizens, practitioners and scientists working together: with citizen engaged science, the uptake of integrated management and planning, research into the benefits of environmental monitors, a conference presentation by a catchment resident, a participatory process of indicator development, and the provincial DEFF asking the TP to give guidance on PMERL to its staff, livelihoods and enterprise development, climate change workshops and engagements, and engaged research on women’s capabilities.



Sources: Icons from <http://handdrawngoods.com>. Photographs by Nosiseko Mtati and members of various CoPs.



**Lesson 5:  
Slow and careful  
relationship  
building is vital.**

The above learning and outcomes have all been made possible by a lengthy preparatory period involving slow and careful relationship building, as well as the appointment of a full-time Catchment Coordinator and Project Coordinator. Evidence for this includes growing trust in the Catchment Coordinator: e.g. local residents are approaching the CC to help with communication with implementers/DEFF, and to get NRM implementation going in their areas.



**Lesson 6:  
The Tsitsa  
Project's profile  
is growing.**

The TP has gained a considerable profile nationally and even internationally, and these events have had multiple positive impacts on the project e.g. building collective identity, encouraging youth leadership, etc. It remains an exhilarating challenge to give practical expression to the ambitious ideas the TP aims to implement.



**Lesson 7:  
Youth leadership  
is growing in the  
TP.**

A large number of young women and men have joined the TP as staff, Masters and PhD students, Post-Docs, and community researchers in the catchment, and they are stepping into leadership positions in the project. The TP is seeing an important growth in youth leadership in the catchment through community researchers including CLOs, citizen monitors, etc.

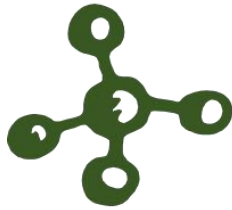


**Lesson 8:  
We need to work  
above and  
beyond  
deliverables,  
while managing  
operations,  
budgets and  
planning ahead  
collectively.**

It remains a challenge to operationally conceive of the TP as one programme and to work programmatically, when the budget is sliced up according to deliverables. The TP needs to find a way to work above and beyond deliverables in order to optimise the value of such a big undertaking. The support of Rhodes University in providing a financial buffer and easing the deliverable burden/pressure is significant and needs to be acknowledged – it is unusual for a university to do this.

Sources: Icons from <http://handdrawngoods.com>. Photographs by Nosiseko Mtati and members of various CoPs.





**Recommendation 1:**  
*Improve organizational collaboration and stakeholder engagement across various entities in the project including within and across CoPs, with partners in the catchment and beyond, and with other universities.*



**Recommendation 2:**  
*Improve integration of work of the RU TP team and LIMA with DEFF, implementers, traditional authorities and catchment residents through integrated planning and participatory monitoring.*



**Recommendation 3:**  
*Conduct synthesis of research outputs, data and other forms of knowledge and information. This should be geared towards a 'HOW-TO' for the Tsitsa Project as an enhancement of the integrated restorations plan for the nodes.*



**Recommendation 4:**  
*Continue building the collaborative, praxis-oriented work to explore livelihood options and climate change adaptation.*



**Recommendation 5:**  
*Further operationalise PMERL, with a particular focus on developing a monitoring system and building capacity.*

= 'Integration Challenge 1': Integration and collaboration across the wide range of entities, organisations and stakeholders involved in the TP. The key challenges is expanding more actively beyond the RU TP group, and involving a wider range of TP partners in the catchment and in other universities in activities like Meta-Reflection, etc.

Integration and collaboration across the entities is about relationality and a sense of belonging and we need to pay attention to this in our practices e.g. branding and t-shirts for stakeholders, reports that show more connectedness across CoPs, etc. As one M-R workshop participant commented: "Real integration takes time, lots of time and budget and trust".

= 'Integration Challenge 2':

Integration of work and activities of catchment-based partners. The key challenges is expanding more actively beyond the RU TP group, and involving a wider range of TP partners in the catchment and in other universities in activities like Meta-Reflection, etc.

= 'Integration Challenge 3': Integration and synthesis of knowledge across various forms of data and research outputs. The time is ripe to conduct a review of the findings of the various studies (past and present) and monitoring initiatives that are already underway, and look for patterns within and across domains, so as to inform further monitoring, research choices and where appropriate, recommendations to the restoration teams. i.e. we need to build on and draw on our existing knowledge. Such a study should also include a 'HOW-TO'/Toolbox based on careful reflections on the learning within the project, and identify the lessons learnt from some of the more challenging relational and process-related aspects of the projects related to collaboration, integration, and adaptive management as these are unfolding within current institutional constraints.

The collaborative, praxis-oriented work on exploring and experimenting with livelihood options is a key success of the project and should be supported going forward. The advice of the Wisdom Trust to identify a wider range of development options for the catchment and facilitate access to those, even if through partnering with new partners, should be taken up. Together with this, a more thorough understanding of the multiple ways in which the landscape, livestock and natural resources are valued by catchment residents as livelihood assets is needed.

Putting in place long-term monitoring system that helps us to track social, ecological and social-ecological change and impacts in the landscape needs to be prioritised. This needs to be modelled as far as possible on the citizen-based monitoring activities already emerging in the project in order to not only share the benefits of the project, but to empower citizens to become 'community researchers' and engage with the landscape. This system should help to link existing PMERL work more directly with the 'people on the ground' and the wider TP stakeholder network, i.e. beyond the RU TP group.



Sources: Icons from <http://handdrawngoods.com>. Photographs by Nosiseko Mtati and members of various CoPs.

**Table 9: Feedbacks into Praxis from Meta-Reflection: Suggested ‘Adaptation and Action Plan’ to support Strategic Adaptive Management (SAM)<sup>1</sup>.**

<b>WHAT? (Lessons and Recommendations)</b>	<b>SO WHAT?<sup>1</sup> Implications: what this means for how we do things</b>	<b>NOW WHAT?<sup>1</sup> Adaptation and action needed to take this forward</b>	<b>WHO?<sup>1</sup> Recommended actors/groups to take this forward</b>
<b>Part 1: Key lessons learnt i.e. ‘We have learnt that...’</b>			
<p><b>1. The Meta-Reflection Report and process operates as a ‘Learning-oriented Annual Report’.</b> The meta-reflection report and accompanying process plays the role of an annual report for the Tsitsa Project (TP) with an emphasis less on numbers of outputs (which are captured in quarterly reports); and more on surfacing emerging learnings across programme elements, and highlighting pointers for forward planning. It should be used to support Strategic Adaptive Management (SAM) in the project.</p>	<ul style="list-style-type: none"> <li>We need to use the report more directly in adaptive planning and management to act on learning, i.e. build in a ‘Part 2’ of the meta-reflection process.</li> <li>Make the process more inclusive and on-going through quarterly synthesis, reflection and inputs into an institutionalized SAM process.</li> <li>Catchment residents and implementers in the catchment should be part of meta-reflection and SAM process.</li> <li>We should consider bringing in more review: internally and externally, e.g. peer-review of internal reports, and external peer-review of the project as a whole.</li> </ul>	<ul style="list-style-type: none"> <li>Use Meta-Reflection recommendations and outcomes directly in planning for 2020-21 year.</li> <li>Need to keep working on building a culture of reflection in the TP which extends beyond the RU group.</li> <li>Consider compiling a brief status report or summary on key indicators preceding the time-period of the annual meta-reflection: this short summary could be appended annually with the addition of new work.</li> </ul>	<ul style="list-style-type: none"> <li>PMERL and Project Coordinator to work with Jai, Bennie and others to convene an “Adaptive Planning Process” (workshop) for 2020-21 to take M-R findings forward.</li> <li>PMERL and Systems CoP to support reflection on how to take lessons from this and ‘institutionalise’ SAM within the TP, and take it beyond the RU TP group.</li> <li>PMERL to engage with DEFF on dovetailing/interleaving to and bring them into the meta-reflection process.</li> <li>PMERL to offer training across the TP on how to write reflectively in reports, and to keep updating templates and providing guidelines on how to reflect.</li> </ul>
<p><b>2. We are generating large amounts of knowledge that requires management, mediation and communication.</b> It is time-consuming to collate and manage all the available material. It was however pleasing that there was a significant body of information</p>	<ul style="list-style-type: none"> <li>Good knowledge management is critical to support PMERL work and improve collaboration, communication and integration across the TP.</li> <li>Knowledge also needs to be mediated (e.g. the way in which the</li> </ul>	<ul style="list-style-type: none"> <li>Need for better management of project reports and research outputs (e.g. database, website, etc.).</li> <li>Need for processes to mediate knowledge: people sharing updates on their</li> </ul>	<ul style="list-style-type: none"> <li>KL CoP to work closely with Project Coordinator and Catchment Coordinator to ensure the KL Support Officer addresses key KM and PMERL priorities as identified in this report, especially: an accessible database of reports and theses, etc., weekly/monthly updates on new</li> </ul>

<p>available for analysis in the meta-reflection process, including field reports, research reports and ‘well-being tea’ reflections produced by Rhodes students, staff and the PMERL team itself. Nonetheless, knowledge management and communication remains a key function which is under-resourced in the TP.</p>	<p>M-R report has been done), and communicated with the TP network.</p> <ul style="list-style-type: none"> <li>• Need to invest resources in knowledge management, mediation, and communication: A person has been appointed to provide additional support to the KL CoP, focusing on PMERL and Knowledge Management.</li> </ul>	<p>findings in presentations/events, i.e. ensuring information doesn’t get ‘stuck’ in reports and theses.</p> <ul style="list-style-type: none"> <li>• Need for more regular communication updates that alert project participants to new reports, etc. and provides links to them.</li> </ul>	<p>reports, catchment meetings, knowledge mediation events, etc.</p> <ul style="list-style-type: none"> <li>• Catchment Coordinator and LIMA to support CLOs in improving communication and feedback with and within the catchment about the TP, especially to support our community researchers/monitors to shared feedback with catchment residents.</li> <li>• CLOs need to become key players in KMM and communication.</li> </ul>
<p><b>3. Our greater presence in the catchment is significantly expanding the collective TP identity.</b> The past year saw the TP extending its engagements in the catchment, beyond research and introductory work. Key activities which have supported this include: the appointment of a full-time Catchment Coordinator, catchment based facilitators (LIMA), CLOs and monitors from among the residents; the hosting of workshops to build general understanding of the TP’s work, and more specific training of monitors; and the expanding praxis-oriented work on livelihoods, integrated planning, governance, and capacity development work.</p>	<ul style="list-style-type: none"> <li>• It is important to recognize the value of an expanding, collective TP identity and feeling of belonging: we need to support this through continued focus on building relationships, social and team-building events, team travel to regional/national events to represent TP, branded t-shirts, etc.</li> <li>• We must not be complacent: we still need to find a way to deepen our presence in the catchment, and have a bigger on-site team. Engagement and co-creation with DEFF managers and implementers is a challenge that we still need to address.</li> <li>• Cross-CoP collaboration is at the core of the praxis-oriented work.</li> </ul>	<ul style="list-style-type: none"> <li>• Engaging in local planning processes, especially through a climate change lens, offers a key opportunity to deepen our engagement and impact in the catchment.</li> <li>• Revising the proto-vision with the growing network of partners could be a useful activity to continue building the collective identity.</li> <li>• The praxis-oriented work should be supported, e.g. through sufficient resourcing.</li> <li>• Investing in events to showcase the TP, as well as branding, is important to building collective identity and pride.</li> </ul>	<ul style="list-style-type: none"> <li>• The Catchment Coordinator, Project Coordinator, LIMA, Gov CoP and others need to keep working to build meaningful working relationships with the catchment-based stakeholders including DEFF, implementers, municipalities and traditional authorities.</li> <li>• The Project Coordinator should look into accessing resources for t-shirts and other branding for the TP network, especially for community researchers.</li> <li>• DEFF and the TP implementers need to engage as actively as possible in TP events and processes, and help to bring in other partners, e.g. at the B-team level.</li> <li>• Researchers and others in CoPs should seek additional funding to attend events to continue building team identity and showcasing the TP’s work.</li> </ul>
<p><b>4. We are learning to do “PRAXIS” together, i.e. we are conducting</b></p>	<ul style="list-style-type: none"> <li>• Doing praxis-oriented work is key for building collaboration and supporting integration across the</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying action-oriented praxis projects that link across CoPs and TP</li> </ul>	<ul style="list-style-type: none"> <li>• KL CoP to help strengthen links to DEFF and Implementers through</li> </ul>

<p><b>action-oriented, engaged research that involves a range of partners</b> We are making strides in diverse aspects of PRAXIS, including, amongst other activities of citizens, practitioners and scientists working together: with citizen engaged science, the uptake of integrated management and planning, research into the benefits of environmental monitors, a conference presentation by a catchment resident, a participatory process of indicator development, and the provincial DEFF asking the TP to give guidance on PMERL to its staff, livelihoods and enterprise development, climate change workshops and engagements, and engaged research on women’s capabilities.</p>	<p>various project partners, but it also comes with high transaction costs.</p> <ul style="list-style-type: none"> <li>• Still need to work more closely and directly with DEFF and implementers in the catchment to deepen our praxis.</li> <li>• As we build our ‘praxis muscles’ we should keep the principles of TP front and centre, and share them actively with others e.g. CLOs, LIMA, etc.)</li> <li>• We need to focus on exploring diverse livelihoods strategies and opportunities related to climate change adaptation – this will likely need new partnerships.</li> <li>• We need to support community researchers to conduct praxis-oriented action research as part of their capacity development courses.</li> <li>• We need to conduct more action research with traditional leaders on local and indigenous knowledge to build praxis in this space.</li> </ul>	<p>partners should remain a key priority for all CoPs.</p> <ul style="list-style-type: none"> <li>• The PMERL ‘dove-tailing’ work will be key to deepen praxis with DEFF and implementers around monitoring and PMERL.</li> <li>• We need to continue to work closely according to the TP principles.</li> <li>• We need to find partners to support our work, especially on livelihoods and climate change adaptation.</li> <li>• Consider doing research and learning-exchanges that focus on traditional leaders in the catchment e.g. with a well-known chief who works with DEFF in Limpopo; and also listen to and gather stories about the changes they have seen in the landscape.</li> </ul>	<p>PMERL dove-tailing/inter-leaving work.</p> <ul style="list-style-type: none"> <li>• Livelihoods CoP to help coordinate this widening focus for livelihoods and climate change adaptation praxis, and identify key partners to bring in for this work.</li> <li>• LIMA, Catchment Coordinator and CLOs to identify opportunities for action-oriented praxis projects based on the needs and interests of residents.</li> <li>• Catchment Coordinator to find ways to share the TP principles with LIMA, community researchers, etc.</li> <li>• KL CoP to consider using Masters bursary currently being advertised to conduct praxis-oriented research with traditional leaders and elders to collect their stories of change to inform integrated planning, etc. (reach out to Anthro and History for possible co-supervision.)</li> </ul>
<p><b>5. Slow and careful relationship building is vital:</b> The above learning and outcomes have all been made possible by a lengthy preparatory period involving slow and careful relationship building, as well as the appointment of a full-time Catchment Coordinator and Project Coordinator. Evidence for this includes growing trust in the Catchment Coordinator: e.g. local residents are approaching the CC to help with communication with implementers/DEFF, and to get</p>	<ul style="list-style-type: none"> <li>• We need to get a better understanding of the stakeholder relationships and growing network.</li> <li>• We need to build our understanding of the importance of relationality and how this operates at different scales, and across scales.</li> <li>• We need to hold onto the slow and careful approach and share this with LIMA too.</li> <li>• We need to continue supporting the important relationship-building work done by the Catchment Coordinator,</li> </ul>	<ul style="list-style-type: none"> <li>• Need to have an up to date stakeholder analysis network diagram that can be included in the Meta-reflection and updated in an on-going manner.</li> <li>• Sufficient resources need to be put in place to support relationship-building, which is often difficult to value in the deliverology model. A Meta-Reflection workshop participant pointed out: “Working with partners takes</li> </ul>	<ul style="list-style-type: none"> <li>• KL CoP and GoV CoP to work together to develop a stakeholder analysis tool. This could potentially be a task for the new KL CoP support officer.</li> <li>• The Catchment Coordinator needs to keep her eye on relationship-building and management as a key task: this means working closely and carefully with LIMA, and also managing possible concerns around managing stakeholder expectations and research fatigue.</li> </ul>

<p>NRM implementation going in their areas.</p>	<p>Project Coordinator, LIMA, and CLOs.</p>	<p>a lot of time and needs budget.”</p>	<ul style="list-style-type: none"> <li>• Researchers (e.g. in KL CoP and GoV CoP) to continue research no relationality.</li> </ul>
<p><b>6. The Tsitsa Project’s profile is growing:</b> The TP has gained a considerable profile nationally and even internationally, and these events have had multiple positive impacts on the project e.g. building collective identity, encouraging youth leadership, etc. It remains an exhilarating challenge to give practical expression to the ambitious ideas the TP aims to implement.</p>	<ul style="list-style-type: none"> <li>• Profiling the TP at regional, national, and international levels offers important opportunities for youth leadership, for building a collective identity, and learning from and with others.</li> <li>• Sense of belonging grows with our engagement beyond the TP: this is a key element of building this organization which needs to be maintained.</li> <li>• On-going communication and advocacy work is needed to continue building the TP’s profile.</li> </ul>	<ul style="list-style-type: none"> <li>• In the absence of much funding for such events within the TP, it will be up to individual researchers and CoPs to leverage external funding to continue with this profile-building work and learning exchanges regionally, nationally, and internationally.</li> <li>• Re-visit Communications and Advocacy Strategy and identify action points.</li> </ul>	<ul style="list-style-type: none"> <li>• Project Coordinator and All CoPs to look out for co-funding opportunities to support continued engagement and profiling of TP at regional, national, and international events.</li> <li>• Catchment Coordinator and LIMA to look out for opportunities for community researchers (CLOs, etc.) to also participate in such events.</li> <li>• Project Coordinator and Catchment Coordinator, along with new KL CoP Support Officer, to continue working on communication and advocacy.</li> </ul>
<p><b>7. Youth leadership is growing in the TP:</b> A large number of young women and men have joined the TP as staff, Masters and PhD students, Post-Docs, and community researchers in the catchment, and they are stepping into leadership positions in the project. The TP is seeing an important growth in youth leadership in the catchment through community researchers including CLOs, citizen monitors, etc.</p>	<ul style="list-style-type: none"> <li>• We have noted the need to support the youth formally to integrate with existing TP members (especially their seniors) and also to allow their fresh perspectives to guide us, at the same time adequately preparing everyone who will be working in an unfamiliar transdisciplinary space.</li> <li>• Community researcher (or monitor) projects that have come out of the CapDev courses show promise and should be supported for CapDev, leadership, and monitoring purposes.</li> <li>• A focus on youth development opportunities in schools in the catchment would also help to expand the TP’s work e.g. to provide career development opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>• We need to continue to provide capacity development opportunities on leadership – formally and informally – for the emerging youth leaders across the various levels and CoPs of the project. i.e. the youth should be enabled and supported in taking leadership in all entities and at all levels of the project.</li> <li>• A careful support system for the community researchers/monitors needs to be put in place to make the most of their research projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity development coordinator to pay particular attention to leadership development as an aspect of training – both formally and informally.</li> <li>• Catchment Coordinator, LIMA, Capacity Development Coordinator and CoPs managing community researchers need to work together to develop support systems for them, esp. for their research projects.</li> <li>• Project Coordinator to ensure that sufficient budget is allocated to Capacity Development initiatives.</li> <li>• The Catchment Coordinator and LIMA should investigate opportunities to partners with schools and other local organisations on youth, especially for career development (already underway).</li> </ul>

**8. We need to work above and beyond deliverables, while managing operations, budgets and planning ahead collectively:**

It remains a challenge to operationally conceive of the TP as one programme and to work programmatically, when the budget is sliced up according to deliverables. The TP needs to find a way to work above and beyond deliverables in order to optimise the value of such a big undertaking. The support of Rhodes University in providing a financial buffer and easing the deliverable burden/pressure is significant and needs to be acknowledged – it is unusual for a university to do this.

- For now it is unlikely that the ‘deliverables’ system will change: we need to work towards ‘requisite simplicity’ by working towards a smaller number of deliverables which nonetheless reflect the ambitious and complex nature of the project. Deliverables can and should be fashioned to demonstrate actual work progress.
- The project should acknowledge RU being a key role player, and the RU ‘finance buffer’ needs to be carefully managed from an operational perspective.
- Keep planning horizons at different scales in mind for planning, fund-raising, etc.
- We need to bring LIMA, DEFF, implementers and other partners more directly into our planning and budgeting processes. We also need to take a wider view of ‘the TP budget’, recognizing that this includes the budgets of partner universities, DEFF, LIMA, etc.
- Adjustments have been made to the deliverables schedule, including building in more time for cross-CoP activities and integration.
- CoP Coordinators need to be supported to understand how the deliverables and budgeting process works. e.g. by providing training.
- TP to write letter to acknowledge RU.
- Relationship with RU to be managed carefully.
- We need to plan at various scales: this year, next 3-year cycle (prepare for the bid for this) and long-term e.g. alternative funding sources related to global priorities like the UN Decade on Restoration.
- The Project Coordinator has played a leading role in responding to the deliverables concerns and a new approach is being taken in 2020-21: a shorter list of DEFF deliverables, which are bundles of internal ‘management deliverables. Also, many deliverables come out of collaborative and integration processes/activities.
- PMERL should help to track whether this new approach helps to ease the pressures experienced around ‘deliverology’.
- Project Coordinator to draft a Thank You letter to RU and get DEFF to sign it.
- Project Coordinator (maybe in partnership with RU finance?) to offer (informal) training on project management, deliverables, and budgets.
- Project Coordinator, All CoPs, LIMA, DEFF and other partners to keep in mind the various planning horizons and keep an eye out for funding opportunities.

**P.T.O. For Part 2:  
Key Recommendations**

<b>WHAT? (Lessons and Recommendations)</b>	<b>SO WHAT?¹ Implications: what this means for how we do things</b>	<b>NOW WHAT?¹ Adaptation and action needed to take this forward</b>	<b>WHO?¹ Recommended actors/groups to take this forward</b>
<b>PART 2: Key recommendations for praxis</b>			
<p><b>1. Improve organizational collaboration and stakeholder engagement across various entities in the project including within and across CoPs, with partners in the catchment and beyond, and with other universities.</b>  <i>= 'Integration Challenge 1':            Integration and collaboration across the wide range of entities, organisations and stakeholders involved in the TP.            Integration and collaboration across the entities is about relationality and a sense of belonging and we need to pay attention to this in our practices e.g. branding and t-shirts for stakeholders, reports that show more connectedness across CoPs, etc. As one M-R workshop participant commented: "Real integration takes time, lots of time and budget and trust".</i></p>	<ul style="list-style-type: none"> <li>• We need to keep finding ways to work more collaboratively and in an integrated manner across university units and disciplines, with knowledge holders in the catchment, with various municipal offices, and with partner organisations outside the university, in and beyond the catchment.</li> <li>• Effective communication within and across the various entities and partners of the TP is critical for effective collaboration and integration.</li> <li>• Climate change holds great potential as an integrator across the project, and is likely to be a particularly powerful leverage for engaging with municipalities.</li> <li>• Need to work on breaking down 'CoP Silos' in our reporting e.g. look at colour-coding of report templates.</li> <li>• PMERL plays a key role in supporting integration and collaboration, and the resource needs of this 'central nervous system' function need to be better understood to allow future-planning.</li> <li>• Part of improving integration is to understand the connections</li> </ul>	<ul style="list-style-type: none"> <li>• Carefully plan location and design of events to increase possibilities for participation by non-RU TP partners – also look into remote options like Zoom.</li> <li>• Our outputs are branded according to CoP templates: we should design templates to be more integrateble</li> <li>• On-going Systems Thinking training and/or refreshers are important to build systems capacities needed for collaboration and integration.</li> <li>• One of the biggest challenges is to track over time how teams have changed and are working towards being one team as opposed to many teams. Can PMERL find ways of monitoring the improved relationships, collaboration, integration?</li> </ul>	<ul style="list-style-type: none"> <li>• All event organisers must take responsibility to finding ways to bring in a wider range of TP stakeholders; Project Coordinator to support this across the project.</li> <li>• KL CoP and Catchment Coordinator to support new KL Support Officer with communication tasks: should focus on improving communication e.g. weekly updates, manage the website, package key findings from research and management for local catchment audiences, etc.</li> <li>• CoPs to actively widen their membership/participation and possibly recruit additional members from a wider range of partner organisations, including other universities who are involved in the work of their CoP.</li> <li>• KL CoP to think about branding of report templates to allow more cross-CoP reporting and integration.</li> <li>• PMERL to look into ways of monitoring improved relationships, collaboration, integration.</li> <li>• PMERL &amp; Gov CoP to work together to investigate the intellectual linkages between SAM &amp; PMERL (with advisory input from Harry).</li> </ul>

	<p>between SAM and PMERL and ensure that the PMERL system drives the SAM process in the TP.</p> <ul style="list-style-type: none"> <li>Working together and integrating may require slowing down and taking time to develop a systemic understanding of the system.</li> </ul>		<ul style="list-style-type: none"> <li>Systems CoP to continue working with CoPs and other TP partners to build capacity for systems thinking, collaboration and integration.</li> </ul>
<p><b>2. Improve integration of work of the RU TP team and LIMA with DEFF, implementers, traditional authorities and catchment residents through <i>integrated planning and participatory monitoring</i></b></p> <p>= 'Integration Challenge 2': <i>Integration of work and activities of catchment-based partners.</i></p> <p>The key challenges is expanding more actively beyond the RU TP group, and involving a wider range of TP partners in the catchment and in other universities in activities like Meta-Reflection, etc.</p>	<ul style="list-style-type: none"> <li>PMERL needs to expand to include this wider range of catchment partners, which means dovetailing more directly with DEFF, implementers, traditional authorities, and local government.</li> <li>Managing stakeholder/community expectations, along with research fatigue, remains a key challenge in the work of the project.</li> <li>We need to develop a long-term, participatory monitoring system to operationalise PMERL (see point 5 below).</li> <li>This may require employment of additional 'knowledge brokers' or 'coordinators' in the project whose core task is to work across the domains of the project. The most obvious next place for such an appointment is in the integrated planning domain, linked to PMERL.</li> <li>On-going redefinition of TP boundary, periphery and partnerships is important.</li> </ul>	<ul style="list-style-type: none"> <li>Need to continue prioritizing and resourcing the engagement with various partners beyond RU, especially through integrated planning and PMERL (B-team is a key opportunity).</li> <li>We need to look at how the monitoring system (point 5 below) interfaces with the integrated planning process.</li> <li>We need to look into new funding and new partnerships to help resource the additional 'knowledge brokers/coordinators' needed.</li> </ul>	<ul style="list-style-type: none"> <li>Catchment Coordinator, LIMA and CLOs need to continue the work of engaging and building relationships with DEFF, implementers and municipalities.</li> <li>DEFF and implementers need to engage actively with TP events and processes, and to keep on working to engage other stakeholders in TP work, e.g. through the B-team.</li> <li>Gov CoP needs to support this process and continue researching it to build an evidence base of good practice for stakeholder engagement and participation.</li> <li>Catchment Coordinator, LIMA, and all CoPs need to take responsibility for monitoring and managing community expectations and research/stakeholder fatigue.</li> <li>PMERL need to conduct dovetailing/interleaving work to investigate how PMERL can interface with DEFF &amp; implementers M&amp;E and reporting systems.</li> <li>PMERL and S&amp;R CoP need to work together to see how the monitoring system fits in with integrated planning.</li> <li>New KL Support Officer could work with Gov CoP to develop a live</li> </ul>



<p><b>3. Conduct synthesis of research outputs, data and other forms of knowledge and information. This should be geared towards a 'HOW-TO' for the Tsitsa Project as an enhancement of the integrated restorations plan for the nodes.</b> = 'Integration Challenge 3': <i>Integration and synthesis of knowledge across various forms of data and research outputs.</i> The time is ripe to conduct a review of the findings of the various studies (past and present) and monitoring initiatives that are already underway, and look for patterns within and across domains, so as to inform further monitoring, research choices and where appropriate, recommendations to the restoration teams. i.e. we need to build on and draw on our existing knowledge. Such a study should also include a 'HOW-TO'/Toolbox based on careful reflections on the learning within the project, and identify the lessons learnt from some of the more challenging relational and process-related aspects of the projects related to collaboration, integration, and adaptive management as these are unfolding within current institutional constraints.</p>	<ul style="list-style-type: none"> <li>• A synthesis of the "state of knowledge" about our social-ecological system based on current and historic studies would be very useful.</li> <li>• Synthesis of data and research outputs across various research and monitoring activities is needed.</li> <li>• This synthesis should also contribute to/underpin the 'HOW-TO' aspects of the "enhanced integrated rehabilitation plans" which the TP is developing in 2020-2021 to help outline what "the ideal Tsitsa Project" would look from from a practical implementation perspective.</li> <li>• Meta-Reflection reports are a good medium to review and share and synthesise research and monitoring outputs.</li> <li>• We also have to find ways to ensure that we look outside our network and outside our catchment, glean the wisdom and the knowledge constantly from other sources. Currently we are not synthesising research and key global innovations on core domains (e.g. grazing and fire, restoration theory and practice, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Putting in place financial and human resources for knowledge management and mediation is a critical foundation to support data, research and knowledge synthesis.</li> <li>• Appointing a Postdoctoral Fellow to conduct a synthesis of our existing research would be a valuable use of resources to address this issue.</li> <li>• Researchers and students who are engaging with the global literature in their research should be tasked with pulling out key insights from the literature relevant to the TP e.g. students in progress reports, etc. PMERL could then draw these together as part of meta-analysis/reflection: <i>"Implications of the global on topic X for the TP"</i>.</li> </ul>	<p>stakeholder database and network visualisation.</p> <ul style="list-style-type: none"> <li>• Various CoPs who manage the monitors/community researchers to provide them support, together with the CapDev coordinator, on their research projects.</li> <li>• Project Coordinator and cross-cutting CoPs (KL CoP, Systems CoP) to look out for funding opportunities to develop this synthesis work, and possibly to fundraise to employ a postdoc.</li> <li>• PMERL should continue with high-level synthesis work, but also explore ways in which more detailed synthesis within different domains can be supported.</li> <li>• Adela's PhD should give some insight into the data synthesis issues.</li> </ul>
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<p><b>4. Continue building the collaborative, praxis-oriented work to explore livelihood options and climate change adaptation.</b></p> <p>The collaborative, praxis-oriented work on exploring and experimenting with livelihood options is a key success of the project and should be supported going forward. The advice of the Wisdom Trust to identify a wider range of development options for the catchment and facilitate access to those, even if through partnering with new partners, should be taken up. Together with this, a more thorough understanding of the multiple ways in which the landscape, livestock and natural resources are valued by catchment residents as livelihood assets is needed.</p>	<ul style="list-style-type: none"> <li>• A wider range of livelihood strategies and alternatives, not limited to NRM-related options, needs to be investigated.</li> <li>• Research and advice on resource economics will be a key aspect of developing the livelihoods work further.</li> <li>• Stronger links between livelihoods and livestock work in the TP are needed.</li> <li>• Linking the climate change adaptation work more directly into the livelihoods work will help to embed the CCA work more directly into the TP.</li> <li>• Establishing the nurseries and SMMEs in 2019-20 required significant support, and future planning needs to take into account the resourcing required to set up such formal institutions to support innovative green-preneurs / livelihoods strategies.</li> </ul>	<ul style="list-style-type: none"> <li>• Expand the Livelihoods CoP through partnerships and linking with other researchers and organisations working in this space – no need to reinvent the wheel.</li> <li>• Livelihood opportunities related to livestock need to be explored and incorporated: requires improved links between Grass &amp; Fire and Livelihoods CoPs, and linking with others researchers and partners at the livestock-livelihoods interface.</li> <li>• Need to link Livelihoods and Climate Change work. e.g. through Ecosystem-based Adaptation opportunities with partners.</li> <li>• Selection of vetiver as the grass for nurseries needs further investigation (see Ngwenya 2016).</li> </ul>	<ul style="list-style-type: none"> <li>• Project Coordinator and advisors to bring in resource economics expertise to advise on this work e.g. James Blignaut.</li> <li>• LIMA should actively engage in livelihoods and livestock work and help with the implementation and partnership-building aspects of this work.</li> <li>• Livelihoods CoP to look to expand its membership with new partnerships to allow for more diverse inputs.</li> <li>• Project Coordinator and Livelihoods CoP to consider directly incorporating CCA work into the Livelihoods CoP.</li> <li>• Grass and Fire and Livelihoods CoP develop a plan to work together on livestock-related livelihoods opportunities, and look for partners for this work.</li> </ul>
<p><b>5. Further operationalize PMERL, with a particular focus on developing a monitoring system and building capacity.</b></p> <p>Putting in place long-term monitoring system that helps us to track social, ecological and social-ecological change and impacts in the landscape needs to be prioritised. This needs to be modelled as far as possible on the citizen-based</p>	<ul style="list-style-type: none"> <li>• We need to outline and detail a long-term monitoring system for the TP which includes information on objectives, targets, indicators, responsible parties, resourcing, etc. to support implementation of the integrated restoration plans.</li> <li>• We need to link monitoring and meta-reflection (PMERL) to targets (objectives hierarchy), and integrate indicator and monitoring data back</li> </ul>	<ul style="list-style-type: none"> <li>• Community researchers/monitors need to be effectively trained and supported to play a key role in the monitoring system, and indicator development should be aligned directly to their work.</li> <li>• All RU TP team members need to recognize that they are part of PMERL and the</li> </ul>	<ul style="list-style-type: none"> <li>• The Catchment Coordinator, LIMA and the Capacity development Coordinator, together with the CoPs managing the monitors, need to play a key role in developing the work of the monitors within the monitoring system and PMERL.</li> <li>• Project Coordinator to continue budgeting for inputs into monitoring from across the project, i.e. within</li> </ul>

<p>monitoring activities already emerging in the project in order to not only share the benefits of the project, but to empower citizens to become 'community researchers' and engage with the landscape. This system should help to link existing PMERL work more directly with the 'people on the ground' and the wider TP stakeholder network, i.e. beyond the RU TP group.</p>	<p>to our various guiding frameworks: objectives hierarchy, theory of change, and other frameworks.</p> <ul style="list-style-type: none"> <li>• Community researchers / monitors need to play a central role in the monitoring system.</li> <li>• Keep working on ways to get community researchers involved in monitoring, possibly linking this to their change/action projects for their assignments.</li> <li>• On-going monitoring in the long-term will need to be suitably resourced.</li> <li>• Need to look into social indicators: monitoring by community researchers/monitors should align with existing protocols – but also look at integrating work on women's capabilities index.</li> <li>• The climate change work should also be linked into the monitoring system more directly: need to develop CC indicators, and use monitoring system to report on CC aspects.</li> </ul>	<p>monitoring system: all their work is feeding into this.</p> <ul style="list-style-type: none"> <li>• We need to investigate funding sources for on-going monitoring.</li> <li>• Current and new monitoring needs to be aligned with indicator protocols.</li> <li>• There is a need for indicators to monitor systemic learning, integration, and collaboration across the project.</li> <li>• One idea for tracking progress would be a kind of 'visual dashboard' of key indicators e.g. Agency – within the node – improvement from 1 star to 3 star; outside the node – no stars?</li> </ul>	<p>CoPs and across the project as a whole.</p> <ul style="list-style-type: none"> <li>• Project Coordinator, with support from CoPs (esp. PMERL), and together with DEFF, to investigate funding sources for long-term monitoring.</li> <li>• PMERL to keep updating indicator protocols taking various issues raised here into consideration; support on-going use of these to inform monitoring.</li> <li>• PMERL to work on dovetailing/interleaving with DEFF and Implementer's M&amp;E and reporting systems.</li> <li>• PMERL and Systems CoP to work together to develop indicators to monitor systemic learning, integration, and collaboration across the project (Adela could possibly contribute through her PhD).</li> </ul>
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<sup>1</sup>Note that this table is a work-in-progress tool drafted by the PMERL team as an offering to support SAM in the TP. The implications, adaptations and actions, and responsible parties are currently *suggestions* and need significant deliberation and refinement by the TP team as part of an adaptive planning process (APP).

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## 8. APPENDIX A: CONFERENCE PRESENTATIONS BY TSITSA PROJECT PARTICIPANTS IN 2019-2020

Bannatyne, L.J., Foster, I.D.L., Meiklejohn, K.I., van der Waal, B.J. & Rowntree, K.M. (2019). Determining sub-catchment contributions to the suspended sediment load of the Tsitsa River, Eastern Cape. South African Association of Geomorphologists Conference, 15-18 September 2019.

Biggs, H. & Pollard, S. (2019). Bringing research and catchment restoration planning and management into conversation with rural development. 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

Biggs, H., Pollard, S & Graf J. (2019). Developing a holistic thread on the restoration of land, water and society: a synthesis and experience from related group of initiatives in South Africa. 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

Clifford-Holmes, J & Bester, R. (2019). Building systemic praxis towards integrating sustainable livelihoods with ecosystem restoration in a South African ecological infrastructure flagship project. 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

Cockburn, J. & Rosenberg, E. (2019). A relational understanding of social-ecological restoration: new perspectives for restoration research, policy and practice. 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

Cockburn, J, Biggs, H. & Graf, J. (2019). Shifting the role of science in community-based landscape restoration: from science FOR to science WITH society. Symposium hosted at the 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

Graf, J., Biggs, H. & Cockburn, J. (2019). Towards a praxis of systems thinking, learning, and collective action for resilient and equitable restoration: synthesis and examples from two southern African catchments. Symposium hosted at the 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

Huchzermeyer, N., Van der Waal, B., Schlegel, P., Braack, M., Lunderstedt, K. & Mtati, N. (2019). Avoiding further degradation by supporting locally important functional ecological infrastructure for improved land-based livelihoods. South African Association of Geomorphologists Conference, 15-18 September 2019.

Human, H. (2019). Reflection and Well-being teas as a method for researching Education for Sustainable Development. 37th Annual Conference for the Environmental Education Association of Southern Africa, Johannesburg, 6-10 October 2019.

Human, H. (2019). Reflecting beneficiaries' voices through the development of social indicators for monitoring change. 37th Annual Conference for the Environmental Education Association of Southern Africa, Johannesburg, 6-10 October 2019.

Human, H., Pereira, T. & Burt, J. (2019). Making the case for M&E that reduces stress and uncertainty and increases commitment and creativity. 7th Biennial SAMEA Conference, Johannesburg, 21-25 October 2019.

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Palmer, T., Libala, N., Wolff, M., Ralekhetla, M., Mtati, N., Weaver, M., Copteros, A., Fry, A., Mngandi, T., Mti, N., Mtintsilana, Z. (2019). Engaging society and building polycentric governance for adaptive land & water management: Insights from a science-led restoration programme. 22nd International River Symposium, Brisbane, Australia. 20-24 October 2019.

Rosenberg, E. & Ward, M. (2019). Learning from evaluation: Climate change as a complex issue requiring comprehensive, realist evaluations to distil implementation lessons and build theory. 7th Biennial SAMEA Conference, Johannesburg, 21-25 October 2019.

Rosenberg, E. 2019. The skills we need for M&E: A deep dive. 7th Biennial SAMEA Conference, Johannesburg, 21-25 October 2019.

Rowntree, K. & Conde Aller, L. (2019). Supporting Green-Preneurs for Landscape Conservation. Symposium hosted at the the 8th World Conference on Ecological Restoration, Cape Town, 24-28 September 2019.

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